CHILDREN

Fifteenth Edition

JOHN W. SANTROCK
University of Texas at Dallas

JENNIFER E. LANSFORD
Duke University

KIRBY DEATER-DECKARD
University of Massachusetts Amherst

Mc Graw Hill

CHILDREN, FIFTEENTH EDITION

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Dedication

With special appreciation to my grandchildren: Jordan, Alex, and Luke.

—John W. Santrock

I gratefully acknowledge my parents, David and Maxine Kuehn, my husband, Chris Lansford, and our children, Katherine and Nick, who have guided my development and given me insights into theirs.

—Jennifer E. Lansford

I am dedicating this edition to all of the wonderful "kids" in my family who continue to teach me about human development–my daughters Anna and Elly, eleven nieces and nephews, and two great-nieces.

—Kirby Deater-Deckard

brief contents

McGraw Hill Education Psychology APA Documentation Style Guide

contents

SECTION 4 EARLY CHILDHOOD 218


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SECTION 5 MIDDLE AND LATE CHILDHOOD 313


FatCamera/E+/Getty Images

SECTION 6 ADOLESCENCE 416


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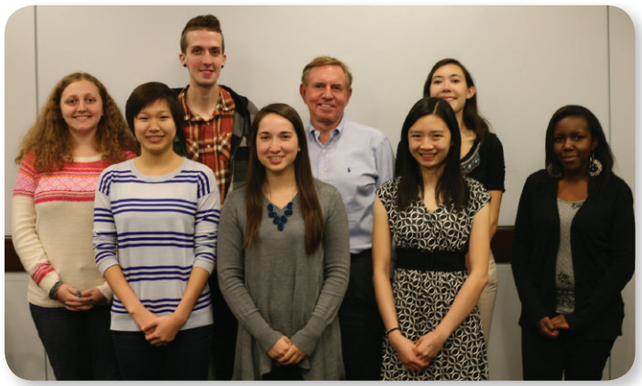
CHAPTER 14
Physical Development in Adolescence 417

CHAPTER 15
Cognitive Development in Adolescence 449

about the authors

John W. Santrock



John Santrock (back row middle) with recipients of the Santrock Travel Scholarship Award in developmental psychology. Created by Dr. Santrock, this annual award gives undergraduate students the opportunity to attend professional meetings. Some of the students shown here attended the meeting of the Society for Research in Child Development.

Courtesy of Jessica Serna

John Santrock received his Ph.D. from the University of Minnesota. He taught at the University of Charleston and the University of Georgia before joining the Program in Psychology at the University of Texas at Dallas, where he currently teaches a number of undergraduate courses and has received the University's Effective Teaching Award. In 2010, he created the UT–Dallas Santrock undergraduate travel scholarship, an annual award that is given to outstanding undergraduate students majoring in developmental psychology to enable them to attend research conventions. In 2019, he created an endowment that will provide the travel awards for students at UT–Dallas for decades to come. Additionally, Dr. Santrock and his wife, Mary Jo, created a permanent endowment that will provide academic scholarships for six to ten undergraduate psychology students per year, with preference given to those majoring in developmental psychology.

Dr. Santrock has been a member of the editorial boards of *Child Development* and *Developmental Psychology*. His research on father custody is widely cited and used in expert witness testimony to promote flexibility and alternative considerations in custody disputes. He also has authored these exceptional McGraw Hill texts: *Life-Span Development* (18th edition), *Adolescence* (17th edition), *A Topical Approach to Life-Span Development* (10th edition), and *Educational Psychology* (6th edition).

For many years, Dr. Santrock was involved in tennis as a player, teaching professional, and coach of professional tennis players. As an undergraduate, he was a member of the University of Miami (FL) tennis team that still holds the record for most consecutive wins (137) in any NCAA Division I sport. He has been married for four decades to his wife, Mary Jo, who created and directed the first middle school program for children with learning disabilities and behavioral disorders in the Clarke County Schools in Athens, Georgia. More recently, she has worked as a Realtor. He has two daughters—Tracy and Jennifer—both of whom are Realtors after long careers in technology marketing and medical sales, respectively. Jennifer was inducted into the SMU sports hall of fame, only the fifth female to receive this award. He has one granddaughter, Jordan, who works for Ernst & Young, and two grandsons: Alex, age 15, and Luke, age 13. In the last two decades, Dr. Santrock has spent time painting divisionist and expressionist art.

Courtesy of Erika Hanzely-Layko

Jennifer E. Lansford

Jennifer E. Lansford is a Research Professor at the Sanford School of Public Policy and Faculty Fellow of the Center for Child and Family Policy at Duke University. She earned her Ph.D. in Developmental Psychology from the University of Michigan in 2000. Dr. Lansford has authored more than 200 publications that focus on the development of aggression and other behavior problems during childhood and adolescence, with particular attention to how parent, peer, and cultural factors contribute to or protect against these problems. Dr. Lansford leads the Parenting Across Cultures Project, a longitudinal study of mothers, fathers, and children from nine countries (China, Colombia, Italy, Jordan, Kenya, Philippines, Sweden, Thailand, and the United States). In addition, Dr. Lansford has consulted for UNICEF on the evaluation of parenting programs in several low- and middle-income countries and on the development of a set of international standards for parenting programs. She serves in editorial roles on several academic journals and has served in a number of national and international leadership roles, including chairing the U.S. National Institutes of Health Psychosocial Development, Risk and Prevention Study Section; chairing the U.S. National Committee for Psychological Science of the National Academies of Sciences, Engineering, and Medicine; chairing the Society for Research in Child Development International Affairs Committee; and serving on the Secretariat of the International Consortium for Developmental Science Societies. Dr. Lansford's husband, Chris, is a surgeon who specializes in head and neck cancer. They have two children: Katherine, age 17, and Nick, age 14.

Courtesy of Michael McDermott

Kirby Deater-Deckard

Kirby Deater-Deckard is a Professor in the Department of Psychological and Brain Sciences at the University of Massachusetts Amherst, where he serves as a graduate program leader in developmental science, and neuroscience and behavior. He also is a Fellow of the Association for Psychological Science and director of the Healthy Development Initiative in Springfield, Massachusetts. He earned his Ph.D. in Developmental Psychology from the University of Virginia in 1994. Dr. Deater-Deckard has authored more than 200 publications that focus on the biological and environmental influences in the development of individual differences in social-emotional and cognitive outcomes in childhood and adolescence. The emphasis of his recent work is on parenting and intergenerational transmission of self-regulation (e.g., executive function, emotion regulation) that uses behavioral, cognitive neuroscience, and genetic research methods. He is principal or co-investigator on several longitudinal studies funded by the National Institutes of Health and the US-Israel Binational Science Foundation. Dr. Deater-Deckard serves as a consulting investigator on several longitudinal research project teams around the globe and is a scientific review panelist for the Institute of Education Sciences (U.S. Department of Education). He is co-editor of the book series, *Frontiers in Developmental Science* (Taylor & Francis), and serves on editorial boards for journals in developmental and family sciences. Dr. Deater-Deckard's wife, Keirsten, is a community volunteer, and they have two daughters, Anna, age 23, and Elly, age 16.

expert consultants

Children's development has become an enormous, complex field, and no single author, or even several authors, can possibly keep up with all of the rapidly changing content in the many periods and different areas of life-span development. To solve this problem, the authors have sought the input of leading experts about content in a number of areas of children's development. These experts have provided detailed evaluations and recommendations in their area(s) of expertise.

The following individuals were among those who served as expert consultants for one or more of the previous editions of this text:

Karen Adolph, *New York University*
John Bates, *Indiana University*
Diana Baumrind, *University of California-Berkeley*
Maureen Black, *University of Maryland*
Urie Bronfenbrenner, *Cornell University*
Rosalind Charlesworth, *Weber State University*
Florence Denmark, *Pace University*
Janet DiPietro, *Johns Hopkins University*
Tiffany Field, *University of Miami*
Elizabeth Gershoff, *University of Texas*
Sandra Graham, *University of California-Los Angeles*
Joan Grusec, *University of Toronto*
Algea Harrison-Hale, *Oakland University*
Marilou Hyson, *University of Pennsylvania*
Campbell Leaper, *University of California-Santa Cruz*
Esther Leerkes, *University of North Carolina-Greensboro*
James Marcia, *Simon Fraser University*
Megan McClelland, *Oregon State University*
David Moore, *Pitzer College and Claremont Graduate University*
Nel Noddings, *Stanford University*
Barbara Pan, *Harvard University*
David Sadker, *The American University-Washington DC*
Peter Scales, *Search Institute*
Susan Spieker, *University of Washington*
Ross Thompson, *University of California-Davis*
Allan Wigfield, *University of Maryland-College Park*

Following are the expert consultants for the fifteenth edition, who (like those of previous editions) represent a *Who's Who* in the field of child and adolescent development.


Courtesy of Virginia Tech

Martha Ann Bell Dr. Bell is one of the world's leading experts on infants' and young children's cognitive development and socioemotional development. She obtained her Ph.D. from the University of Maryland and currently is Professor and College of Science Faculty Fellow at Virginia Tech University. Her research focuses on cognitive, emotional, and psychophysical processes associated with frontal lobe development in infants and children, with an emphasis on executive function, emotion regulation, and temperament. Her research is funded by the National Institutes of Health, and the research is published in leading developmental psychology journals such as *Child Development* and *Developmental Science*. Dr. Bell is an elected member of the Executive Board of the American Psychological Association (developmental division). She has been the Chief Editor of the journal *Infancy*, became an elected member of the Executive Board of the International Society for Developmental Psychobiology, and was the recent chair of the *Cognition and Emotion* grant review panel at NIH. Dr. Bell is a fellow of the American Psychological Association (developmental and experimental/cognitive divisions) and of the Association for Psychological Science, as well as a recent recipient of the Senior Investigator Award from the Society for Developmental Psychobiology.


Courtesy of Jim Hoste

Mary Gauvain Mary Gauvain is a developmental psychologist with expertise in cognitive development in early and middle childhood. She obtained her Ph.D. from the University of Utah and currently is Professor of Psychology at the University of California-Riverside. Dr. Gauvain's research concentrates on social and cultural contributions to the development of thinking, principally in the areas of spatial cognition, problem solving, and planning skills. In recent years, she has studied children's learning in and outside of school, children's concept development regarding water and food contamination in sub-Saharan Africa, and child development during cultural change. Dr. Gauvain is a Fellow of the American Association for the Advancement of Science, the American Educational Research Association, the American Psychological Association, and the Association for Psychological Science. She has held leadership roles in the Society for Research in Child Development and Division 7 (Developmental Psychology) of the American Psychological Association. She is the author of *The Social Context of Cognitive Development* (published by Guilford Press in 2001) and recently served as the Principal Investigator on an interdisciplinary NSF-IGERT award, *Water SENSE: Social, Engineering, and Natural Sciences Engagement*. Dr. Gauvain's work has been published in leading research journals such as *Child Development, Developmental Psychology*, *Cognitive Development*, and *Current Directions in Psychological Science*. She has served as Associate Editor for the journals *Child Development* and *The Merrill-Palmer Quarterly* and has been on the editorial boards of several other major developmental journals.


Courtesy of Lauren H. Adams

James Graham Dr. Graham is a leading expert on the community aspects of ethnicity, culture, and development. He obtained his undergraduate degree from Miami University and received master's and doctoral degrees in developmental psychology from the University of Memphis. Dr. Graham's current position is Professor of

Psychology, The College of New Jersey (TCNJ). His research addresses the social-cognitive aspects of relationships between group and dyadic levels across developmental periods in community-based settings. Three interdependent dimensions of his research program examine (1) populations that are typically understudied, conceptually limited, and methodologically constrained; (2) development of empathy and prosocial behavior with peer groups and friends; and (3) developmental science in the context of community-engaged research partnerships. Currently, he is Coordinator of the Developmental Specialization in Psychology at TCNJ. For a decade, Dr. Graham taught graduate courses in psychology and education in Johannesburg, South Africa, through TCNJ's Graduate Summer Global Program. He also is the co-author of *The African American Child: Development and Challenges* (2nd ed.) and *Children of Incarcerated Parents: Theoretical, Developmental, and Clinical Issues*. Dr. Graham has presented his work at a variety of international and national conferences and has published articles in a wide range of journals, including *Social Development, Child Study Journal, Behavior Modification, Journal of Multicultural Counseling and Development,* and *American Journal of Evaluation.*

Courtesy Stuart Wolpert

Scott Johnson Scott Johnson is one of the world's leading experts on perceptual and cognitive development in infancy. He is currently a Professor of Psychology and Professor of Psychiatry and Biobehavioral Sciences at UCLA. Dr. Johnson obtained his Ph.D. from Arizona State University and completed postdoctoral work in the Center for Visual Science at the University of Rochester. His research interests center on mechanisms of perceptual, cognitive, motor, social, and cortical development, and relations among different developmental processes. Current research topics include object perception, face perception, intermodal perception, visual attention, early language development, and learning mechanisms in typical and at-risk populations. In studying infants, Dr. Johnson uses a combination of methods, including preferential looking, eye movements, electroencephalography, and modeling. He has served on numerous grant review panels in the United States and Europe as well as the editorial boards of *Infancy, Infant Behavior and Development, Child Development, Cognition, Developmental Psychology, Early Development and Parenting, The British Journal of Developmental Psychology,* and *Frontiers in Neuroscience*.

Courtesy of Craig T. Salling

Virginia Marchman Virginia Marchman is a leading expert on children's language development. She currently is a Research Associate at the Stanford University Language Learning Laboratory. Dr. Marchman obtained her Ph.D. at the University of California–Berkeley. Her main research areas are language development, language disorders, and early childhood development. Dr. Marchman's specific interests focus on individual differences in typically developing and late-talking children, as well as lexical and grammatical development in monolingual and bilingual learners. Her studies have incorporated a variety of experimental methods as well as computational approaches and naturalistic observation. Dr. Marchman has worked extensively with the MacArthur-Bates Communicative Development Inventories (CDI), developing the CDI Scoring program and serving on the MacArthur-Bates CDI Advisory Board. She has been a consulting editor for *Journal of Speech, Language and Hearing Research* and *Child Development*. Dr. Marchman's most recent work involves the development of real-time spoken language understanding using the "looking-while-listening" task in typically developing and at-risk children. Current studies explore links between children's language processing skill, early learning environments, and individual differences in monolingual and bilingual English-Spanish learners from diverse backgrounds.

Courtesy of Karl Rosengren

Karl Rosengren Karl S. Rosengren is an expert on children's cognitive and motor development. He obtained his Ph.D. from the Institute of Child Development at the University of Minnesota. He is currently a professor in the Brain and Cognitive Sciences Department and the Department of Psychology at the University of Rochester, having previously been a professor at the University of Wisconsin–Madison, the University of Michigan, the University of Illinois at Urbana-Champaign, and Northwestern University. In the area of cognitive development, his research focuses on how children learn about events in the world and how they separate fantasy from reality. His most recent work in this area has focused on children's understanding of death and how parents in the United States and Mexico socialize children with respect to death. In the area of motor development, his research has focused on the development of balance and gait, as well as the development of children's drawing. Dr. Rosengren is a Fellow of the Association for Psychological Science. He has edited two books and is a co-author of a research methods textbook. Dr. Rosengren has published over 100 research articles and his work has been published in leading research journals such as *Child Development, Developmental Psychology, Psychological Science*, and *Science*.

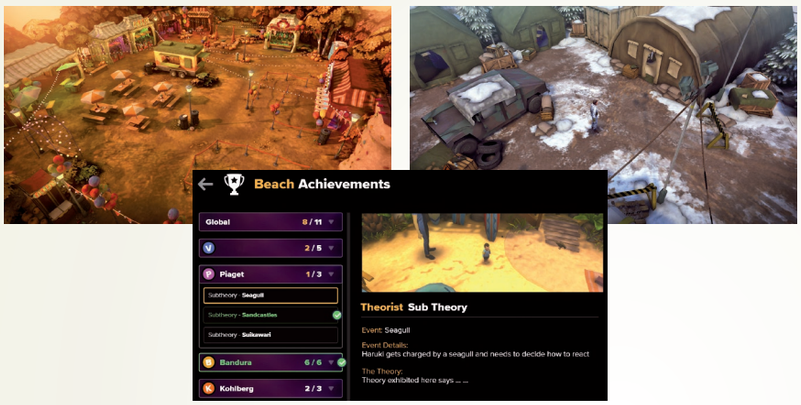
Courtesy Philip David Zelazo

Philip David Zelazo Dr. Philip Zelazo is one of the world's leading experts on developmental neuroscience and children's executive function. He obtained his undergraduate degree from McGill University and his Ph.D. with distinction from Yale University. Dr. Zelazo currently is the Nancy M. and John E. Lindahl Professor at the Institute of Child Development at the University of Minnesota. Previously, he was a professor at the University of Toronto, where he held the Canada Research Chair in Developmental Neuroscience. His research on the development and neural bases of executive function (the control of thought, action, and emotion) has received numerous awards, including the Boyd McCandless Young Scientist Award from the American Psychological Association and Canada's Top 40 Under 40 Award. Dr. Zelazo was president of the Jean Piaget Society and serves on a number of editorial boards, including *Development and Psychopathology* and *Developmental Cognitive Neuroscience*. He was the editor of the two-volume book, *Oxford Handbook of Developmental Psychology* (2013).

Connecting *Research* and *Results*

Children connects current research and real-world applications. Through an integrated, personalized digital learning program, students gain the insight they need to study smarter and improve performance.

McGraw Hill Education's **Connect** is a digital assignment and assessment platform that strengthens the link between faculty, students, and course work, helping everyone accomplish more in less time. *Connect Psychology* includes assignable and assessable videos, quizzes, exercises, and interactivities, all associated with learning objectives. Interactive assignments and videos allow students to experience and apply their understanding of psychology to the world with fun and stimulating activities.

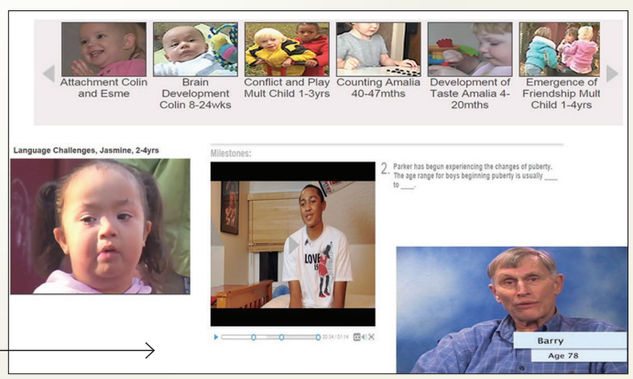


Apply Concepts and Theory in an Experiential Learning Environment

An engaging and innovative learning game, **Quest: Journey Through the Lifespan** provides students with opportunities to apply content from their human development curriculum to real-life scenarios. Students play unique characters who range in age and make decisions that apply key concepts and theories for each age as they negotiate events in an array of authentic environments. Additionally, as students analyze real-world behaviors and contexts, they are exposed to different cultures and intersecting biological, cognitive, and socioemotional processes. Each quest has layered replayability, allowing students to make new choices each time they play—or offering different students in the same class different experiences. Fresh possibilities and outcomes shine light on the complexity of and variations in real human development. This new experiential learning game includes follow-up questions, assignable in Connect and auto-graded, to reach a higher level of critical thinking.

