SIXTH EDITION

Child Development and Education

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Sixth Edition

CHILD DEVELOPMENT AND EDUCATION

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PEARSON

To the many teachers, principals, counselors, psychologists, nurses, and other educational professionals who cherish every child in their care.

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About the Authors

TERESA M. MCDEVITT (left) is a psychologist with specializations in child development and educational psychology. She received a Ph.D. and M.A. in child development from Stanford University's Psychological Studies in Education program, Ed.S. in educational evaluation from Stanford University, and B.A. in psychology from the University of California, Santa Cruz. Since 1985 she has served the University of Northern Colorado in a variety of capacities—in teaching course in child psychology, human development, educational psychology, program evaluation, and research methods; advisement of graduate students; administration and university governance; and research and grant writing. Her research focuses on child development, families, and teacher education. She has published articles in *Child Development, Learning and Individual Differences, Child Study Journal, Merrill-Palmer Quarterly, Youth and Society,* and *Science