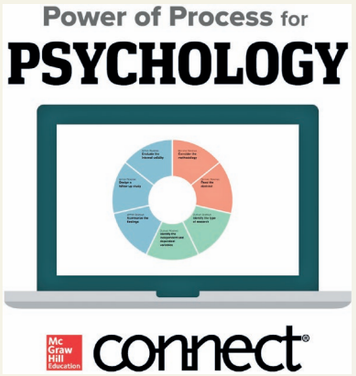
Real People, Real World, Real Life

At the higher end of Bloom's taxonomy (analyze, evaluate, create), the McGraw Hill Education **Milestones** video series is an observational tool that allows students to experience life as it unfolds, from infancy to late adulthood. This ground-breaking, longitudinal video series tracks the development of real children as they progress through the early stages of physical, social, and emotional development in their first few weeks, months, and years of life. Assignable and assessable within Connect Psychology, Milestones also includes interviews to reflect development through adolescence. New to this edition, Milestones are available in a more engaging, WCAG-compliant format. Ask your McGraw Hill representative about this new upgrade!



Develop Effective Responses

McGraw Hill's new **Writing Assignment Plus** tool delivers a learning experience that improves students' written communication skills and conceptual understanding with every assignment. Assign, monitor, and provide feedback on writing more efficiently and grade assignments within McGraw Hill Connect. Writing Assignment Plus gives you time-saving tools with a just-in-time basic writing and originality checker.



Prepare Students for Higher-Level Thinking

Also at the higher end of Bloom's taxonomy, **Power of Process** for Psychology helps students improve critical thinking skills and allows instructors to assess these skills efficiently and effectively in an online environment. Available through Connect, pre-loaded journal articles are available for instructors to assign. Using a scaffolded framework such as understanding, synthesizing, and analyzing, Power of Process moves students toward higher-level thinking and analysis.

SMARTBOOK™ Better Data, Smarter Revision, Improved Results

Content revisions for *Children* were informed by data collected anonymously through McGraw Hill's SmartBook.

McGraw Hill Education's **SmartBook** helps students distinguish the concepts they know from the concepts they don't, while pinpointing the concepts they are likely to forget. SmartBook's real-time reports help both students and instructors identify the concepts that require more attention, making study sessions and class time more efficient.

Here's how the SmartBook student data were used:

STEP 1. Over the course of three years, data points showing concepts that caused students the most difficulty were anonymously collected from Connect Psychology's SmartBook®.

STEP 2. The data from SmartBook were provided to the authors in the form of a ***Heat Map***, which graphically illustrates "hot spots" in the text that affect student learning.

STEP 3. The authors used the ***Heat Map*** data to refine the content and reinforce student comprehension in the new edition. Additional quiz questions and assignable activities were created for use in Connect to further support student success.

RESULT: Because the ***Heat Map*** gave the authors empirically based feedback at the paragraph and even sentence level, they were able to develop the new edition using precise student data that pinpointed concepts that gave students the most difficulty.

New to this edition, SmartBook is optimized for mobile and tablet use and is accessible for students with disabilities. Content-wise, measurable and observable learning objectives help improve student outcomes. SmartBook personalizes learning to individual student needs, continually adapting to pinpoint knowledge gaps and focus learning on topics that need the most attention. Study time is more productive and, as a result, students are better prepared for class and coursework. For instructors, SmartBook tracks student progress and provides insights that can help guide teaching strategies.

Online Instructor Resources

The resources listed here accompany *Children,* Fifteenth Edition. Please contact your McGraw Hill representative for details concerning the availability of these and other valuable materials that can help you design and enhance your course.

Instructor's Manual Broken down by chapter, this resource provides chapter outlines, suggested lecture topics, classroom activities and demonstrations, suggested student research projects, essay questions, and critical thinking questions.

Test Bank and Test Builder This comprehensive Test Bank includes more than 1,500 multiple-choice, short answer, and essay questions. Organized by chapter, the questions are designed to test factual, applied, and conceptual knowledge. New to this edition and available within Connect, Test Builder is a Cloud-based tool that enables instructors to format tests that can be printed and administered within a Learning Management System. Test Builder offers a modern, streamlined interface for easy content configuration that matches course needs, without requiring a download. Test Builder enables instructors to:

- Access all test bank content from a particular title
- Easily pinpoint the most relevant content through robust filtering options
- Manipulate the order of questions or scramble questions and/or answers
- Pin questions to a specific location within a test
- Determine the preferred treatment of algorithmic questions
- Choose the layout and spacing
- Add instructions and configure default settings

PowerPoint Slides The PowerPoint presentations, now WCAG compliant, highlight the key points of the chapter and include supporting visuals. All of the slides can be modified to meet individual needs.

Remote Proctoring New remote proctoring and browser-locking capabilities are seamlessly integrated within Connect to offer more control over the integrity of online assessments. Instructors can enable security options that restrict browser activity, monitor student behavior, and verify the identity of each student. Instant and detailed reporting gives instructors an at-a-glance view of potential concerns, thereby avoiding personal bias and supporting evidence-based claims.

preface

Making Connections . . . From Our Classrooms to *Children* to You

The material in *Children* has been shaped by thousands of students taking countless undergraduate developmental courses across four decades. These students have consistently said that when instructors highlight the connections among the different aspects of children's development, they can more readily understand the concepts, theories, and research presented in the course. As a result, *Children* has focused on providing a systematic, integrative approach that helps students make these connections in their learning and practice. This new edition continues that philosophy with the addition of Dr. Jennifer Lansford of Duke University and Dr. Kirby Deater-Deckard of the University of Massachusetts Amherst to the author team. Drs. Lansford and Deater-Deckard are recognized as leading researchers and educators in the field and have served as Expert Consultants for many editions of this successful Life-Span franchise. This combined experience has influenced the main goals for the text, as follows:

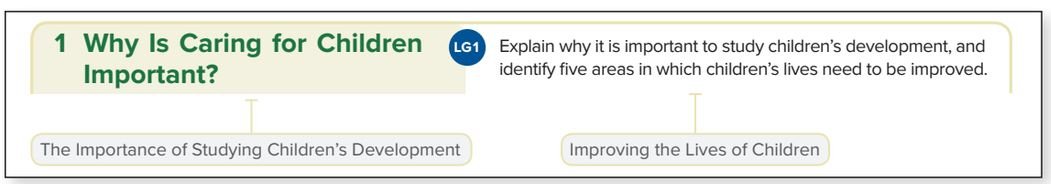
1. **Connecting with today's students** to help students learn about children's development more effectively;
2. **Connecting with research on children's development** to provide students with the best and most recent theory and research in the world today about each of the periods of children's development;
3. **Connecting development processes** to guide students in making developmental connections across different points in children's development;
4. **Connecting development to real life** to help students understand ways to apply content about child development to the real world and improve children's lives, and to motivate students to think deeply about their own personal journey through life and better understand who they were as children and how their experiences and development have influenced who they are today.

Connecting with Today's Students

Today's students are as different in some ways from the learners of the last generation as today's discipline of child development is different from the field 30 years ago. Students now learn in multiple modalities; rather than sitting down and reading traditional printed chapters in linear fashion from beginning to end, their work preferences tend to be more visual and more interactive, and their reading and study often occur in short bursts. For many students, a traditionally formatted printed textbook is no longer enough when they have instant, 24/7 access to news and information from around the globe. Two features that specifically support today's students are the adaptive ebook (SmartBook, see page xvi) and the learning goals system.

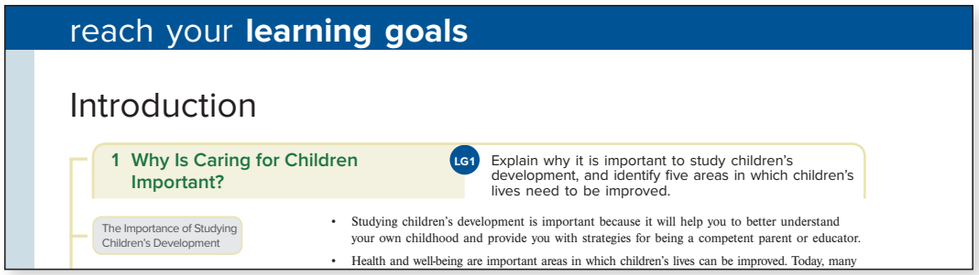
The Learning Goals System

Students often report that development courses are challenging because so much material is covered. To help today's students focus on the key ideas, the Learning Goals System for *Children* provides extensive learning connections throughout the chapters. The learning system connects the chapter-opening outline, learning goals for the chapter, mini-chapter



maps that open each main section of the chapter, ***Review, Connect, Reflect*** questions at the end of each main section, and the chapter summary at the end of each chapter.

The learning system keeps the key ideas in front of the student from the beginning to the end of the chapter. The main headings of each chapter correspond to the learning goals, which are presented in the chapter-opening spread. Mini-chapter maps that link up with the learning goals are presented at the beginning of each major section in the chapter.


reach your **learning goals**

Introduction

1 Why Is Caring for Children Important?

LG1 Explain why it is important to study children's development, and identify five areas in which children's lives need to be improved.

The Importance of Studying Children's Development

- Studying children's development is important because it will help you to better understand your own childhood and provide you with strategies for being a competent parent or educator.
- Health and well-being are important areas in which children's lives can be improved. Today, many

Then, at the end of each main section of a chapter, the learning goal is repeated in ***Review, Connect, Reflect*****,** which prompts students to review the key topics in the section, to connect these topics to existing knowledge, and to relate what they have learned to their own personal journey through life. ***Reach Your Learning Goals*****,** at the end of each chapter, guides students through the bulleted chapter review, connecting with the chapter outline/learning goals at the beginning of the chapter and the ***Review, Connect, Reflect*** material at the end of major chapter sections.

Connecting with Research on Children's Development


connecting with research

Caregivers' Emotional Expressiveness, Children's Emotion Regulation, and Behavior Problems in Head Start Children

A foundational study by Dana McCoy and Cybele Raver (2011) explored links between caregivers' reports of their positive and negative emotional expressiveness, observations of young children's emotion regulation, and teachers' reports of the children's internalizing and externalizing behavior problems. The study focused on 97 children, most of whom were African American or Hispanic and whose mean age was 4 years and 3 months. The other participants in the study were the children's primary caregivers (90 mothers, 5 fathers, and 2 grandmothers).

To assess caregiver expressiveness, caregivers were asked to provide ratings on a scale from 1 (never/rarely) to 9 (very frequently) for 7 items that reflect caregiver expressiveness, such as "telling family members how happy you are" and "expressing anger at someone's carelessness." Children's emotion regulation was assessed with (a) the emotion regulation part of the PSRA (preschool self-regulation assessment) in which observers rated young children's behavior on

What did Dana McCoy and Cybele Raver discover about the importance of caregivers' emotions and children's emotion regulation in children's development?

Najlah Feanny/Corbis

were linked to more internalizing behavior problems in the young Head Start children. Also, caregivers' reports of their positive emo-

It is critical to include the most up-to-date research available. As with previous editions, we continue to look closely at specific areas of research, involve experts in related fields, and update research throughout. ***Connecting with Research*** describes a study or program to illustrate how research in child development is conducted and how it influences our understanding of the discipline. Topics range from "How Can the Newborn's Perception Be Studied?" to "What Are Some Important Findings in the Study of 'Child Care' in the United States?" to "Caregivers' Emotional Expressiveness, Children's Emotion Regulation, and Behavior Problems in Head Start Children" to "Parenting and Children's Achievement: My Child Is My Report Card, Tiger Mothers, and Tiger Babies Strike Back" to "Evaluation of a Family Program Designed to Reduce Drinking and Smoking in Young Adolescents."

The tradition of obtaining detailed, extensive input from a number of leading experts in different areas of child development also continues in this edition. Biographies and photographs of the leading experts in the field of child development appear on pages xiii to xiv, and the chapter-by-chapter highlights of new research content are listed on pages xxii to xxxi. Finally, the research discussions have been updated for each developmental period and topic in order to keep *Children* as contemporary and up-to-date as possible. To that end, there are more than 1,300 citations from 2017 to 2020 in this edition.

Connecting Developmental Processes

Too often we forget or fail to notice the many connections from one point in child development to another. Thus, several features have been designed to help students connect topics across the stages of child development.

developmental **connection**

Gender

Gender stereotyping continues to be extensive. Recent research indicates that girls and older children use a higher percentage of gender stereotypes than younger children and boys. Connect to "Socioemotional Development in Middle and Late Childhood."

Developmental Connections, which appear multiple times in each chapter, point readers to places where the topic is discussed in a previous, current, or subsequent chapter. This feature highlights links across topics of development *and* connections among biological, cognitive, and socioemotional processes. The key developmental processes are typically discussed in isolation from each other, so students often fail to see the connections among them. Included in ***Developmental Connections*** is a brief description of the backward or forward connection. For example, the developmental connection to the left appears in the margin next to the discussion of minimizing bias in research.

Furthermore, a Connect question is included in the self-reviews at the end of each section–**Review, Connect, Reflect**–so students can practice making connections among topics.

Topical Connections *looking forward*

Next you will learn about the birth process and the transition from fetus to newborn, see how the newborn's health and responsiveness are assessed, read about low birth weight and preterm babies and find out about special ways to nurture these fragile newborns, and examine what happens during the postpartum period.

Topical Connections: Looking Back and ***Looking Forward*** begin and conclude each chapter by placing the chapter's coverage in the larger context of development. The Looking Back section reminds the reader of what happened developmentally in previous periods of development.

Connecting Development to Real Life

In addition to helping students make research and developmental connections, *Children* shows the important real-life connections to the concepts discussed in this edition. Real-life connections are explicitly made in the chapter-opening vignette as well as in ***Caring Connections***, ***Connecting with Diversity***, the ***Milestones*** video program, ***Connecting with Careers***, ***How Would You . . . ?*** questions that pertain to five career areas, and ***Reflect: Your Own Personal Journey of Life***.

Each chapter begins with a story designed to spark students' interest and motivate them to read the chapter. Among the chapter-opening stories are those involving the journey of pregnancy and the birth of "Mr. Littles," Reggio Emilia's children and their early childhood education program, children living in the South Bronx, and Jewel Cash and her amazing contributions to her community.

Caring Connections provides applied information about parenting, education, or health and well-being related to topics ranging from "From Waterbirth to Music Therapy" to "Parenting Strategies for Helping Overweight Children Lose Weight" to "Strategies for Increasing Children's Creative Thinking."

caring connections

Improving the Nutrition of Infants and Young Children Living in Low-Income Families

Poor nutrition is a special concern in the lives of infants in low-income families in the United States. To address this problem, the WIC (Women, Infants, and Children) program provides federal grants to states for healthy supplemental foods, health-care referrals, and nutrition education for women from low-income families beginning in pregnancy, and to infants and young children up to 5 years of age who are at nutritional risk (Ng & others, 2018). WIC serves approximately 7,500,000 participants in the United States.

Positive influences on infants' and young children's nutrition and health have been found for participants in WIC (Martinez-Brockman & others, 2017). One study revealed that a WIC program that introduced peer counseling services for pregnant women increased breast feeding initiation by 27 percent (Olson & others, 2010). Another study found that entry in the first trimester of pregnancy to the WIC program in Rhode Island reduced maternal cigarette smoking (Brodsky, Viner-Brown, & Handler, 2009). And a multiple-year literacy intervention with Spanish-speaking families in the WIC program in Los Angeles increased literacy resources and activities at home, which in turn led to a higher level of school readiness in children (Whaley & others, 2011). Also, in longitudinal studies, when mothers participated prenatally and in early childhood in WIC programs, young children showed short-term cognitive benefits and longer-term reading and math benefits (Jackson, 2015).

Participants in the WIC program. *What are some of the benefits of participating in the WIC program?*

Source: USDA Food and Nutrition Service, Supplemental Nutrition Assistance Program

Children puts a strong emphasis on diversity. For a number of editions, *Children* has benefited from having one or more leading experts on diversity to ensure that it provides students with current, accurate, sensitive information related to diversity in children's development. The diversity expert for this edition of *Children* is James A. Graham.

Diversity is discussed in every chapter. ***Connecting with Diversity*** interludes also appear in every chapter, focusing on a diversity topic related to the material at that point in the chapter. Topics range from "The Increased Diversity of Adopted Children and Adoptive Parents" to "Cultural Variations in Guiding Infants' Motor Development" to "What Is the Best Way to Teach English Language Learners?" to "Cross-Cultural Comparisons of Secondary Schools."

The ***Milestones*** video program shows students what developmental concepts look

like by letting them watch actual humans develop. Students are able to track several individuals starting from infancy and watch them achieve major developmental milestones, both physically and cognitively. (See page xv for further details.)

Connecting with Careers profiles careers ranging from genetic counselor to toy designer to teacher of English language learners, all of which require a knowledge of children's development. The careers highlighted extend from the Careers Appendix immediately following "Introduction," which provides a comprehensive overview of careers to show students where knowledge of children's development could lead them.

How Would You . . . ? questions in the margins of each chapter highlight issues involving five main career areas of children's development: psychology, human development and family studies, education, health professions (such as nursing and pediatrics), and social work. The ***How Would You . . . ?*** questions ensure that this book orients students to concepts that are important to their understanding of children's development. Instructors specializing in these fields have contributed ***How Would You . . . ?*** questions for each chapter. Strategically placed in the margin next to the relevant chapter content, these questions highlight essential ideas for students to take away from chapter content.

Finally, part of applying knowledge of children's development to the real world is understanding how it affects oneself. Accordingly, one of the goals of this edition is to motivate students to think deeply about their own journey of life. To encourage students to make personal connections to the topics in each section, we include a ***Reflect: Your Own Personal Journey of Life*** prompt in the end-of-section review. This question asks students to reflect on some aspect of the discussion in the section they have just read and connect it to their own life. For example, in relation to a discussion of the early-later experience issue in development, students are asked,

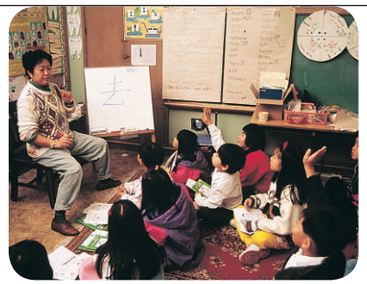
- Can you identify an early experience that you believe contributed in important ways to your development? Can you identify a recent or current (later) experience that you think had (is having) a strong influence on your development?

connecting with diversity

What Is the Best Way to Teach English Language Learners?

A current controversy related to dual-language learning involves the millions of U.S. children who come from homes in which English is not the primary language (Echevarria, Vogt, & Short, 2017; Peregoy & Boyle, 2017). What is the best way to teach these English language learners (ELLs), many of whom in the United States are from immigrant families living in poverty?

ELLs have been taught in one of two main ways: (1) instruction in English only or (2) a *dual-language* (used to be called *bilingual*) approach that involves instruction in their home language and English (Kuo & others, 2017). In a dual-language approach, instruction is given in both the ELL child's home language and English for varying amounts of time at certain grade levels. One of the arguments for



A first- and second-grade bilingual English-Cantonese teacher instructing students in Chinese in Oakland, California. *What have researchers found about the effectiveness of dual-language education?*

connecting with careers

Salvador Tamayo, Teacher of English Language Learners

Salvador Tamayo is an eighth-grade teacher in West Chicago. He received a National Educator Award from the Milken Family Foundation for his work in educating ELLs. Tamayo is especially adept at integrating technology into his ELL classes. He and his students have created several award-winning Web sites about the West Chicago City Museum, the local Latino community, and the history of West Chicago. His students also developed an "I Want to Be an American Citizen" Web site to assist family and community members in preparing for the U.S. Citizenship Test. Tamayo leads a group of students called Latinos In Action that aims to empower Latino youth to lead and strengthen their communities through college and career readiness.

Salvador Tamayo works with dual-language education students.
Courtesy of Salvador Tamayo

How Would You...?
If you were an **educator,** how would you work with low-socioeconomic-status families to increase parental involvement in their children's educational activities?

Content Revisions

A significant reason why *Children* has been successfully used by instructors for edition after edition is the painstaking effort and review that goes into making sure each edition provides the latest research on all topic areas discussed in the classroom. This new edition is no exception, with more than 1,300 citations from 2017 to 2020.

Below is a sample of the many chapter-by-chapter changes that were made in this new edition of *Children*. Although every chapter has been extensively updated, chapters on cognitive development (Cognitive Development in Infancy; Cognitive Development in Early Childhood; and Cognitive Development in Middle and Late Childhood) and on socioemotional development (Socioemotional Development in Early Childhood; Socioemotional Development in Middle and Late Childhood) and the following content areas were especially targeted for revisions based on the results of the Heat Map data (discussed on page xvi) and updated and expanded research: brain development; nature and nurture (epigenetics); ethnic and cultural diversity; gender identity; education-related topics; and streamlining of early theorists.

Chapter 1: Introduction

- New and updated "Connecting with Careers" boxes highlighting the child and adolescent clinical psychology work of Dr. Gustavo Medrano and research and administration work on gender and women's development by Dr. Pam Reid
- Expanded and updated consideration of major topics and controversies in child development research and policy
- Updated definitions and descriptions of sociocultural factors in children's lives that affect their development (such as family socioeconomic status, gender, and race/ethnicity) (Benner, 2017; Keith, 2019; Orth, 2018)
- New theory, research studies, and policy addressing children's and families' resilience in the face of chronic and acute stressors (Hidalgo-Hidalgo, 2019; Stern & Axinn, 2017; Yousafzai & others, 2018)
- Up-to-date and expanded consideration of the data on poverty rates for children in multiple countries (OECD, 2018; US Census Bureau, 2017)
- Updates on research addressing periods of development (e.g., childhood, adolescence) and cohort effects, including consideration of distinct features of the "Millennial generation" (Bornstein, 2018; Sommerville & others, 2018; U.S. Census Bureau, 2015)
- Contemporary framing of "Nature" and "Nurture" as co-contributing and interacting factors in child development (Buss, 2018; Thompson, 2018)
- Updated treatment of the major theoretical foundations in children's social-emotional and cognitive development (Bandura, 2018; Hayes & others, 2017; Veraksa & Sheridan, 2018)
- Recent research describing advanced brain-imaging techniques using functional magnetic resonance imaging and other physiological methods (Larrivee, 2019; White & Poldrack, 2018)
- Up-to-date sources and information on diversity of children and adolescents in the United States and concerns regarding discrimination (Benner, 2017; Frey, 2019)

Chapter 2: Biological Beginnings

- New anthropological research from current hunter-gatherer societies, such as the Hadza in Tanzania, suggesting that mothers' and grandmothers' foraging supplies the majority of families' caloric intake (Hawkes, 2017), which has implications for understanding why social orientation and cooperation are so central to our species
- Updated estimates that humans have approximately 43,000 genes (Pertea & others, 2018)
- Updated prevalence rates for chromosomal and gene-linked abnormalities
- New statistics on the percentage of births in the United States resulting from in vitro fertilization
- Research showing that twins born through in vitro fertilization, compared with twins born through natural conception, are at slightly higher risk of low birth weight, prematurity, and adverse neonatal outcomes, suggesting that additional prenatal care and attention following birth may be needed for twins born through assisted reproductive technology (Wang & others, 2018)
- A longitudinal study that compared children conceived through assisted reproductive technologies with demographically matched, spontaneously conceived children, finding no significant differences in mental health problems through age 18 (Klausen & others, 2017)
- Updated descriptions of cross-ethnic adoptions
- A review of studies of children living in orphanages in the Russian Federation compared with children adopted within the Russian Federation or in the United States to compare outcomes of children adopted at different ages and describe an intervention that focused on improving caregiver-child interactions in orphanages (McCall & others, 2018)
- New information on open versus closed adoptions and on adoptions by gay men and lesbian women (Brodzinsky & Goldberg, 2016)
- A new study showing that identical twins are more similar to one another on measures of conduct problems than are fraternal twins, suggesting the role of heredity in conduct problems (Saunders & others, 2018)
- Longitudinal studies suggesting that earlier in development, parenting or other environmental effects are stronger than these effects are later in development (Lansford & others, 2018)
- Research suggesting the importance of child characteristics in eliciting particular types of environmental inputs (Hadd & Rodgers, 2017)
- Additional theories that characterize gene × environment interactions, including the diathesis-stress or dual-risk model and the biological sensitivity to context or differential susceptibility model

Chapter 3: Prenatal Development

- The latest information about the structure and function of the placenta and umbilical cord in prenatal development (Kallol & others, 2018; Lu & others, 2018; Saunders & others, 2018)
- Updated research on prenatal organogenesis with particular attention to neuronal, spine, and brain development (Hadders-Algra, 2018; Licari & others, 2019; Tubbs & others, 2019)
- Renewed coverage of teratogen effects at specific stages of development (Buckley, Hamra, & Braun, 2019; Sebastiani & others, 2018)
- Up-to-date consideration of the effects of fetal exposure to alcohol and other legal substances such as prescription medications, nicotine, and caffeine (Blanck-Lubarsch & others, 2020; Campagne, 2019; Leviton, 2018)
- New research and theory about the short-term and long-term effects of fetal exposure to illicit drugs such as cocaine and methamphetamine (dos Santos & others, 2018; Kwiatkowski & others, 2018; Lowell & Mayes, 2019)
- New coverage of legalization of cannabis (marijuana) use and its effects on pregnant women and the developing fetus (Kees & others, 2020; Volkow & others, 2019)
- Updated research on pregnant women's chronic infections and illnesses, including HIV infection and diabetes (Blanche, 2020; Roberts & others, 2019) and coronavirus (Rasmussen & Jamieson, 2020)
- Inclusion of new research and literature reviews regarding maternal factors that influence maternal and fetal health, such as age, diet, and stress (Mayo & others, 2019; Melchor & others, 2019; Yang & others, 2019)
- Latest research on paternal environmental toxin exposure effects on the fetus through the sperm cells (Surkan & others, 2019; L. Wang & others, 2018)
- Updated coverage of the wide-ranging cultural differences in beliefs and practices regarding pregnancy and preparation for childbirth (Nivedita & Shanthini, 2016; Pangas & others, 2019; Withers & others, 2018)
- Updated and expanded consideration of global efforts to improve and enhance prenatal care of mothers and their babies (Blencowe & others, 2019; Moller & others, 2017; World Health Organization, 2018), and the latest outcomes of the prenatal intervention program CenteringPregnancy (Grant & others, 2018)

Chapter 4: Birth

- Up-to-date statistics and information about the use of midwives and doulas in labor and delivery (Howard & Low, 2020; Weisband & others, 2018)
- Updated research and practice guidelines for childbirth methods for improving infant health and reducing pain and injury to the mother and baby (Kannan, 2020; Sood & Sood, 2020)
- The latest research regarding natural childbirth and natural methods of preparation for birth (Mueller, Webb, & Morgan, 2020; Qumer & Ghosh, 2020)
- Updated coverage of Cesarean delivery and its effects on the mother and newborn around the globe (Cohen & Friedman, 2020; Mahadik, 2019)
- The latest research and benchmark information for the APGAR, NBAS, and NNNS newborn assessment tools for determining newborn health and functioning levels at birth (Candilis-Huisman, 2019; Michalczyk, Torbé, & Torbé, 2018; Provenzi & others, 2018)
- Updated information about the rates of preterm and low birth weight infants in multiple diverse countries (Khatun & others, 2017; OECD, 2018)
- New preliminary research on coronavirus infections (including the virus responsible for COVID-19 illness) in pregnant women at time of delivery, and how it may affect the pregnancy and newborn at time of birth (Segars & others, 2020)
- New research examining the short-term and long-term effects on infant health and development of preterm birth and low birth weight (Cheong & others, 2020; Grisaru-Granovsky & others, 2018)
- The latest information about methods to intervene with premature, low birth weight newborns to improve their survival and promote healthy outcomes (Petty & others, 2020; Stadd & others, 2020), including updated details regarding touch and massage therapies (Field, 2016)
- Recent research on mothers' adjustment and functioning during the postnatal period (Dennis & Vigod, 2020), such as physical changes (e.g., sleep, energy) (Sardi & others, 2020) and mood shifts (e.g., depression) (Li & others, 2020; Ponting & others, 2020)
- The newest information about fathers' postnatal adjustment, including the causes and consequences of paternal postnatal depression and how it can influence the adjustment of the mother and baby (Mahalik, Di Bianca, & Sepulveda, 2020; Walsh, Davis, & Garfield, 2020)

Chapter 5: Physical Development in Infancy

- Updated research on how regions of the brain start to specialize early in development and evidence that infants are neurologically primed for certain types of stimuli (May & others, 2018)
- Research on how myelination is related to breast feeding and verbal and nonverbal cognitive abilities (Deoni & others, 2018)
- A new study that compared children and young adults who had brain damage in the left hemisphere (where language functions are generally controlled) to children and young adults without brain damage, finding that in more than 80 percent of the individuals with damage to the left hemisphere of their brain, the right hemisphere dominated the language functions usually controlled by the left side of the brain (Chilosi & others, 2017)

- Research demonstrating that less disrupted infant sleep is predicted by mothers' emotional availability at bedtime as well as less household chaos, suggesting that better-regulated infant sleep is promoted by feelings of safety and security (Whitesell & others, 2018)
- New research that infant sleep problems have been related to a range of family difficulties, including marital conflict, and are reduced by sensitive caregiving from both mothers and fathers (El-Sheikh & Kelly, 2017)
- A study showing that infant sleep problems can be a source of marital discord, as mothers and fathers who disagree about how to respond to infants' nighttime wakings perceive themselves as having lower quality co-parenting relationships (Reader, Teti, & Cleveland, 2017)
- Updated data on prevalence and risk factors for sudden infant death syndrome (SIDS)
- A national study of Americans indicating that by 6 months, 37 percent of infants were already consuming snacks and that by the age of 12 months, 25 percent of daily energy intake was from snacks (Deming & others, 2017)
- Data suggesting that infants and young children are consuming more junk food and fewer fruits and vegetables than recommended by nutrition experts; for example, 25 percent of 6- to 11-month-olds and 20 percent of 12- to 23-month-olds consumed no vegetables over the course of the study period in a national sample of Americans (Miles & Siega-Riz, 2017)
- Updated data on breast feeding
- Several studies in different countries demonstrating the benefits of nutrition supplements to support physical growth and cognitive and psychosocial development (Ip & others, 2017)
- Expansion of research regarding international and cross-cultural comparisons of motor development (Ertem & others, 2018)
- Research on how changes in infants' nursing reflect changes in their nervous system and brain (Muscatelli & Bouret, 2018)
- Cross-cultural brain science research showing that there are corresponding changes in the new mother's brain, to better coordinate and respond to the infant's needs (Bornstein & others, 2017)
- Research on cultural differences in caregivers' understanding and beliefs about development that can influence how parents stimulate and support gross motor skills in infancy (van Schaik, Oudgenoeg-Paz, & Atun-Einy, 2018)
- New research on how the environment (e.g., how often being held, placed in a baby carrier or in a "baby walker") plays a major role in the progression of gross motor skills in the first year after birth (Franchak, 2019)
- A study from sub-Saharan Africa showing that traditional practices in many villages involve mothers and siblings engaging babies in exercises, such as frequent exercise for trunk and pelvic muscles (Super & Harkness, 2010)
- Inclusion of the latest research using brain imaging of fetuses, showing how they sense and how their brains process auditory information as early hearing capacity develops in the womb (Draganova & others, 2018)
- Research examining the behavior, physiology, and brain activity of newborns undergoing standard medical procedures, confirming that newborns experience pain (Bellieni & others, 2018; Verriotis & others, 2018)

Chapter 6: Cognitive Development in Infancy

- An updated description of parameters that affect whether infants make A-not-B errors; such as when only the hands and arms rather than the full body of an experimenter are visible, 9-month-old infants are less likely to make A-not-B errors, suggesting that part of the error is due to infants' imitation of body movements (Boyer & others, 2017)
- A description of the methodology of infant looking-time studies that have been designed to test infants' expectations of how physical objects and people will behave
- New studies of infants' expectations regarding the physical world (Hespos & others, 2016)
- A new study in which 4-month-old infants were surprised by a video in which a stranger ignored rather than comforted an infant (Jin & others, 2018)
- A description of new neuroimaging techniques and measures of psychophysiology that have been used to assess infants' cognitive development (Ellis & Turk-Browne, 2018)
- Updates on studies and theory regarding joint attention between caregivers and infants—how joint attention functions and develops, and how it relates to later growth in cognitive skills (Leith, Yuell, & Pike, 2018)
- Research showing that when deaf infants are born to deaf parents who use sign language, they babble with their hands and fingers at about the same age that hearing children babble vocally (Wille & others, 2018)
- Updated studies on the functions of infants' pointing in relation to shared attention and language development, including a study showing that when 18-month-olds pointed at novel objects in an experiment and were provided with labels for the objects, they were less likely to persist in pointing than if the experimenter did not label the objects, suggesting that infants were pointing to obtain information (Lucca & Wilbourn, 2019)
- Research showing that infants as young as 4 months can understand that specific words refer to specific body parts when their parents touch their bodies while saying words referring to the body parts (Tincoff & others, 2018)
- Additional information on language acquisition in a variety of languages, including reasons that children learning to speak Asian languages may have a proportionally larger repertoire of verbs than English language learners
- Acknowledgment of variability in the ages at which infants reach language milestones, depending on factors such as socioeconomic status and other environmental inputs as well as infants' abilities such as sustained attention (Brooks, Flynn, & Ober, 2018)
- Brain imaging studies showing that language depends on networks connecting different regions of the brain (Alemi & others, 2018)

- A study of mother-infant dyads in 11 countries showing that mothers and infants responded contingently to one another so that infants were more likely to vocalize immediately after their mothers finished speaking to them, and mothers were more likely to speak to their infants immediately after infants finished vocalizing (Bornstein & others, 2015)
- A description of how recent studies of language make use of LENA recording technology, in which a small digital audio recorder is worn by the child in specialized clothing and records all speech that is "near and clear" to the child over the course of up to 16 hours to provide a comprehensive picture of the talk that young children hear
- A study using the LENA device demonstrating that meaningful differences in the amount of talk that children hear as a function of SES are present as early as 18 months (Fernald, Marchman, & Weisleder, 2013)
- A revised and updated section on how early family environments contribute to language development
- Addition of studies using structural and functional MRI to examine the brains of 4- to 6-year-old children, indicating that children who engage in more conversational turns have different white matter properties and engage in tasks differently from children who hear fewer conversational turns (Romeo & others, 2018)
- A new study showing that the amount of talk that children hear between 18 and 24 months is correlated with language and cognitive outcomes in adolescence (Gilkerson & others, 2018)
- Inclusion of an experimental study showing how children's language acquisition benefits from adults' undivided attention. When mothers were asked to teach their 2-year-old two new words in a laboratory setting, children did not learn the new word in a condition that was interrupted by a cell phone call placed by the experimenter but did learn the new word in the uninterrupted condition, even though the mothers said the new word the same number of times in both conditions (Reed, Hirsh-Pasek, & Golinkoff, 2017).

Chapter 7: Socioemotional Development in Infancy

- Addition of a meta-analysis of 22 studies finding that when parents talked with young children more about mental states, children had a better understanding of emotions (Tompkins & others, 2018)
- A study showing that infants as young as 4 months expect unfamiliar adults to respond to a crying baby (Jin & others, 2018)
- Research showing how the rapid development of various brain regions promotes the expression and regulation of emotions early in development (Ng & others, 2018; Xie & others, 2019)
- Updated coverage of research and theory regarding the debate about when, and which, emotions emerge in early infant development (Hart, 2018; Kagan, 2018)
- Brain-imaging studies that have revealed connections among infants' cues such as crying, mothers' responses, and brain activity (Esposito & others, 2017; Swain & others, 2017)
- Studies showing that when mothers are physiologically aroused and emotionally dysregulated in caregiving situations that are distressing to infants, infants are less likely to develop secure attachment relationships and are more at risk for developing behavior problems (Leerkes & others, 2017)
- Newer research demonstrating that infants' autonomic nervous system activity changes reliably during both the still face and recovery period using the still-face paradigm (Jones-Mason & others, 2018)
- A meta-analytic review finding that early attachment predicted social competence with peers, internalizing behaviors such as anxiety, and externalizing behaviors such as aggression (Groh & others, 2017)
- Updated research on fathers as caregivers, including data showing that when fathers are actively involved as caregivers, children are more likely to interact in similar ways with fathers and mothers (McHale & Sirotkin, 2019)
- Updated statistics on maternity and paternity leave, child-care arrangements, and barriers to child care (Child Care Aware, 2018; OECD, 2019; Snyder, 2019)
- New studies, meta-analyses, and literature reviews on links between early child-care arrangements and later developmental outcomes (Dearing & Zachrisson, 2017; Vermeer & others, 2018)

Chapter 8: Physical Development in Early Childhood

- Updated information on the height and weight of children in the United States and around the world (CDC, 2020; UNICEF, 2018)
- Newest research and literature reviews of individual differences in young children's height and weight growth trajectories (de Onis & others, 2018; Hockenberry & others, 2020)
- Up-to-date information about research on, and treatments for, growth hormone deficiency in a global context (Derraik & others, 2019; Sävendahl & others, 2019; Soliman & 2019)
- Increased and updated coverage of research on brain development, including structural and functional changes, neuronal connections, and myelination (Godding & others, 2019; Reynolds & others, 2019; Slater & others, 2019)
- Updated research on the links between physical changes in brain and physiological functions and cognitive and perceptual skills in early childhood (Benasich & Ribary, 2018; Gozdas & others, 2019; Holmboe & Abigail, 2019)
- The newest information about the progression and importance of motor skills and control, including gross motor skills (Goodway, Ozmun, & Gallahue, 2020; Morrison, 2018) and fine motor skills (Jang & others, 2019; Sánchez-Vincitore, Schaettle, & Castro, 2019)
- Up-to-date coverage of children's artistic drawing and paintings, with cross-cultural comparisons of artistic development

in early childhood (Bullard, 2018; Hamilton, Jin, & Krieg, 2019; Kostelnik & others, 2017)
- The latest state-of-the-art science regarding sleep in the early years—its developmental changes and its links to physical, cognitive, and social-emotional functioning (Cremone & others, 2019; Franco & others, 2019; Williamson & others, 2019)
- Extended coverage of the newest research on nutrition needs and obesity rates during early childhood in the United States and around the world (CDC, 2018; Duffy & others, 2019; Wedde & others, 2019; WHO, 2018)
- Updated research regarding malnutrition among low-income children in wealthy as well as poor countries (Mitchinson & others, 2019; UNICEF, 2019)
- Evidence from one of the largest literature reviews conducted (involving 11 countries and 14,000 preschoolers in child-care settings) showing very wide variation between settings and countries in how much sedentary versus physical movement time children are spending (O'Brien & others, 2018)
- Updating of the prevalence and risks for intentional and unintentional injuries of young children (CDC, 2019; McDonald & others, 2018; Sleet, 2018), including causes of fatalities (National Vital Statistics Reports, 2017)

Chapter 9: Cognitive Development in Early Childhood

- A description of how improvements in fine motor control and working memory contribute to increased realism with age in children's drawings (Morra & Panesi, 2017)
- Data suggesting that by the time children enter preschool, they ask an average of 76 questions per hour seeking information; and by the age of 5, their questions are well-formulated to elicit information children need to learn new concepts (Kurkul & Corriveau, 2018)
- Research on links between performance on Piagetian tasks and the brain's development, particularly the prefrontal cortext (Bolton & Hattie, 2017)
- Discussion of how, around the world, caregivers and children arrange children's activities and revise children's responsibilities as they gain skill and knowledge
- Description of how Mayan mothers in Guatemala help their daughters learn to weave through guided participation as an example of how learning occurs not just by studying or by attending classes, but also through interaction with knowledgeable people (Rogoff, Dahl, & Callanan, 2018)
- Findings that preschoolers who use private speech are better able to regulate their behaviors and internalize new information (Day & Smith, 2019)
- A description of flipped classrooms in which student-centered learning activities, such as team problem-solving, are prioritized over teacher-centered delivery of information as a contemporary approach based on Vygotsky's theory (Lo, Hew, & Chen, 2017)
- Updated review of research about "screen time" in early childhood and its potentially deleterious effects on children's development (Anderson & Subrahmanyam, 2017)
- Research showing that executive function is a better predictor of school readiness than general IQ (Duckworth & others, 2019)
- A study of mothers and preschoolers in South Korea in which mothers who adjusted their level of scaffolding during a puzzle task according to the child's ongoing level of understanding had preschoolers who demonstrated better executive function than did preschoolers whose mothers were less contingent in their scaffolding (Lee, Baker, & Whitebread, 2018)
- Research showing that children who are born very premature are at risk of having poor executive function, but sensitive parenting and mutually responsive and harmonious parent-preschooler interactions can boost the executive functioning of preschoolers who were born very preterm (Zvara & others, 2019)
- Updated references regarding fast mapping, including indications that fast mapping may have more to do with knowing what a word refers to in the immediate environment than with truly learning the word because children can rarely recall the words they have apparently learned in a fast-mapping context (McMurray, Horst, & Samuelson, 2012)
- More attention to learning to read in a different language, such as evidence that phonological awareness is less important for early reading development in languages that use characters (such as Chinese) rather than alphabets (Ruan & others, 2018)
- Updated research showing that children in Montessori preschool programs, compared with children in other types of preschools, have better scores on measures of early reading and math, executive functioning, social functioning, and moral reasoning, controlling for potentially confounding factors (Lillard, 2018)
- Updated studies of the effects of Head Start and Early Head Start participation (Paschall, Mastergeorge, & Ayoub, 2019)
- New data on early childhood education in low- and middle-income countries and how the Sustainable Development Goals guiding the international agenda through 2030 call for universal access to at least one year of preschool for all children globally (UNICEF, 2019)

Chapter 10: Socioemotional Development in Early Childhood

- Description of an intervention in which toddlers either participated in conversations about emotions or did not participate after listening to emotion-based stories, finding that toddlers who participated in the conversations about emotions showed more prosocial behavior following the intervention than did toddlers who did not participate in the emotion conversations (Ornaghi & others, 2017)
- Updated research and theory regarding the development of perspective taking, theory of mind, and trust of sources of information across early childhood (Goffin, Kochanska, & Yoon, 2020; Kachel & Tomasello, 2019; Khu, Chambers, & Graham, 2019)

- The newest science regarding how young children develop an understanding of their own and others' emotions, and how this development is related to changes in emotion expression and regulation (Gallant, Lavis, & Mahy, 2020; Harrington & others, 2020)
- Up-to-date research on the development of emotion regulation across early childhood, and its connections with parenting and peer relations (Alonso-Alberca & others, 2019; England-Mason & Gonzalez, 2020; Miller-Slough & others, 2018; Sette & others, 2018)
- Recent evidence regarding moral development from infancy through preschool years, including the role of empathy in social relationships (Bock & others, 2020; Gallant, Lavis, & Mahy, 2019; Jensen, 2020; Spinrad & Eisenberg, 2019)
- Updated information about theory and evidence regarding gender and its development in early childhood (Hyde & others, 2019; McGeown & Warhurst, 2020), with emphasis on biological and social factors (Carone & others, 2020; Coyle & Liben, 2020)
- New literature and theory reviews regarding parenting styles and scaffolding, and how these are linked with young children's socioemotional development (Ewing & others, 2019; Knafo-Noam, Barni, & Schwartz, 2020)
- Up-to-date international perspective on the use of physical punishment and children's adjustment problems (Gershoff & others, 2018; Larzelere & others, 2019)
- The latest research on the prevalence, types, causes, and consequences of child abuse and neglect (Eddy & Sneddon, 2020; Knox, 2020; U.S. Department of Health and Human Services, 2020)
- Updated coverage of sibling relationships and their importance in socioemotional development (Bouchard, Plamondon, & Lachance-Grzela, 2019; Kramer & others, 2019)
- The newest information about a variety of family contextual factors for parenting, including work outside the home (Perry-Jenkins & Gerstel, 2020), divorce and remarriage (Auersperg & others, 2019; Herrero & others, 2020), gay and lesbian parenting (Imrie & Golombok, 2018; Patterson, 2017), race and ethnicity (Bornstein & Lansford, 2019; Cross, 2020), and socioeconomic status (Cooper & Pugh, 2020; Tomlinson & others, 2020)
- Up-to-date research and theory regarding young children's peer relationships and the importance of play in their development (Lillard & Taggart, 2019; Lucas, 2020; Perryman, 2020)
- Extended and updated coverage of young children's media and technology access and use, including games and videos (Blumberg & others, 2019; Levine & others, 2019)

Chapter 11: Physical Development in Middle and Late Childhood

- Inclusion of studies using brain scans indicating that cortical thickness is related to general intelligence as well as to improvements in specific abilities related to reading, attention, and other abilities that develop during middle and late childhood (Schmitt & others, 2019)
- Interventions finding that even brief interruptions in sedentary behavior (with 3 minutes of moderate-intensity walking every 30 minutes across 3 hours) improve glucose metabolism and are a promising strategy for reducing metabolic risk in overweight and obese children (Broadney & others, 2018)
- New research on children's exercise and BMI in relation to physical education classes in schools (Ickovics & others, 2019)
- New research on sports injuries as a function of age and gender (Valasek & others, 2019)
- New studies of overuse injuries, leading some experts to recommend that children play a variety of sports rather than specializing in one sport at a young age (Weekes & others, 2019)
- Updated data on obesity
- Description of a 3-month intervention that compared weight loss of children randomly assigned to different intervention conditions, finding that children lost the most weight if they participated jointly with their parents in the intervention (Yackobovitch Gavan & others, 2018)
- Updates on serious childhood health problems, including cancer, high blood pressure, and hypertension
- Increased emphasis on the importance of developing effective diagnostic, monitoring, and intervention systems in and out of school settings to help children with learning disabilities reach their full potential (Grigorenko & others, 2019)
- Descriptions of behavioral interventions that can be effective in reducing behavior problems among children with ADHD (Papadopoulos & others, 2019)
- A meta-analysis of 11 studies suggesting that ADHD symptoms, hyperactivity, inattention, executive function, and on-task behavior of children with ADHD can be improved through yoga, mindfulness, and meditation (Chimiklis & others, 2018)
- Updated information about autism and special education

Chapter 12: Cognitive Development in Middle and Late Childhood

- Added caution that taking a procedure, such as a standard Piagetian task, and applying it in a new cultural context in which the materials and even manner of an adult questioning a child about a problem to which the adult already knows the answer may be quite unusual and can lead children to respond in ways that do not reflect knowledge they hold in situations that are closer to their lived experiences (Rogoff, Dahl, & Callanan, 2018)
- New research indicating that families play a key role in sharing stories that become part of children's developing memories, and cultural factors can influence this process (Reese & others, 2017)
- Updates on genetic and environmental contributions to intelligence to include genome-wide association studies, a method that looks at individuals' entire genome in relation to observed traits, which have identified polygenic scores that

integrate thousands of genetic sequences that contribute to intelligence (Plomin & von Stumm, 2018)

- A meta-analysis of 42 data sets including over 600,000 participants showing that each additional year of formal education raised IQ scores by 1 to 5 points, even taking into account that people with a higher propensity for intelligence stay in school longer (Ritchie & Tucker-Drob, 2018)
- Data from Khartoum, Sudan, showing changes in IQ that could be attributed to the implementation of compulsory schooling (Dutton & others, 2018)
- Data showing that factors such as prenatal and postnatal nutrition are related to intelligence (Freitas-Vilela & others, 2018) and have been proposed as explanations for historical changes in intelligence test scores (Bratsberg & Rogeberg, 2018)
- An update on age 30 outcomes associated with the Abecedarian Project (Ramey, 2018)
- Attention to how individuals can demonstrate intellectual skills in different ways in different cultural contexts. For example, children in an Inuit community in Canada performed poorly in traditional classrooms but were able to navigate for long distances between villages in the Arctic during winter with no visible landmarks (Sternberg, 2017), and Kenyan children who performed poorly in school were able to administer hundreds of herbal treatments for illnesses, suggesting that intelligence encompasses a broader array of intellectual abilities than those captured in traditional tests (Sternberg, 2017).
- Added cautions regarding the problems associated with comparing different demographic groups on intelligence tests
- Update on how the racial climate of the school as well as teachers' ethnic diversity and cultural competence have implications for biases and expectations encountered by students, which in turn affect students' achievement (Whaley, 2018)
- An updated perspective on phonics versus whole language approaches to reading instruction
- New research on bilingualism and second-language acquisition
- A study demonstrating that vocabulary size in bilingual children is related to a number of factors, including metalinguistic awareness and whether they have a preference for one language over the other (Altman, Goldstein, & Armon-Lotem, 2018)
- Research studies comparing English-only versus dual-language programs in which dual-language programs have shown benefits for students' academic achievement above and beyond students' proficiency in English (MacSwan & others, 2017)
- Description of an experiment in which children were provided with either positive or negative feedback delivered in either a controlling or autonomy-supportive way that found that children were most intrinsically motivated to complete a similar task in the future and persisted longer in the face of challenges when adults had provided positive feedback delivered in an autonomy-supportive way on their prior activities (Mabbe & others, 2018)
- Studies regarding self-efficacy, school performance, and career aspirations
- Information on how students', teachers', and parents' expectations are all important to consider in relation to students' motivation and achievement. If teachers or parents have high expectations for students' success in school, these high expectations can serve as a buffer when students' own expectations fall short (Wigfield & Gladstone, 2019).

Chapter 13: Socioemotional Development in Middle and Late Childhood

- New research on the development of self-regulation in elementary school
- An update on evidence that parent-child relationships set the stage for children's relationships outside the family
- New research on five main strategies through which children cope with stress: problem solving, emotional suppression, cognitive reappraisal, distraction, and avoidance (Compas & others, 2017)
- New research on how notions of morality in personal domains, such as lying to avoid taking credit for a good deed or lying to benefit a group versus an individual, vary across cultures, depending on the extent to which self-benefiting behavior is socially encouraged or discouraged (Helwig, 2017)
- Evidence that conversations parents and children have about situations and relationships involving moral issues are important for children's moral development
- Updated studies on gender and the brain
- A review of 184 studies that included 1.6 million students from 21 countries showing that despite the increase in single-sex education, the highest-quality studies showed that same-sex education did not provide benefits compared with mixed-sex education (Pahlke & others, 2014)
- Addition of a study of children in nine countries (China, Colombia, Italy, Jordan, Kenya, the Philippines, Thailand, Sweden, and the United States) showing that in all nine countries, children were more likely to report that they would react aggressively if they believed a peer acted with hostile intent than with benign intent (Dodge & others, 2015)
- A review of 18 studies of more than 56,000 students that found sexual minority youth were moderately more likely to be victimized at school than were heterosexual youth (Toomey & Russell, 2016)
- Research on children's roles in bullying episodes, such as being passive bystanders versus intervening to help the victim or joining in with the bully (Jenkins & Nickerson, 2019)
- A qualitative study using in-depth interviews to understand academic identity of African American and European American 12- and 13-year-olds which found that African American students in honors courses had more positive academic and racial identity than did African American students tracked into non-honors courses (Legette, 2017)

- New research showing that although self-esteem historically has been thought to derive from doing well at activities that individuals believe are important for themselves, cross-cultural research suggests that self-esteem is more closely tied to doing well at activities that one's cultural group believes are important and that cultures differ in the importance placed on self-esteem
- Update on studies of children's development in the face of trauma associated with natural disasters, exposure to community violence, and the global COVID-19 pandemic
- Research on how children's notions of fairness depend on their cultural context
- Updated research on children's gender stereotypes and gender differences in socioemotional development
- Addition of a section on gender identity encompassing children's understanding of themselves in terms of cultural construals of what it means to be male or female
- New studies of socially transitioned transgender children who refer to themselves using pronouns of the gender with which they identify rather than their sex at birth but with no hormonal or surgical interventions involved (Olson & Gülgöz, 2018)
- Consideration of prejudice, discrimination, bullying, family rejection, and lack of self-acceptance as concerns for transgender children (Adelson, Stroeh, & Ng, 2016) and emphasis on the importance of family support for transgender children's mental health (Olson & others, 2016)
- New research on how parents show love and affection in different cultural contexts
- A new section on family structure
- Research on how specific functions served by friends may differ across cultures (Chen, Lee, & Chen, 2018)
- An update on legislation guiding public education in the United States, including information on the Common Core State Standards Initiative

Chapter 14: Physical Development in Adolescence

- Updated information about the typical age ranges, and average age, of pubertal transition points for boys and girls, including cross-cultural and international data
- Expanded coverage of cross-cultural and international research examining various aspects of adolescent physical and psychological development and changes (Crockett & others, 2019), including the growing recognition of "emerging adulthood" as a distinct developmental period following adolescence (Persike & others, 2018); shifts in cultural norms around sexual identity and behavior (Pulerwitz & others, 2019); and sexual risk behaviors and health, including contraceptive use (Ba & others, 2019; Coll & others, 2019; Kalamar & others, 2018)
- Up-to-date data on the prevalence and consequences of adolescent pregnancy and childbirth (Office of Population Affairs, 2020; World Health Organization, 2020)
- New research regarding sex education programs and intervention approaches to reduce rates of teenage pregnancy (Kaiser Family Foundation, 2019; Levin, 2019)
- The latest evidence regarding increases in rates of obesity and related illnesses in adolescence, in the United States and around the globe (Ashdown-Franks & others, 2019; Guthold & others, 2019; NHANES State of Childhood Obesity, 2020)
- Inclusion of several of the latest obesity and physical health interventions for adolescents, showing potential efficacy for youth from a variety of ethnic groups and social classes (Lee & others, 2019; Naar & others, 2019)
- New findings from the groundbreaking Gateshead Millennium Study of 1,000 youths born in 1999, showing dramatic reductions in physical activity across the transition to adolescence (Beltran-Valls & others, 2019)
- The latest research regarding how exercise and physical activity are connected with a wide range of psychological and mental health outcomes in adolescence (Jaworska & others, 2019; Stiglic & Viner, 2019)
- Research in which later school start times were associated with better adolescent functioning, including findings from a recent "natural experiment" comparing teenagers in schools that did or did not move to later start times (Berger, Wahlstrom, & Widome, 2019)
- Updated information on Carskadon and colleagues' research (2018, 2019) on adolescent sleep habits and patterns
- Up-to-date data regarding causes of injury and death among adolescents and emerging adults in the United States and globally
- Expanded coverage of recent trends in e-cigarette use ("vaping") and other forms of substance use and abuse among adolescents (Macy & others, 2019; Miech & others, 2019; National Institute on Drug Abuse, 2018; Public Health Law Center, 2019)
- Addition of findings from the largest meta-analysis to date (>100,000 participants around the world) of the links between media exposure and body image changes in adolescents (Karazsia, Murnen, & Tylka, 2017)

Chapter 15: Cognitive Development in Adolescence

- New research on how a need for peer approval can motivate teens to carefully cultivate their social media posts to make themselves appear attractive, interesting, and popular (Yau & Reich, 2019)
- An illustrative study showing that the frequency of posting to a popular social networking site in China was related to greater self-objectification among Chinese female adolescents (Zheng, Ni, & Luo, 2019)
- Studies showing that adolescents who score low on perceptions of risks are more likely to engage in a given behavior than are adolescents who perceive the behavior as more risky. For example, misuse of opioids is higher among adolescents who do not perceive opioid use as risky (Voepel-Lewis & others, 2018).

- Findings that adolescents who undergo traumatic experiences that disrupt their sense of psychological invulnerability are at increased risk for developing depression, anxiety, and other mental health problems (Chen & others, 2017)
- Research on gender differences in adolescents' service learning and community service activities and what they take away from these experiences (Flanagan & others, 2015)
- Coverage of the latest research regarding adolescent civic and community engagement and volunteering conducted in the United States, Chile, and elsewhere, showing that internal motivation and consistent support from family, school, and community for such engagement are key aspects (Henderson, Brown, & Pancer, 2019; Kim & Morgül, 2017; Martínez & others, 2019)
- An overview of the research literature on development of forgiveness showing that a number of factors are involved, including personal characteristics, peers, and family influences (van der Wal, Karremans, & Cillessen, 2017)
- Update on the results from an ongoing longitudinal study in the United States tracking adolescents' gratitude toward others, showing that increases in gratitude over time were linked with lower levels of antisocial behaviors, higher levels of prosocial behaviors, and better well-being (Bono & others, 2019)
- Inclusion of findings from a large comprehensive study of cheating motivation and behavior among high school students in Stockholm, Sweden, showing that cheating was least common in schools that had a culture emphasizing fairness and honesty, and in which administrators and teachers were engaged with the students (Ramberg & Modin, 2019)
- Updating of research evidence regarding religious engagement, participation, and identity among adolescents and young adults around the globe, showing steady levels in equatorial and southern hemisphere regions but continuing decreases in northern hemisphere regions, including the United States (Pew Research Center, 2018; Sugimura & others, 2019)
- Studies suggesting that students' academic motivation and engagement often drop during school transitions, especially if students perceive themselves as lacking control and efficacy to meet new academic challenges (Anderson & others, 2019), but that school transitions are less stressful for students who have relationships with teachers characterized by high levels of warmth and low levels of conflict (Hughes & Cao, 2018)
- Information on the role of peers and parents in helping students handle school transitions (Fite & others, 2019)
- A longitudinal study in 26 middle schools in the United States showing that over two-thirds of friendships were either gained or lost in the first year of middle school and that greater instability in friendships was predictive of less school engagement and lower grades (Lessard & Juvonen, 2018)
- Update on how high-quality extracurricular activities promote positive adolescent development by providing competent and supportive adult mentors, opportunities for increasing school connectedness, challenging and meaningful activities, and opportunities for improving skills (Knifsend & others, 2018)
- Description of how high school curricula are being revised to reflect the importance of twenty-first century competencies, which include digital literacy, innovative thinking, critical thinking and communication, citizenship, self-regulated learning, and collaborative learning (van de Oudeweetering & Voogt, 2018)
- Discussion of how switching to online learning during the COVID-19 pandemic was related to educational disparities and disrupted learning
- Research on the importance of ethnic diversity in middle and high schools
- Addition of a study of approximately 6,000 ethnically diverse sixth-graders as they made the transition to middle school, showing that ethnic diversity improved adolescents' mental health, intergroup attitudes, and school adjustment by helping them form and maintain cross-ethnic friendships, develop complex social identities, and decrease their perceptions of vulnerability (Graham, 2018)
- Research on international variation in educational systems and school curricula
- A description of interventions that have been developed to prevent students from dropping out of high school

Chapter 16: Socioemotional Development in Adolescence

- Updated discussion of research and theories of identity development and methods for assessing and interpreting shifts in identity among youth (Fivush, 2019; Lu, Benet-Martínez, & Robins, 2020; McLean & Lilgendahl, 2019)
- New research, including a study of Jamaican emerging adults, examining the important role of romantic relationships and close friendships in identity development and functioning (Kerpelman & Pittman, 2018; Strudwick-Alexander, 2017)
- The latest research and theory regarding whether identity development differences between youth operate in similar or distinct ways in Western cultures compared with many other cultural contexts (Hassan, Vignoles, & Schwartz, 2018; Lu, Benet-Martínez, & Robins, 2020; Stein & others, 2018)
- Inclusion of recent biological studies documenting marked shifts in moods and feeling states among adolescents who are going through puberty (Karababa, 2020; Vijayakumar & others, 2019)
- Expanded coverage of developmental research on nonbinary, gender queer, and transgendered youth, including their experiences and their health and functioning (Herman & others, 2017; Johnson & others, 2020; Olson & Enright, 2018; Olson & Gülgöz, 2018)
- Up-to-date information about theory and research on adolescent disclosure of activities and whereabouts, and parental monitoring of adolescents' activities (Baudat & others, 2020; Booth & Shaw, 2020)

- Presentation of results from one of the largest international studies (over 1,000 youth in nine countries) showing the critical role parental monitoring plays in reducing risk from exposure to household and neighborhood chaos and dangers (Deater-Deckard & others, 2019)
- New research and theory regarding attachment relationships in adolescence, with parents and with close friends and romantic partners (Allen & others, 2018; Brown & Cox, 2020)
- Updated information on studies exploring the nature and effects of peer group and friendship relationships in adolescence (Cook, 2020; Gibbons & Poelker, 2019; Whisman, 2017)
- Discussion of how social distancing during the COVID-19 pandemic brought increased challenges to adolescents' socioemotional development
- The latest research on gay, lesbian, and bisexual youth and their romantic relationships in adolescence and emerging adulthood (Kaestle, 2019; Költő & others, 2018; Rosario, 2019)
- Up-to-date information about ethnic group and cultural group variations and similarities in dating and romantic relationships (Shenhav, Campos, & Goldberg, 2017; Stein & others, 2018; Taggart & others, 2018)
- Coverage of contemporary findings and theory about the positive and negative effects of dating and romantic relationship formation on adolescents' academic, psychological, and health outcomes (Cameron & Mascarenas, 2020; Garthe, Sullivan, & Behrhorst, 2018; Loeb & others, 2020)
- The newest research regarding media use and multitasking with digital devices and content among adolescents in the United States and other countries (Aagard, 2019; Blumberg & others, 2019; Wang, Sigerson, & Cheng, 2019)
- Expanded and updated coverage of the major components of adolescent behavioral and emotional adjustment problems: delinquency and its national and international trends as well as family and peer influences (McGee & Moffitt, 2019; Ruiz-Hernández & others, 2019; Tillyer & Walter, 2019); depression and its increased prevalence across adolescents and major causes and consequences (Buehler, 2020; Chee, Wang, & Cheung, 2020; Hyde & Mezulis, 2020); and suicidality (Flores & others, 2020; Peng & others, 2020)

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EXPERT CONSULTANTS

As each new edition is developed, we consult with leading experts in their respective areas of child and adolescent development. Their invaluable feedback ensures that the latest research, understandings, and perspectives are presented. Their willingness to devote their time and expertise to this endeavor is greatly appreciated. Coverage of the Expert Consultants who contributed to this edition can be found on pages xiii and xiv.

REVIEWERS

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section one

In every child who is born, under no matter what circumstances, and of no matter what parents, the potentiality of the human race is born again.

—James Agee
American Writer, 20th Century

Ariel Skelley/Blend Images LLC

The Nature of Children's Development

Examining the shape of childhood allows us to understand it better. Every childhood is distinct, the first chapter of a new biography in the world. This edition is about children's development, its universal features, its individual variations, its nature during the twenty-first century. *Children* is about the rhythm and meaning of children's lives, about turning mystery into understanding, and about weaving together a portrait of who each of us was, is, and will be. In Section 1 you will read "Introduction."

chapter 1

INTRODUCTION

chapter **outline**

1 Why Is Caring for Children Important?

Learning Goal 1 Explain why it is important to study children's development, and identify five areas in which children's lives need to be improved.

The Importance of Studying Children's Development
Improving the Lives of Children

2 What Characterizes Development?

Learning Goal 2 Discuss processes, periods, cohort effects, and issues in development.

Biological, Cognitive, and Socioemotional Processes
Periods of Development
Cohort Effects
Issues in Development

3 How Is Child Development a Science?

Learning Goal 3 Summarize why research is important in child development, the main theories of child development, and research methods, designs, and challenges.

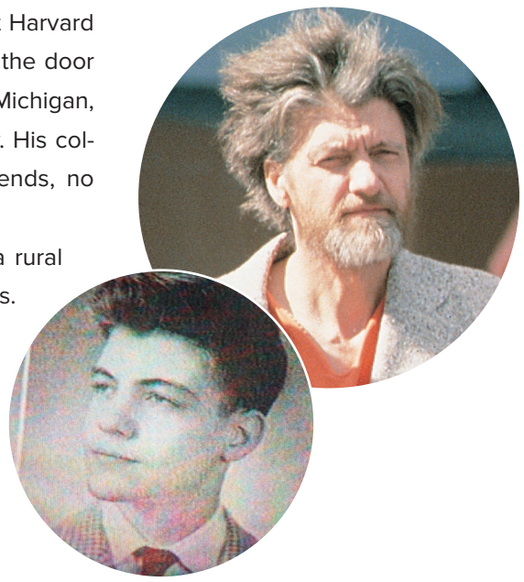
The Importance of Research
Theories of Child Development
Research Methods for Collecting Data
Research Designs
Research Challenges

Hero Images/Corbis

Ted Kaczynski sprinted through high school, not bothering with his junior year and making only passing efforts at social contact. Off to Harvard at age 16, Kaczynski was a loner during his college years. One of his roommates at Harvard said that he avoided people by quickly shuffling by them and slamming the door behind him. After obtaining his Ph.D. in mathematics at the University of Michigan, Kaczynski became a professor at the University of California at Berkeley. His colleagues there remember him as hiding from social interaction—no friends, no allies, no networking.

After several years at Berkeley, Kaczynski resigned and moved to a rural area of Montana, where he lived as a hermit in a crude shack for 25 years. Town residents described him as a bearded eccentric. Kaczynski traced his own difficulties to growing up as a genius in a kid's body and sticking out like a sore thumb in his surroundings as a child. In 1996, he was arrested and charged as the notorious Unabomber, America's most wanted killer. Over the course of 17 years, Kaczynski had sent 16 mail bombs that left 23 people wounded or maimed and 3 people dead. In 1998, he pleaded guilty to the offenses and was sentenced to life in prison.

Ted Kaczynski, the convicted Unabomber, traced his difficulties to growing up as a genius in a kid's body and not fitting in when he was a child.
Seanna O'Sullivan



Ted Kaczynski, about age 14.
WBBM-TV/AFP/Getty Images

A decade before Kaczynski mailed his first bomb, Alice Walker spent her days battling racism in Mississippi. She had recently won her first writing fellowship, but rather than use the money to follow her dream of moving to Senegal, Africa, she put herself into the heart and heat of the civil rights movement. Walker had grown up knowing the brutal effects of poverty and racism. Born in 1944, she was the eighth child of Georgia sharecroppers who earned $300 a year. When Walker was 8, her brother accidentally shot her in the left eye with a BB gun. Because her parents had no car, it took them a week to get her to a hospital. By the time she received medical care, she was blind in that eye, and it had developed a disfiguring layer of scar tissue. Despite the counts against her, Walker overcame pain and anger and went on to win a Pulitzer Prize for her book *The Color Purple*. She became not only a novelist but also an essayist, a poet, a short-story writer, and a social activist.

What might be some reasons Alice Walker was able to overcome trauma in her childhood and develop in impressive ways?
Monica Morgan/WireImage/Getty Images

Alice Walker, about age 8.
Courtesy of Alice Walker

What leads one individual, so full of promise, to commit brutal acts of violence and another to turn poverty and trauma into a rich literary harvest? If you have ever wondered why people turn out the way they do, you have asked yourself the central question we will explore.

preview

Why study children? Perhaps you are, or will be, a parent or teacher, and responsibility for children is, or will be, a part of your everyday life. The more you learn about children, the better you can guide them. Perhaps you hope to gain an understanding of your own history—as an infant, as a child, and as an adolescent. Perhaps you accidentally came across the course description and found it intriguing. Whatever your reasons, you will discover that the study of child development is provocative, intriguing, and informative. In this chapter, we explore why caring for children is so important, describe historical changes in the study of children's development, examine the nature of development, and outline how science helps us to understand it.

1 Why Is Caring for Children Important?

LG1 Explain why it is important to study children's development, and identify five areas in which children's lives need to be improved.

The Importance of Studying Children's Development

Improving the Lives of Children

Caring for children is an important theme of this text. To think about why caring for children is such an important theme, we will explore why it is beneficial to study children's development and identify some areas in which children's lives need to be improved.

Just what do we mean when we speak of an individual's development? **Development** is the pattern of change that begins at conception and continues throughout the life span. Most development involves growth, although it also includes decline.

We reach backward to our parents and forward to our children and through their children to a future we will never see, but about which we need to care.

—Carl Jung
Swiss Psychoanalytic Theorist, 20th Century

THE IMPORTANCE OF STUDYING CHILDREN'S DEVELOPMENT

How might you benefit from examining children's development? Perhaps you are, or will be, a parent or teacher and you want to learn about children so that you can become a better parent or an educator. Perhaps you hope to gain some insight about how your childhood experiences have shaped the person you are today. Or perhaps you think that the study of children's development might raise some provocative issues. Whatever your reasons for reading this book, you will discover that the study of children's development is fascinating and filled with information about who we are and how we came to be this way.

As we indicated earlier, most human development involves growth, but it also includes decline. For example, think about how your ability to speak and write your native language has grown since you were a young child. But your ability to achieve a high level of competence in learning to speak a new language has probably declined with age (Piekarski & others, 2017). In this book, we examine children's development from conception through adolescence. You will see yourself as an infant, as a child, and as an adolescent—and begin to think about how those years influenced you.

Ah! What would the world be to us
If the children were no more?
We should dread the desert behind us
Worse than the dark before.

—Henry Wadsworth Longfellow
American Poet, 19th Century

development The pattern of change that begins at conception and continues through the human life span.

IMPROVING THE LIVES OF CHILDREN

If you were to read the headlines in any newsfeed or magazine today, you might see information like this: "Political Views May Be Written in the Genes," "Mother Accused of Tossing Children into Bay," "Gender Gap Widens," and "FDA Warns About ADHD Drug." Researchers are examining these and many other topics of contemporary concern. The roles that health and well-being, parenting, education, and sociocultural contexts play in children's development, as well as how social policy is related to these issues, are a special focus of this edition.

Health and Well-Being Does a pregnant woman endanger her fetus if she drinks a few beers a week? How does a poor diet affect a child's behaviors and learning skills? Are children less physically active today than in the past? What roles do parents and peers play in

connecting with careers

Gustavo Medrano, Clinical Psychologist

Gustavo Medrano specializes in helping children, adolescents, and adults improve their lives when they are struggling with depression, anxiety, emotion regulation, chronic health conditions, and life transitions. He works individually with clients and also provides therapy for couples and families. As a native Spanish speaker, he provides bicultural and bilingual therapy for clients.

Dr. Medrano is a faculty member at the Family Institute at Northwestern University in Evanston, Illinois. He obtained his undergraduate degree in psychology at Northwestern and then became a high school teacher through Teach for America, a program where participants spend at least two years teaching in a high-poverty area. He received his master's and doctoral degrees in clinical psychology at the University of Wisconsin–Milwaukee. As a faculty member at Northwestern, in addition to doing clinical therapy with clients, he conducts research focusing on how family experiences, especially parenting, influence children's and adolescents' ability to cope with chronic pain and other challenges.

For more information about the work of clinical child psychologists, see the Careers in Child Development Appendix that directly follows this chapter.

Gustavo Medrano, clinical psychologist, provides therapy for children, adolescents, and adults. His bilingual background and skills help him to work effectively with Latino American clients.

Avis Mandel Pictures

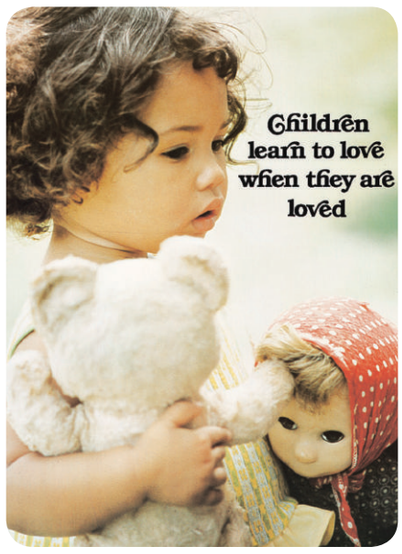
whether adolescents abuse drugs? Throughout this edition we discuss many questions like these regarding physical and psychological health and well-being. Investigating these questions, and exploring possible answers, is an important goal for just about everyone.

Health professionals today recognize the influence of lifestyles and psychological states on health and well-being (Blake, 2017; Hales, 2018a, b; Rolfes, Pinna, & Whitney, 2018). In every chapter of this edition, issues of health and well-being are integrated into our discussion.

Clinical psychologists are among the health professionals who help people improve their well-being. In this chapter's *Connecting with Careers* profile, you can read about clinical psychologist Gustavo Medrano, who helps adolescents with problems. The Careers Appendix for this text describes the education and training required to become a clinical psychologist and to pursue other careers in child development.

Parenting Are young children harmed if both parents work outside the home? Does parental divorce damage children's mental health? Do the gender and sexual orientation of parents affect their children's development? The answers to potentially controversial questions like these reflect pressures on the contemporary family (Fiese, 2018). We'll examine these questions and others in order to understand factors that influence parents' lives and support or detract from their effectiveness in raising their children. Another major emphasis in this edition involves the ways in which parents and other adults make a positive difference in children's lives.

You might become a parent someday or might already be one. You should take seriously the importance of rearing your children, because they are the future of our society. Effective parenting takes considerable time and effort. If you plan to become a parent, commit yourself to providing your children with a warm, supportive, safe, and stimulating environment that will make them feel secure and allow them to reach their full potential as human beings. The poster shown on this page, which states "Children learn to love when they are loved," reflects this important goal.



Robert Maust/Photo Agora

What are some questions that need to be answered when thinking about improving U.S. schools?

Iofoto/iStockphoto RF/Getty Images

How Would You...?

If you were a **psychologist,** how would you explain the importance of examining sociocultural factors in developmental research?

Understanding the nature of children's development can help you become a better parent (Carlo & others, 2018; Gershoff, Lee, & Durant, 2017; Nieto & Bode, 2018). Many parents learn parenting practices from their parents. Unfortunately, when parenting practices and child-care strategies are passed from one generation to the next, both desirable and undesirable ones are usually perpetuated. This edition and your instructor's lectures in this course can help you become more knowledgeable about children's development and decide which practices in your own upbringing you should continue with your children and which you should abandon.

Education There is widespread agreement that society needs to continuously improve education for all children (Darling-Hammond, 2018; Morrison, 2018). A number of questions are involved in improving schools. For example, how successful are schools in teaching children to read, write, and calculate? Should there be more accountability in schools, with effectiveness of student learning and teaching assessed by formal tests? Should teachers have higher expectations for students? Should schooling involve less memorization and more attention to the development of children's ability to process information efficiently? In this edition, we examine such questions about the state of education in the United States and consider recent research on solutions to educational challenges.

Sociocultural Contexts and Diversity Health and well-being, parenting, and education–like development itself–are all shaped by their sociocultural context (Cummings & others, 2017; Duncan, Magnuson, & Votruba-Drzal, 2017). The term **context** refers to the settings in which development occurs. These settings are influenced by historical, economic, social, and cultural factors (Masumoto & Juang, 2017). Four contexts to which we pay special attention in this text are culture, ethnicity, socioeconomic status, and gender.

Culture encompasses the behavior patterns, beliefs, and all other products of a specific group of people that are passed on from generation to generation. Culture results from the interaction of people over many years (Masumoto & Juang, 2017). A cultural group can be as large as the United States or as small as a single rural Appalachian town. Whatever its size, the group's culture influences the behavior of its members. **Cross-cultural studies** compare aspects of two or more cultures. The comparison measures the degree to which development is similar, or universal, across cultures, or is instead culture-specific (Keith, 2019).

Ethnicity (the word *ethnic* comes from the Greek word for "nation") is rooted in cultural heritage, nationality, race, religion, and language. African Americans, Latino Americans, Asian Americans, Native Americans, Polish Americans, and Italian Americans are a few examples of ethnic groups. Diversity exists within each ethnic group (Gollnick & Chinn, 2017; Nieto & Bode, 2018).

Relatively high rates of minority immigration have contributed to the growth in the proportion of ethnic minorities in the U.S. population (Frey, 2019). The growing proportion of ethnic minorities in the U.S. population is expected to continue throughout the rest of the twenty-first century. Asian Americans are expected to be the fastest-growing ethnic group of adolescents, with a growth rate of almost 600 percent between 2000 and 2100. Latino adolescents are projected to increase almost 400 percent by 2100. By 2100, Latino adolescents are expected to outnumber non-Latino white adolescents. In contrast, the percentage of African American children is anticipated to increase only slightly over the rest of this century.

Within-group variation and differences in people contradict stereotypes about ethnic groups. A special concern is the discrimination and prejudice experienced by ethnic minority youth (Benner, 2017; Spencer & Swanson, 2016).

Socioeconomic status (SES) refers to a person's position within society based on occupational, educational, and economic characteristics. Socioeconomic status implies certain inequalities. Generally, members of a society have (1) occupations that vary in prestige, with some individuals

context The settings, influenced by historical, economic, social, and cultural factors, in which development occurs.

culture The behavior patterns, beliefs, and all other products of a group that are passed on from generation to generation.

cross-cultural studies Comparisons of one culture with one or more other cultures. These comparisons provide information about the degree to which children's development is similar, or universal, across cultures, and the degree to which it is culture-specific.

ethnicity A characteristic based on cultural heritage, nationality, race, religion, and language.

(a)

(b)

(*a*) These two Korean-born children on the day they became U.S. citizens represent the dramatic increase in the percentage of ethnic minority children in the United States. (*b*) Inderjeet Poolust, 5, from India celebrates being one of 27 schoolchildren who recently became U.S. citizens at an induction ceremony in Queens, New York.

Zuma Press, Inc./Alamy Stock Photo; Debbie Egan-Chin/NY Daily News Archive/Getty Images

having more access than others to higher-status occupations; (2) different levels of educational attainment, with some individuals having more access than others to advanced education; (3) different economic resources; and (4) different levels of power to influence a community's institutions. These differences in SES produce unequal opportunities (Orth, 2018; Yoshikawa, Whipps, & Rojas, 2017).

developmental **connection**
Socioeconomic Status
Growing up in poverty is linked to negative outcomes for children's language skill. Connect to "Cognitive Development in Infancy."

socioeconomic status (SES) An individual's position within society based on occupational, educational, and economic characteristics.

Gender Gender is another key dimension of children's development. **Gender** refers to the characteristics of people as males and females. Few aspects of our development are more central to our identity and social relationships than gender (Brannon, 2017; Helgeson, 2017). How you view yourself, your relationships with other people, your life, and your goals are shaped to a great extent by your gender and how your culture defines gender roles (Wood & Eagly, 2015).

Each of these dimensions of the sociocultural context—culture, ethnicity, SES, and gender—helps to mold how an individual develops through life, as discussions in later chapters demonstrate. We explore, for example, questions such as the following:

- Do infants around the world form attachments with their parents in the same way, or do these attachments differ from one culture to another?
- Does poverty influence the likelihood that young children will be provided with fewer educational opportunities than children growing up in more affluent families?
- Is there a parenting style that is universally effective, or does the effectiveness of different types of parenting depend on the ethnic group or culture?
- If adolescents from minority groups identify with their ethnic culture, is that likely to help or hinder their socioemotional development?

We discuss sociocultural contexts and diversity in each chapter. In addition, a *Connecting with Diversity* interlude appears in every chapter. See the first *Connecting with Diversity* interlude, which focuses on gender, families, and children's development around the world.

Ann Masten with a homeless family who is participating in her research on resilience. She and her colleagues have found that good parenting skills and good cognitive skills (especially attention and self-control) improve the likelihood that children in challenging circumstances will do better when they enter elementary school.

Resilience, Social Policy, and Children's Development Some children develop confidence in their abilities despite negative stereotypes about their gender or their ethnic group. And some children triumph over poverty or other adversities. They show resilience. Think back to the chapter-opening story about Alice Walker. In spite of racism, poverty, her low socioeconomic status, and a disfiguring eye injury, she went on to become a successful author and champion for equality.

Are there certain characteristics that cause children like Alice Walker to be resilient? Are there other characteristics that influence children to behave like Ted Kaczynski, who despite his intelligence and education became a killer? After analyzing research on this topic, Ann Masten (2017; Masten & Cicchetti, 2016; Masten & Kalstabakken, 2017) concludes that a number of individual factors, such as good intellectual functioning, influence resiliency. In addition, as Figure 1 shows, resources within and outside of resilient children's families tend to show certain features. For example, resilient children are likely to have a close relationship to a caring parent figure and bonds with caring adults outside the family.

Should governments take action to improve the contexts of children's development and aid their resilience? **Social policy** is a government's course of action designed to promote the welfare of its citizens. The shape and scope of social policy related to children are tied to the political and economic system. The values held by citizens and elected officials, the nation's economic strengths and weaknesses, and partisan politics all influence the policy agenda (Hidalgo-Hidalgo, 2019; McQueen, 2017; Ruck, Peterson-Badali, & Freeman, 2017).

Source	Characteristic
Individual	Good intellectual functioning Appealing, sociable, easygoing disposition Self-confidence, high self-esteem Talents Faith
Family	Close relationship to caring parent figure Authoritative parenting: warmth, structure, high expectations Socioeconomic advantages Connections to extended supportive family networks
Extrafamilial Context	Bonds to caring adults outside the family Connections to positive organizations Attending effective schools

FIGURE **1**
CHARACTERISTICS OF RESILIENT CHILDREN AND THEIR CONTEXTS

connecting with diversity

Gender, Families, and Children's Development

Around the world, the experiences of male and female children and adolescents continue to be quite different (UNICEF, 2017, 2018). Except in a few areas, such as Japan, the Philippines, and Western countries, males have far greater access to educational opportunities than females. In many countries, adolescent females have less freedom to pursue a variety of careers and engage in various leisure acts than males. Gender differences in sexual expression are widespread, especially in India, Southeast Asia, Latin America, and Arab countries—where there are far more restrictions on the sexual activity of adolescent females than of males. In certain areas around the world, these gender differences do appear to be narrowing over time. In some countries, educational and career opportunities for women are expanding, and in some parts of the world control over adolescent girls' romantic and sexual relationships is weakening. However, in many countries females still experience considerable discrimination, and much work is needed to bridge the gap between the rights of males and females.

In certain parts of the world, children grow up in closely knit families with extended-kin networks "that provide a web of connections and reinforce a traditional way of life" (Brown & Larson, 2002, p. 6). For example, in Arab countries, adolescents are required to adopt strict codes of conduct and loyalty. However, in Western countries such as the United States, increasing numbers of children and adolescents are growing up in divorced families and stepfamilies. Parenting in Western countries has become less authoritarian than it was in the past.

Doly Akter, age 17, lives in a slum in Dhaka, Bangladesh, where sewers overflow, garbage rots in the streets, and children are undernourished. Nearly two-thirds of young women in Bangladesh get married before they are 18. Doly organized a club supported by UNICEF in which girls go door-to-door to monitor the hygiene habits of households in their neighborhood. This has led to improved hygiene and health in the families. Also, her group has managed to stop several child marriages by meeting with parents and convincing them that it is not in their daughter's best interests. When talking with parents, they emphasize the importance of staying in school and how this will improve their daughter's future. Doly says that the girls in her UNICEF group are far more aware of their rights than their mothers ever were (UNICEF, 2007).
Naser Siddique/UNICEF Bangladesh

Some of the trends that are occurring in many countries around the world "include greater family mobility, migration to urban areas, family members working in distant cities or countries, smaller families, fewer extended-family households, and increases in mothers' employment" (Brown & Larson, 2002, p. 7). Unfortunately, many of these changes may reduce the ability of families to provide time and resources for children and adolescents.

When concern about broad social issues is widespread, comprehensive social policies often result. Child labor laws were established in the early twentieth century not only to protect children but also to provide jobs for adults; federal child-care funding during World War II was justified by the need for women laborers in factories; and Head Start and other War on Poverty programs in the 1960s were implemented to decrease intergenerational poverty (Stern & Axinn, 2017).

Out of concern that policy makers are doing too little to protect the well-being of children, researchers increasingly are undertaking studies that they hope will lead to wise and effective decision making about social policy around the world (Israelashvili & Romano, 2017; McQueen, 2017; Yousafzai & others, 2018). Children who grow up in poverty represent a special concern because of the developmental effects of economic deprivation (Duncan, Magnuson, & Votruba-Drzal, 2017; Mendoza & others, 2017). In 2016, 18 percent of U.S. children and adolescents were living in families with household incomes below the federal poverty line, with African American and Latino American families with children and adolescents having especially high rates of poverty (27 to 30 percent) (U.S. Census Bureau, 2017a). The overall U.S. child and adolescent poverty rate is slightly below the 50-year peak of 22.7 percent in 1993.

As indicated in Figure 2, one classic study found that a higher percentage of U.S. children in poor families than in middle-income families were exposed to family turmoil, separation from a parent, violence, crowding, excessive noise, and poor housing (Evans & English, 2002). Another more recent study also revealed that the more years children spent living in poverty, the higher their physiological indices of stress were (Doom & others, 2018). The U.S. figure

gender The characteristics of people as females or males.

social policy A government's course of action designed to promote the welfare of its citizens.

of 18 percent of children living in poverty in 2016 is much higher than those of other industrialized nations. The average is 13 percent among the 36 members of the Organization for Economic Cooperation and Development, ranging from 3 percent in Denmark to 33 percent in China (OECD, 2018).

In the United States, the national government, state governments, and city governments all play a role in influencing the well-being of children (Yoshikawa & others, 2016, 2017). When families fail or seriously endanger a child's well-being, governments often step in to help. At the national and state levels, policy makers have debated for decades whether helping poor parents ends up helping their children as well. Researchers are providing some answers by examining the effects of specific policies (Duncan, Magnuson, & Votruba-Drzal, 2017; Gottlieb & DeLoache, 2017).

For example, the Minnesota Family Investment Program (MFIP) was designed in the 1990s primarily to influence the behavior of adults—specifically, to move adults off the welfare rolls and into paid employment. A key element of the program was its guarantee that adults participating in the program would receive more income if they worked than if they did not. When the adults' income rose, how did that affect their children? A study of the effects of MFIP found that increases in the incomes of working poor parents were linked with benefits for their children (Gennetian & Miller, 2002). The children's achievement in school improved, and their behavior problems decreased.

The MFIP is one of many such interventions and studies. These interventions have shown that raising the incomes of families living in poverty sometimes does not affect children's development, but often it does. Benefits include reduced exposure to developmental risks such as abuse and maternal depression, along with improvements in supportive factors such as safety, cognitive stimulation, and sensitive parenting (Cooper & Stewart, 2017).

There is ongoing interest in developing two-generation educational interventions to improve the academic success of children living in poverty (Gardner, Brooks-Gunn, & Chase-Lansdale, 2016; Sommer & others, 2016). For example, a recent large-scale effort to help children escape from poverty is the *Ascend* two-generation educational intervention being conducted by the Aspen Institute (2018). The intervention emphasizes education (increasing post-secondary education for mothers and improving the quality of their children's early childhood education), economic support (housing, transportation, financial education, health insurance, and food assistance), and social capital (peer support including friends and neighbors; participation in community and faith-based organizations; school and work contacts).

Developmental psychologists and other researchers have examined the effects of many government policies. They are seeking ways to help families living in poverty improve their well-being, and they have offered many suggestions for improving government policies (Duncan, Magnuson, & Votruba-Drzal, 2017; McQueen, 2017; Yoshikawa & others, 2016, 2017).

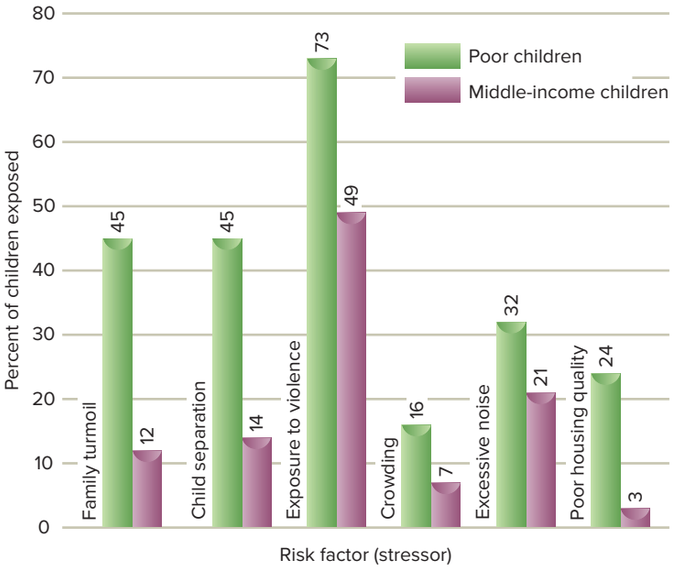


FIGURE 2

EXPOSURE TO SIX STRESSORS AMONG POOR AND MIDDLE-INCOME CHILDREN. One study analyzed the exposure to six stressors among poor children and middle-income children (Evans & English, 2002). Poor children were much more likely to face each of these stressors.
Source: Evans, G.W., & English, K. (2002). The environment of poverty. *Child Development,* 73, 1238–1248.

Children are the legacy we leave for the time we will not live to see.

—ARISTOTLE

Marian Wright Edelman, president of the Children's Defense Fund (shown here interacting with young children), has been a tireless advocate of children's rights and has been instrumental in calling attention to the needs of children. *What are some of these needs?*
Courtesy of the Children's Defense Fund

Review *Connect* Reflect

LG1 Explain why it is important to study children's development, and identify five areas in which children's lives need to be improved.

Review

- Why is it important to study children's development?
- What are five aspects of children's development that need to be improved?

Connect

- How is the concept of resilience related to the story about Ted Kaczynski and Alice Walker?

Reflect *Your Own Personal Journey of Life*

- Imagine what your development as a child would have been like if you had grown up in a culture that offered more or fewer choices. How might your development have been different if your family had been significantly richer or poorer than it was?

2 What Characterizes Development?

LG2 Discuss processes, periods, cohort effects, and issues in development.

Biological, Cognitive, and Socioemotional Processes | Periods of Development | Cohort Effects | Issues in Development

Each of us develops in certain ways like all other individuals, like some other individuals, and like no other individuals. Most of the time, our attention is directed to a person's uniqueness, but psychologists who study development are drawn to our shared characteristics as well as what makes us unique. As humans, we all have traveled some common paths. Each of us—Leonardo da Vinci, Joan of Arc, George Washington, Mother Teresa, Martin Luther King, Jr., and you—walked at about the age of 1, engaged in fantasy play as a young child, and became more independent as a youth. What shapes this common path of human development, and what are its milestones?

BIOLOGICAL, COGNITIVE, AND SOCIOEMOTIONAL PROCESSES

The pattern of human development is created by the interplay of different kinds of processes—biological, cognitive, and socioemotional. **Biological processes** produce changes in an individual's body. Genes inherited from parents, the development of the brain, height and weight gains, motor skills, and the hormonal changes of puberty all reflect the role of biological processes in development.

Cognitive processes lead to changes in an individual's thoughts, intelligence, and language. The tasks of watching a mobile swinging above a crib, putting together a two-word sentence, memorizing a poem, solving a math problem, and imagining what it would be like to be a movie star all involve cognitive processes.

Socioemotional processes produce changes in an individual's relationships with other people, changes in emotions, and changes in personality. An infant's smile in response to her mother's touch, a toddler's attack on a playmate, a third-grader's development of assertiveness, and an adolescent's joy at the senior prom all reflect socioemotional development.

Biological, cognitive, and socioemotional processes are deeply intertwined (Diamond, 2013). Consider a baby smiling in response to a parent's touch. This response depends on biological processes (the physical nature of touch and responsiveness to it), cognitive processes (the ability to understand intentional acts), and socioemotional processes (smiling often reflects positive emotions, and helps connect us in positive ways with other human beings). The connection across biological, cognitive, and socioemotional processes is most obvious in two rapidly emerging fields:

- *Developmental cognitive neuroscience,* which explores links between development, cognitive processes, and the brain (Bell & others, 2018; Hauser & others, 2019)

biological processes Factors that produce changes in an individual's body.

cognitive processes Factors that produce changes in an individual's thought, intelligence, and language.

socioemotional processes Factors that produce changes in an individual's relationships with other people, changes in emotions, and changes in personality.

- *Developmental social neuroscience,* which examines connections between socioemotional processes, development, and the brain (Immordino-Yang, Darling-Hammond, & Krone, 2019; Sullivan & Wilson, 2018)

Biological, cognitive, and socioemotional processes interact and can influence each other. For example, biological processes can influence cognitive processes and vice versa. Thus, although usually we will explore the different processes of development (biological, cognitive, and socioemotional) separately, keep in mind that our discussion is about the development of an integrated human child with a mind and body that are interdependent (see Figure 3). In many places throughout this edition we will call attention to these connections.

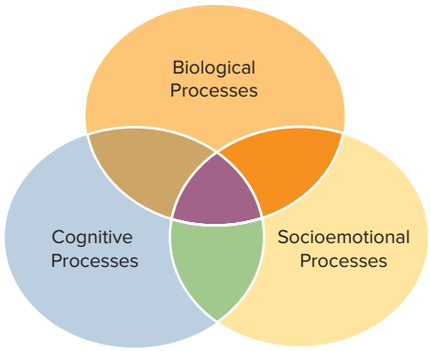


FIGURE 3

CHANGES IN DEVELOPMENT ARE THE RESULT OF BIOLOGICAL, COGNITIVE, AND SOCIOEMOTIONAL PROCESSES. The processes interact as individuals develop.

PERIODS OF DEVELOPMENT

For the purposes of organization and understanding, a child's growth is commonly described in terms of developmental periods, which are given approximate age ranges. The most widely used classification of developmental periods includes the prenatal period, infancy, early childhood, middle and late childhood, and adolescence.

The **prenatal period** is the time from conception to birth, roughly a nine-month period. During this stage of incredibly rapid development, a single cell grows into a fetus and then a baby with a brain and a wide range of capabilities.

Infancy is the developmental period that extends from birth to about 18 to 24 months of age. Infancy is a time of extreme dependence on adults. Many psychological activities are just beginning—the ability to speak, to coordinate sensations and physical actions, to think with symbols, and to imitate and learn from others.

Early childhood is the developmental period that extends from the end of infancy to about 5 or 6 years of age; sometimes this period is called the preschool years. During this time, young children learn to become more self-sufficient; they develop school readiness skills (following instructions, identifying letters), and they spend many hours in play and with peers. First grade typically marks the end of this period.

Middle and late childhood is the developmental period from about 6 to 11 years of age; sometimes this period is referred to as the elementary school years. Children master the fundamental skills of reading, writing, and arithmetic, and they are formally exposed to the larger world and its cultures. Achievement becomes a more central theme of the child's world, and self-control increases.

Adolescence is the developmental period of transition from childhood to early adulthood, beginning at approximately 10 to 12 years of age and ending at 18 to 22 years of age. Adolescence begins with rapid physical changes—dramatic gains in height and weight; changes in body shape; and the development of sexual characteristics such as enlargement of the breasts and widening of the hips, development of pubic and facial hair, and deepening of the voice. The pursuit of independence and an identity are prominent features of this period of development, although this varies widely between cultures. More and more time is spent outside the family. Thought becomes more abstract, idealistic, and logical.

Today, developmental scientists do not suggest that change ends with adolescence (Bornstein, 2018; Sommerville & others, 2018). Instead, they describe development as a lifelong process. However, the purpose of this text is to describe the changes in development that take place from conception through adolescence. All of these periods of development are produced by the interplay of biological, cognitive, and socioemotional processes (see Figure 4).

prenatal period The time from conception to birth.

infancy The developmental period that extends from birth to 18 to 24 months of age.

early childhood The developmental period that extends from the end of infancy to about 5 to 6 years of age, sometimes called the preschool years.

middle and late childhood The developmental period that extends from about 6 to 11 years of age, sometimes called the elementary school years.

adolescence The developmental period of transition from childhood to early adulthood, entered at approximately 10 to 12 years of age and ending at 18 to 22 years of age.

COHORT EFFECTS

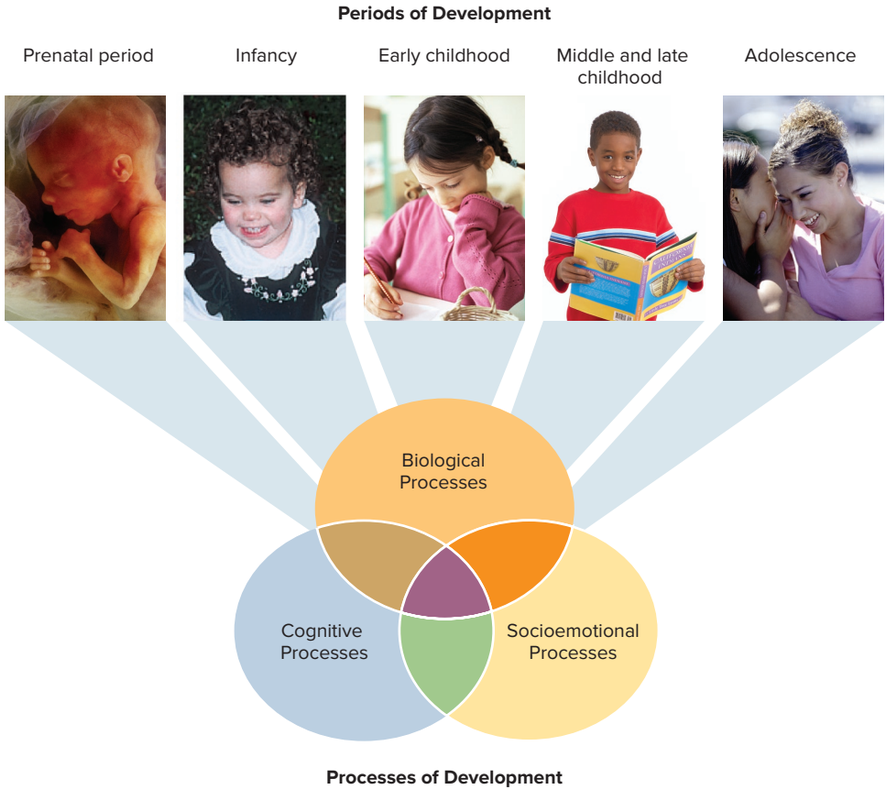
In addition to considering developmental periods that emerge and change with age, we also must consider the points in time and history when groups of people were born and grew up. A *cohort* is a group of people who are born at a similar point in history and share similar experiences such as growing up in the same city at around the same time. These shared experiences can produce differences in development between cohorts (Halfon & Forrest, 2018). For example, children and their parents who grew up during the Great Depression and World War II are likely to differ from their counterparts during the economically booming 1990s in their educational opportunities and economic status, how they were raised, their attitudes and experiences related to gender, and their exposure to technology. In research on development, **cohort effects** are due to a person's time of birth, era, or generation but not to actual age (Ganguli, 2017; Schaie, 2016).

cohort effects Effects due to a person's time of birth, era, or generation but not to actual age.

FIGURE 4

PROCESSES AND PERIODS OF DEVELOPMENT. Development moves through the prenatal, infancy, early childhood, middle and late childhood, and adolescence periods. These periods of development are the result of biological, cognitive, and socioemotional processes.

(*Left to right*): Steve Allen/Brand X Pictures/Getty Images; Dr. John Santrock; Laurence Mouton/PhotoAlto/Getty Images; Ken Karp/McGraw-Hill; SW Productions/Brand X Pictures/Getty Images



Millennials Born between 1980 and 1999, this generation is the first to come of age and enter emerging adulthood in the new millennium; members of this generation are characterized by their ethnic diversity and their connection to technology.

nature-nurture issue The historical issue regarding whether development is primarily influenced by nature or nurture. The "nature" proponents claimed that biological inheritance was the more important influence on development; the "nurture" proponents asserted that environmental experiences were more important.

In recent decades, generations have been given labels by the popular culture. The most recent group to have "grown up" are called **Millennials,** the generation born roughly between 1980 and 1999, that is the first to come of age and enter emerging adulthood in the new millennium. Thus, many of today's parents are Millennials. Two characteristics of Millennials stand out: (1) their ethnic diversity and (2) their connection to technology (US Census Bureau, 2015).

As their ethnic diversity has increased in comparison with prior generations, many Millennials are more tolerant and open-minded than their counterparts in older cohorts (Frey, 2018). Another major cohort change involving Millennials is the dramatic increase in their use of media and technology (Lever-Duffy & McDonald, 2018; Maloy & others, 2017). According to one analysis,

> They are history's first "always connected" generation. Steeped in digital technology and social media, they treat their multi-tasking hand-held gadgets almost like a body part—for better or worse. More than 8-in-10 say they sleep with a cell phone glowing by the bed, poised to disgorge texts, phone calls, e-mails, songs, news, videos, games, and wake-up jingles. But sometimes convenience yields to temptation. Nearly two-thirds admit to texting while driving. (Pew Research Center, 2010, p. 1)

We will have much more to say about technology in childhood and adolescence in the chapters entitled "Socioemotional Development in Early Childhood" and "Socioemotional Development in Adolescence."

Sanda Stanca/123RF

ISSUES IN DEVELOPMENT

Many questions about children's development remain unanswered. For example, what exactly drives the biological, cognitive, and socioemotional processes of development, and how do experiences during infancy influence middle childhood or adolescence? Despite all of the knowledge that researchers have acquired, debate continues about the relative importance of factors that influence

the developmental processes and about how the periods of development are related. The most important issues in the study of children's development include nature and nurture, continuity and discontinuity, and early and later experience.

Nature and Nurture The **nature-nurture issue** involves an old debate about whether development is primarily influenced by nature or by nurture. Nature refers to an organism's biological inheritance, nurture to its environmental experiences. Almost no one today argues that development can be explained by nature alone or by nurture alone. However, it is important to understand the history of the old nature-nurture positions. Some ("nature" proponents) claim that the more important influence on development is biological inheritance, and others ("nurture" proponents) claim that environmental experiences are the more important influence.

According to the nature proponents, just as a sunflower grows in an orderly way—unless it is defeated by an unfriendly environment—so does a person. The range of environments can be vast, but evolutionary and genetic foundations produce commonalities in growth and development (Buss, 2018; Starr, Evers, & Starr, 2018). We walk before we talk, speak one word before two words, grow rapidly in infancy and less so in early childhood, and experience a rush of sexual hormones in puberty. Extreme environments—those that are psychologically barren or hostile—can stunt development, but nature proponents emphasize the influence of tendencies that are genetically wired into humans (Johnson, 2017).

By contrast, others have emphasized the influence of nurture, or environmental experiences, on development (Almy & Cicchetti, 2018; Rubin & Barstead, 2018). Experiences run the gamut from the individual's biological environment (nutrition, medical care, drugs, and physical accidents) to the social environment (family, peers, schools, community, media, and culture). For example, a child's diet can affect how tall the child grows and even how effectively the child can think and solve problems. Despite their genetic wiring, a child born and raised in a poor village in Bangladesh and a child in the suburbs of Denver are likely to have different skills, different ways of thinking about the world, and different ways of relating to people. Today, we now understand that nature and nurture work together in explaining development.

Continuity and Discontinuity Think about your own development for a moment. Did you become the person you are gradually, like the seedling that slowly, cumulatively grows into a giant oak? Or did you experience sudden, distinct changes, like the caterpillar that changes into a butterfly (see Figure 5)? For the most part, developmentalists who emphasize nurture usually describe development as a gradual, continuous process, like the seedling's growth into an oak. Those who emphasize nature often describe development as a series of distinct stages, like the change from caterpillar to butterfly. The **continuity-discontinuity issue** focuses on the extent to which development involves gradual, cumulative change (continuity) or distinct stages (discontinuity).

Consider continuity first. As the oak grows from seedling to giant oak, it becomes more oak—its development is continuous. Similarly, a child's first word, though seemingly an abrupt, discontinuous event, is actually the result of weeks and months of growth and practice. Puberty, another seemingly abrupt, discontinuous occurrence, is actually a gradual process occurring over several years.

Viewed in terms of discontinuity, each person is described as passing through a sequence of distinct stages. As the caterpillar changes to a butterfly, it is not more caterpillar but an altogether different kind of organism—its development is discontinuous. Similarly, at some point a child moves from not being able to think abstractly about the world to being able to do so. This change is a "qualitative," discontinuous change in development, not a "quantitative," continuous change.

Early and Later Experience The **early-later experience issue** focuses on the degree to which early experiences (especially in infancy) or later experiences are the key determinants of the child's development. That is, if infants experience harmful circumstances, can those experiences be overcome by later, positive ones? Or are the early experiences so critical—possibly because they are the infant's first, essential experiences—that their influence cannot be overridden by a later, better environment? To those who emphasize early experiences, life is an unbroken trail on which a psychological quality can be traced back to its origin (Kagan, 2013). In contrast, to those who emphasize the impact of recent experiences, development is like a river, continually ebbing and flowing.

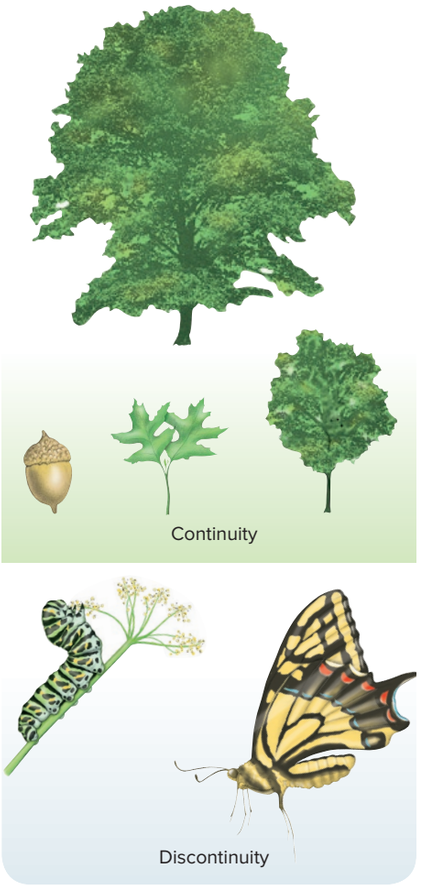


FIGURE 5

CONTINUITY AND DISCONTINUITY IN DEVELOPMENT. *Is our development like that of a seedling gradually growing into a giant oak? Or is it more like that of a caterpillar suddenly becoming a butterfly?*

How Would You...?

If you were an **educator,** how would you apply your understanding of the developmental influences of nature and nurture to create appropriate classroom strategies for students who display learning or behavioral problems?

continuity-discontinuity issue The issue regarding whether development involves gradual, cumulative change (continuity) or distinct stages (discontinuity).

early-later experience issue The issue of the degree to which early experiences (especially infancy) or later experiences are the key determinants of the child's development.

What is the nature of the early and later experience issue?
Jamie Grill/JGI/Blend Images/Getty Images

The early-later experience issue has a long history and continues to be hotly debated among developmentalists (Roisman & Cicchetti, 2017). The ancient Greek philosopher Plato was sure that infants who were rocked frequently become better athletes. Nineteenth-century New England ministers told parents in Sunday afternoon sermons that the way they handled their infants would determine their children's later character. Many developmentalists argue that, unless infants experience warm, nurturing care during the first year or so of life, their development will be compromised (Thompson, 2018).

In contrast, later-experience advocates argue that children readily change throughout development and that later sensitive caregiving is just as important as earlier sensitive caregiving (Fingerman & others, 2017; Padilla-Walker & Nelson, 2017). The later-experience advocates see children as malleable throughout development, with sensitive caregiving and positive close relationships playing important roles later in child development, adolescence, and adulthood just as they do in infancy (Antonucci & others, 2016). A number of experts on life-span development stress that too little attention has been given to the impact of later experiences on development (Allen & Tan, 2016). They accept that early experiences are important contributors to development but hold them to be no more important than later experiences. Jerome Kagan (2013) points out that even children who show the qualities of an inhibited temperament, which is linked to heredity, have the capacity to change their behavior. In one classic study, almost one-third of a group of children who had an inhibited temperament at 2 years of age were not unusually shy or fearful when they were 4 years of age (Kagan & Snidman, 1991).

People in Western cultures, especially those influenced by Freud's theory (described later in this chapter), have tended to support the idea that early experiences are more important than later experiences (Fonagy & others, 2016). However, the majority of people in the world may not share this belief because their value systems and histories of psychology have not been heavily influenced by Freudian theory.

developmental **connection**
Biological Processes
Can specific genes be linked to specific environmental experiences in influencing the child's development? Connect to "Biological Beginnings."

Evaluating the Developmental Issues Most developmentalists recognize that it is unwise to take an extreme position on the issues of nature and nurture, continuity and discontinuity, and early and later experiences. Development is not all nature or all nurture; not all continuity or all discontinuity; and not all early or later experiences. Nature and nurture, continuity and discontinuity, and early and later experiences all play a part in development throughout the human life span. Along with this consensus, however, there is still spirited debate about how strongly development is influenced by each of these factors (Moore, 2017; Morrison, 2017). Are there gender differences in certain skills because of inherited characteristics or because of society's expectations and because of how girls and boys are raised? Can enriched experiences during adolescence remove negative effects on development resulting from poverty, neglect, and poor schooling during childhood? The answers also have a bearing on social policy decisions about children and adolescents—and consequently on each of our lives.

Review *Connect* Reflect

LG2 Discuss processes, periods, cohort effects, and issues in development.

Review

- What are biological, cognitive, and socioemotional processes?
- What are the main periods of development?
- What are cohort effects?
- What are three important issues in development?

Connect

- Based on what you read earlier in the chapter, what do you think Ted Kaczynski would say about the early-later experience issue?

Reflect *Your Own Personal Journey of Life*

- Can you identify an early experience that you believe contributed in important ways to your development? Can you identify a recent or current (later) experience that you think had (is having) a strong influence on your development?

3 How Is Child Development a Science?

LG3 Summarize why research is important in child development, the main theories of child development, and research methods, designs, and challenges.

The Importance of Research | Theories of Child Development | Research Methods for Collecting Data | Research Designs | Research Challenges

This section introduces the theories and methods that are the foundation of the science of child development. We consider why research is important in understanding children's development and examine the main theories of children's development, as well as the main methods and research designs that researchers use. At the end of the section, we explore some of the ethical challenges researchers face and the biases they must guard against to protect the integrity of their results and respect the rights of the participants in their studies.

THE IMPORTANCE OF RESEARCH

Some individuals have difficulty thinking of child development as a science like physics, chemistry, and biology. Can a scientific discipline that studies how parents nurture children, how peers interact, what are the developmental changes in children's thinking, and whether unlimited screen time hour after hour is linked with being overweight be equated with disciplines that study the molecular structure of a compound and how gravity works? Is child development really a science? The answer is yes. Science is defined not by *what* it investigates, but by *how* it investigates. Whether you're studying photosynthesis, butterflies, Saturn's moons, or children's development, it is the way you study that makes the approach scientific or not.

Scientific research is objective, systematic, and testable. It reduces the likelihood that information will be based on personal beliefs, opinions, and feelings (Babbie, 2017; Smith & Davis, 2016). Scientific research is based on the **scientific method,** an approach that can be used to discover accurate information. It includes four steps: conceptualize the problem, collect data, analyze the data to reach conclusions, and revise research conclusions and theory.

The first step, *conceptualizing a problem,* involves identifying the problem. At a general level, this may not seem like a difficult task. However, researchers must go beyond a general description of the problem by isolating, analyzing, narrowing, and focusing more specifically on what they want to study. For example, a team of researchers decides to study ways to improve the achievement of children from impoverished backgrounds. Perhaps they choose to examine whether mentoring that involves sustained support, guidance, and concrete assistance can improve the children's academic performance. At this point, even more narrowing and focusing takes place. For instance, what specific strategies should the mentors use? How often will they see the children? How long will the mentoring program last? What aspects of the children's achievement will be assessed?

As part of the first step in formulating a problem to study, researchers often *draw on theories and develop a hypothesis*. A **theory** is an interrelated, coherent set of ideas that helps to explain and to make predictions. For example, a theory on mentoring might attempt to explain and predict why sustained support, guidance, and concrete experience make a difference in the lives of children from impoverished backgrounds. The theory might focus on children's opportunities to model the behavior and strategies of mentors, or it might focus on the effects of individual attention, which might be missing in the children's lives. A **hypothesis** is a specific testable assumption or prediction. A hypothesis is often written as an if-then statement. In our example, a sample hypothesis might be: If children from impoverished backgrounds are given individual attention by mentors, the children will spend more time studying and earn higher grades. Testing a hypothesis can inform researchers whether or not a theory may be accurate.

Science refines everyday thinking.

—Albert Einstein
German-born American Physicist, 20th Century

scientific method An approach that can be used to obtain accurate information. It includes these steps: (1) conceptualize the problem, (2) collect data, (3) draw conclusions, and (4) revise research conclusions and theory.

theory An interrelated, coherent set of ideas that helps to explain and make predictions.

hypothesis A specific assumption or prediction that can be tested to determine its accuracy.

A high school senior mentors a kindergarten child as part of the Book Buddy mentoring program. *If a researcher wanted to study the effects of the mentoring program on children's academic achievement by following the scientific method, what steps would the researcher take in setting up the study?*
Zuma Press, inc./Alamy Stock Photo

How Would You...?
If you were a **health-care professional,** how would you apply the scientific method to examine developmental concerns such as adolescent pregnancy?

The second step in the scientific method is to *collect information (data)*. In the study of mentoring, the researchers might decide to conduct the mentoring program for six months. Their data might consist of classroom observations, teachers' ratings, and achievement tests given to the mentored children before the mentoring began and at the end of six months of mentoring.

Once data have been collected, child development researchers use statistical procedures to understand the meaning of the data. Then they try to *draw conclusions*. In this third step, statistics help to determine whether or not the researchers' observations are due to chance.

After data have been collected and analyzed, researchers compare their findings with those of other researchers on the same topic. The final step in the scientific method is *revising research conclusions and theory.*

THEORIES OF CHILD DEVELOPMENT

Having a wide range of theories to choose from makes understanding children's development a challenging undertaking. Just when you think one theory has the most helpful explanation of children's development, another theory crops up and makes you rethink your earlier conclusion. To keep from getting frustrated, remember that child development is a complex, multifaceted topic. No single theory has been able to account for all aspects of child development. Each theory contributes an important piece to the child development puzzle. Although the theories sometimes disagree, much of their information is complementary rather than contradictory. Together they let us see the total landscape of development in all its richness.

We briefly explore five major theoretical perspectives on development: psychoanalytic, cognitive, behavioral and social cognitive, ethological, and ecological. As you will see, these theoretical approaches examine in varying degrees the three major processes involved in children's development: biological, cognitive, and socioemotional.

psychoanalytic theories Development is seen as primarily unconscious and heavily colored by emotion. Behavior is merely a surface characteristic, and the symbolic workings of the mind have to be analyzed to understand behavior. Early experiences with parents are emphasized.

Sigmund Freud, the pioneering architect of psychoanalytic theory. *What are some characteristics of Freud's theory?*
Bettmann/Getty Images

Psychoanalytic Theories

Psychoanalytic theories describe development as primarily unconscious (beyond awareness) and heavily colored by emotion. Psychoanalytic theorists emphasize that behavior is merely a surface characteristic and that a true understanding of development requires analyzing the symbolic meanings of behavior and the deep inner workings of the mind. Psychoanalytic theorists also stress that early experiences with parents extensively shape development. These characteristics are highlighted in the psychoanalytic theory of Sigmund Freud (1856–1939).

Freud's Theory

Freud (1917) proposed that personality has three structures: the id, the ego, and the superego. The *id* is the Freudian structure of personality that consists of instincts, which are an individual's reservoir of psychic energy. In Freud's view, the id is totally unconscious; it has no contact with reality. As children experience the demands and constraints of reality, a new structure of personality emerges—the *ego*. It deals with the demands of reality and is called the "executive branch" of personality because it uses reasoning to make decisions. The id and the ego have no morality—they do not take into account whether something is right or wrong. The *superego* is the Freudian structure of personality that is the moral branch of personality, the part that considers whether something is right or wrong. Think of the superego as what we often refer to as our "conscience."

As Freud listened to, probed, and analyzed his patients, he became convinced that their problems were the result of experiences early in life. He thought that as children grow up, their focus of pleasure and sexual impulses shifts from the mouth to the anus and eventually to the genitals. As a result, we go through five stages of psychosexual development: oral, anal, phallic, latency, and genital (see Figure 6). Our adult personality, Freud

FIGURE **6**

FREUDIAN STAGES. Sigmund Freud, the pioneering architect of psychoanalytic theory. *What are some characteristics of Freud's theory?*

claimed, is determined by the way we resolve conflicts between sources of pleasure and the demands of reality at each stage.

Freud's theory has been significantly revised by a number of psychoanalytic theorists. Many contemporary psychoanalytic theorists maintain that Freud overemphasized sexual instincts; they place more emphasis on cultural experiences as determinants of an individual's development. Unconscious thought remains a central theme, but most contemporary psychoanalysts stress that conscious thought plays a greater role than Freud envisioned. Next, we outline the ideas of an important revisionist of Freud's theory—Erik Erikson.

Erik Erikson with his wife, Joan, an artist. Erikson generated one of the most important developmental theories of the twentieth century. *Which stage of Erikson's theory are you in? Does Erikson's description of this stage characterize you?*
Jon Erikson/Science Source

Erikson's Psychosocial Theory Erik Erikson (1902–1994) recognized Freud's contributions but argued that Freud misjudged some important dimensions of human development. For one thing, Erikson (1950, 1968) said we develop in psychosocial stages rather than in psychosexual stages, as Freud maintained. According to Freud, the primary motivation for human behavior is sexual; according to Erikson, it is social and reflects a desire to affiliate with other people. According to Freud, our basic personality is shaped in the first five years of life; according to Erikson, developmental change occurs throughout the life span. Thus, in terms of the early versus later experience issue described earlier in this chapter, Freud argued that early experience is far more important than later experiences, whereas Erikson emphasized the importance of both early and later experiences.

In **Erikson's theory,** eight stages of development unfold as we go through life (see Figure 7). At each stage, a unique developmental task confronts individuals with a crisis that must be resolved. According to Erikson, this crisis is not a catastrophe but a turning point marked by both increased vulnerability and enhanced potential. The more successfully an individual resolves the crisis, the healthier his or her development will be.

Trust versus mistrust is Erikson's first psychosocial stage, which is experienced in the first year of life. Trust during infancy sets the stage for a lifelong expectation that the world will be a good and pleasant place to live.

After gaining trust in their caregivers, infants begin to discover that their behavior is their own. They start to assert their sense of independence, or autonomy. If infants are restrained too much or punished too harshly, they are likely to develop a sense of shame and doubt. This is Erikson's second stage of development, *autonomy versus shame and doubt,* which occurs in late infancy and toddlerhood (1 to 3 years of age).

Initiative versus guilt, Erikson's third stage of development, occurs during the preschool years. As preschool children encounter a widening social world, they face new challenges that require active, purposeful behavior. Children are asked to assume responsibility for their bodies, their behavior, their toys, and their pets—and they take initiative. Feelings of guilt may arise, though, if the child is irresponsible and is made to feel too anxious.

Industry versus inferiority is Erikson's fourth developmental stage, occurring approximately in the elementary school years. Children's initiative brings them in contact with a wealth of new experiences. As they move into middle and late childhood, they direct their energy toward mastering knowledge and intellectual skills. At no other time is the child more enthusiastic about learning than at the end of early childhood's period of expansive imagination. The danger is that the child can develop a sense of inferiority—feeling incompetent and unproductive.

During the adolescent years, individuals are faced with finding out who they are, what they are all about, and where they are going in life. This is Erikson's fifth developmental stage, *identity versus identity confusion*. Adolescents are confronted with many new roles and adult statuses—vocational and romantic, for example. If they explore roles in a healthy manner and arrive at a positive path to follow in life, then they achieve a positive identity. If parents push an identity on adolescents, and if adolescents do not adequately explore many roles and define a positive future path, then identity confusion reigns.

Intimacy versus isolation is Erikson's sixth developmental stage, which individuals experience during early adulthood. At this time, individuals face the developmental task of forming intimate relationships. Erikson describes intimacy as finding oneself yet losing

Erikson's Stages	Developmental Period
Integrity versus despair	Late adulthood (60s onward)
Generativity versus stagnation	Middle adulthood (40s, 50s)
Intimacy versus isolation	Early adulthood (20s, 30s)
Identity versus identity confusion	Adolescence (10 to 20 years)
Industry versus inferiority	Middle and late childhood (elementary school years, 6 years to puberty)
Initiative versus guilt	Early childhood (preschool years, 3 to 5 years)
Autonomy versus shame and doubt	Infancy (1 to 3 years)
Trust versus mistrust	Infancy (first year)

FIGURE **7**
ERIKSON'S EIGHT LIFE-SPAN STAGES

How Would You...?
If you were a **human development and family studies professional,** how would you apply psychoanalytic theory to advise the foster family of a newly placed child who has no reported history of abuse yet shows violent behavior?

oneself in another. If the young adult forms healthy friendships and an intimate relationship with another, intimacy will be achieved; if not, isolation will result.

Generativity versus stagnation, Erikson's seventh developmental stage, occurs during middle adulthood. By generativity Erikson means primarily a concern for helping the younger generation to develop and lead useful lives. The feeling of having done nothing to help the next generation is stagnation.

Integrity versus despair is Erikson's eighth and final stage of development, which individuals experience in late adulthood. During this stage, a person reflects on the past. Through many different routes, the person may have developed a positive outlook in most or all of the previous stages of development. If so, the person's review of his or her life will reveal a life well spent, and the person will feel a sense of satisfaction—integrity will be achieved. If the person has resolved many of the earlier stages negatively, the retrospective glances likely will yield doubt or gloom—the despair Erikson described.

Each of Erikson's stages has a "positive" pole, such as trust, and a "negative" pole, such as mistrust. In the healthy solution to the crisis of each stage, the positive pole dominates, but Erikson maintained that some exposure or commitment to the negative side is sometimes inevitable. For example, learning to trust is an important outcome of Erikson's first stage, but you cannot trust all people under all circumstances and survive. We discuss Erikson's theory again in the chapters on socioemotional development. In the *Caring Connections* interlude, you can read about some effective strategies for improving the lives of children based on Erikson's view.

Evaluating the Psychoanalytic Theories

The contributions of psychoanalytic theories include these ideas: (1) early experiences play an important part in development; (2) family relationships are a central aspect of development; (3) personality can be better understood if it is examined developmentally; (4) activities of the mind are not entirely conscious—unconscious aspects need to be considered; and (5) in Erikson's theory, changes take place in adulthood as well as in childhood.

Psychoanalytic theories have been criticized for several reasons. First, the main concepts of psychoanalytic theories are difficult to test scientifically. Second, many of the data used to support psychoanalytic theories come from individuals' reconstruction of the past, often the distant past, and are of unknown accuracy. Third, the sexual underpinnings of development are given too much importance (especially in Freud's theory), and the unconscious mind is given too much credit for influencing development. In addition, psychoanalytic theories (especially Freud's theory) present an overly negative image of humans and are culture- and gender-biased, treating Western culture and males as the measure for evaluating everyone.

Cognitive Theories

Whereas psychoanalytic theories stress the importance of the unconscious, cognitive theories emphasize conscious thoughts. Three important cognitive theories are Piaget's cognitive developmental theory, Vygotsky's sociocultural cognitive theory, and information-processing theory.

developmental **connection**
Cognitive Theory
The entire field of children's cognitive development began with Piaget, but a number of criticisms of his theory have been made. Connect to "Cognitive Development in Middle and Late Childhood."

Piaget's Cognitive Developmental Theory

Piaget's theory states that children actively construct their understanding of the world and go through four stages of cognitive development. Two processes move us through the four stages of development in Piaget's theory: organization and adaptation. To make sense of our world, we *organize* our experiences. For example, we separate important ideas from less important ideas, and we connect one idea to another. In addition to organizing our observations and experiences, we *adapt,* adjusting to new environmental demands (Miller, 2016).

Piaget (1896–1980) also proposed that we go through four stages in understanding the world (see Figure 8). Each stage is age-related and consists of a distinct way of thinking, a different way of understanding the world. Thus, according to Piaget (1954), the child's cognition is *qualitatively* different in one stage compared with another.

The *sensorimotor stage,* which lasts from birth to about 2 years of age, is the first Piagetian stage. In this stage, infants construct an understanding of the world by coordinating sensory experiences (such as seeing and hearing) with physical, motoric actions—hence the term *sensorimotor*.

The *preoperational stage,* which lasts from approximately 2 to 7 years of age, is Piaget's second stage. In this stage, children begin to go beyond simply connecting sensory information with physical action by representing the world with words, images, and drawings. However,

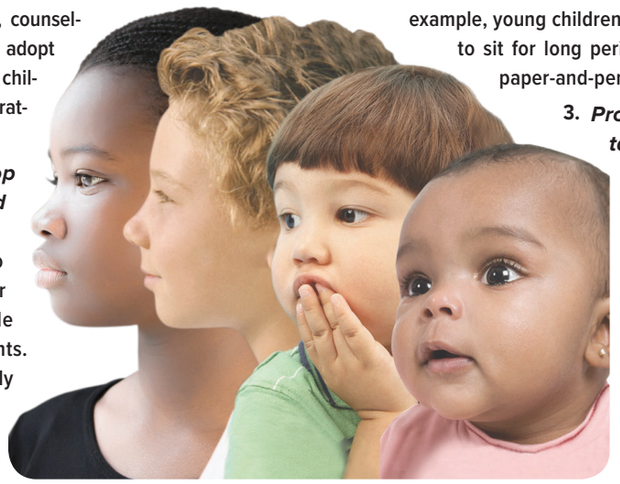
Erikson's theory Includes eight stages of human development. Each stage consists of a unique developmental task that confronts individuals with a crisis that must be resolved.

Piaget's theory According to Piaget, children actively construct their understanding of the world and go through four stages of cognitive development.

caring connections

Strategies for Parenting, Educating, and Interacting with Children Based on Erikson's Theory

Parents, child-care specialists, teachers, counselors, youth workers, and other adults can adopt positive strategies for interacting with children based on Erikson's theory. These strategies are described below.



What are some applications of Erikson's theory for effective parenting?

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1. ***Nurture infants and develop their trust, then encourage and monitor toddlers' autonomy.*** Because infants depend on others to meet their needs, it is critical for caregivers to consistently provide positive, attentive care for infants. Infants who experience consistently positive care feel safe and secure, sensing that people are reliable and loving, which leads them to develop trust in the world. Caregivers who neglect or abuse infants are likely to have infants who develop a sense of mistrust in their world. Having developed a sense of trust in their world, as infants move into the toddler years, it is important that they are given the freedom to explore it. Toddlers whose caregivers are too restrictive or harsh are likely to develop shame and doubt, sensing that they can't adequately do things on their own. As toddlers gain more independence, caregivers need to monitor their exploration and curiosity because there are many things that can harm them, such as running into the street or touching a hot stove.
2. ***Encourage initiative in young children.*** Children should be given a great deal of freedom to explore their world. They should be allowed to choose some of the activities they engage in. If their requests for doing certain activities are reasonable, the requests should be honored. Children need to be provided with exciting materials that will stimulate their imagination. Young children at this stage love to play. It not only benefits their socioemotional development but also is an important medium for their cognitive growth. Criticism should be kept to a minimum so that children will not develop high levels of guilt and anxiety. Young children are going to make lots of mistakes and have lots of spills. They need good models far more than harsh critics. Structure their activities and environment for success rather than failure by giving them developmentally appropriate tasks. For example, young children get frustrated when they have to sit for long periods of time and do academic paper-and-pencil tasks.
3. ***Promote industry in elementary school children.*** It was Erikson's hope that teachers could provide an atmosphere in which children would become passionate about learning. In Erikson's words, teachers should mildly but firmly coerce children into the adventure of finding out that they can learn to accomplish things that they themselves would never have thought they could do. In elementary school, children thirst to know. Most arrive at elementary school steeped in curiosity and motivated to master tasks. In Erikson's view, it is important for teachers to nourish this motivation for mastery and curiosity. Teachers need to challenge students but not overwhelm them; be firm in requiring students to be productive without being overly critical; and especially be tolerant of honest mistakes and make sure that every student has opportunities for many successes.
4. ***Stimulate identity exploration in adolescence.*** It is important to recognize that the adolescent's identity is multidimensional. Aspects include vocational goals; intellectual achievement; and interests in hobbies, sports, music, and other areas. Adolescents can be asked to write essays about such dimensions, exploring who they are and what they want to do with their lives. They should be encouraged to think independently and to freely express their views, which stimulates their self-exploration. Adolescents can also be encouraged to listen to debates on political and ideological issues, which stimulates them to examine different perspectives. Another good strategy is to encourage adolescents to talk with a school counselor about career options as well as other aspects of their identity. Teachers can have people from different careers come into the classroom and talk about their work with students regardless of grade level.

Sensorimotor Stage

The infant constructs an understanding of the world by coordinating sensory experiences with physical actions. An infant progresses from reflexive, instinctual action at birth to the beginning of symbolic thought toward the end of the stage.

Birth to 2 Years of Age

Preoperational Stage

The child begins to represent the world with words and images. These words and images reflect increased symbolic thinking and go beyond the connection of sensory information and physical action.

2 to 7 Years of Age

Concrete Operational Stage

The child can now reason logically about concrete events and classify objects into different sets.

7 to 11 Years of Age

Formal Operational Stage

The adolescent reasons in more abstract, idealistic, and logical ways.

11 Years of Age Through Adulthood

FIGURE **8**

PIAGET'S FOUR STAGES OF COGNITIVE DEVELOPMENT.

(*Left to right*): Stockbyte/Getty Images; Jacobs Stock Photography/BananaStock/Getty Images; Fuse/image100/Corbis; Purestock/Getty Images

Jean Piaget, the famous Swiss developmental psychologist, changed the way we think about the development of children's minds. *What are some key ideas in Piaget's theory?*

Yves DeBraine/Black Star/Stock Photo

according to Piaget, preschool children still lack the ability to perform what he calls operations, which are internalized mental actions that allow children to do mentally what they previously could only do physically. For example, if you imagine putting two sticks together to see whether they would be as long as another stick, without actually moving the sticks, you are performing a concrete operation.

The *concrete operational stage,* which lasts from approximately 7 to 11 years of age, is the third Piagetian stage. In this stage, children can perform operations that involve objects, and they can reason logically as long as reasoning can be applied to specific or concrete examples. For example, concrete operational thinkers understand that two rows of four nickels have the same number of nickels regardless of how far apart the nickels in the row are spaced. However, concrete operational thinkers cannot imagine the steps necessary to complete an algebraic equation, which is too abstract for thinking at this stage of development.

The *formal operational stage,* which appears between the ages of 11 and 15 and continues through adulthood, is Piaget's fourth and final stage. In this stage, individuals move beyond concrete experiences and think in abstract and more logical terms. As part of thinking more abstractly, adolescents develop images of ideal circumstances. They might think about what an ideal parent is like and compare their parents to this ideal standard. They begin to entertain possibilities for the future and are fascinated with what they can be. In solving problems, they become more systematic, developing hypotheses about why something is happening the way it is and then testing these hypotheses.

In sum, this brief introduction to Piaget's theory that children's cognitive development goes through four stages is provided here, along with other theories, to give you a broad understanding. Later in the text, when we study cognitive development in infancy, early childhood, middle and late childhood, and adolescence, we will examine Piaget's theory in more depth.

Vygotsky's Sociocultural Cognitive Theory Like Piaget, the Russian developmentalist Lev Vygotsky (1896–1934) said that children actively construct their knowledge. Unlike Piaget, Vygotsky (1962) did not propose that cognitive development occurs in stages, and he gave social interaction and culture far more important roles in cognitive development than

Piaget did. **Vygotsky's theory** is a sociocultural cognitive theory that emphasizes how culture and social interaction guide cognitive development.

Vygotsky portrayed the child's development as inseparable from social and cultural activities (Daniels, 2017; Veraksa & Sheridan, 2018). He argued that development of memory, attention, and reasoning involves learning to use the inventions of society, such as language, mathematical systems, and memory strategies. Thus in one culture, children might learn to count with the help of a computer; in another, they might learn by using beads. According to Vygotsky, children's social interaction with more-skilled adults and peers is indispensable to their cognitive development. Through this interaction, they learn to use the tools that will help them adapt and be successful in their culture. For example, if you regularly help a child learn how to read, you not only advance a child's reading skills but also communicate to the child that reading is an important activity in his or her culture.

Vygotsky's theory has stimulated considerable interest in the view that knowledge is situated and collaborative (Holzman, 2016). In this view, knowledge is not generated from within the individual but rather is constructed through interaction with other people and objects in the culture, such as books. This suggests that knowledge grows through interaction with others in cooperative activities.

Vygotsky's theory, like Piaget's, remained virtually unknown to American psychologists until the 1960s, but eventually both became influential among educators as well as psychologists. We will examine ideas about learning and teaching that are based on Vygotsky's theory when we study cognitive development in early childhood.

There is considerable interest today in Lev Vygotsky's sociocultural cognitive theory of child development. *What were Vygotsky's basic ideas about children's development?*
A.R. Lauria/Dr. Michael Cole, Library of Human Cognition, UCSD

The Information-Processing Theory Early computers may be the best candidates for the title of "creators" of information-processing theory. Although many factors stimulated the growth of this theory, none was more important than the computer. Psychologists began to wonder whether the logical operations carried out by computers might tell us something about how the human mind works. They drew analogies between a computer's hardware and the brain and between computer software and cognition.

This line of thinking helped to generate **information-processing theory,** which emphasizes that individuals manipulate information, monitor it, and strategize about it. Unlike Piaget's theory, but like Vygotsky's theory, information-processing theory does not describe development as stage-like. Instead, according to this theory, individuals develop a gradually increasing capacity for processing information, which allows them to acquire increasingly complex knowledge and skills.

Robert Siegler (2016a, b, 2017), a leading expert on children's information processing, states that thinking is information processing. In other words, when individuals perceive, encode, represent, store, and retrieve information, they are thinking. Siegler emphasizes that an important aspect of development is learning good strategies for processing information (Fazio, DeWolf, & Siegler, 2016; Siegler & Braithwaite, 2017). For example, becoming a better reader might involve learning to monitor the key themes of the material being read.

Siegler (2006, 2016a, b, 2017) also argues that the best way to understand how children learn is to observe them while they are learning. He emphasizes the importance of using the *microgenetic method* to obtain detailed information about processing mechanisms as they are occurring moment to moment. Siegler concludes that most research methods indirectly assess cognitive change, being more like snapshots than movies. The microgenetic method seeks to discover not just what children know but the cognitive processes involved in how they acquired the knowledge. A typical microgenetic study will be conducted across a number of trials assessed at various times over weeks or months (Miller, 2016). A number of microgenetic studies have focused on a specific aspect of academic learning, such as how children learn whole number arithmetic, fractions, and other areas of math (Siegler & others, 2015). Microgenetic studies also have been used to discover how children learn a particular issue in science or a key aspect of learning to read.

Evaluating the Cognitive Theories The primary contributions of cognitive theories are that (1) they present a positive view of development, emphasizing conscious thinking; (2) they emphasize the individual's active construction of understanding (especially Piaget's and Vygotsky's theories); (3) Piaget's and Vygotsky's theories underscore the importance of examining developmental changes in children's thinking; and (4) information-processing theory offers detailed descriptions of cognitive processes.

There are several criticisms of cognitive theories. First, Piaget's stages are not as uniform as he theorized. Piaget also underestimated the cognitive skills of infants and overestimated the

Vygotsky's theory A sociocultural cognitive theory that emphasizes how culture and social interaction guide cognitive development.

information-processing theory Emphasizes that individuals manipulate information, monitor it, and strategize about it. Central to this theory are the processes of memory and thinking.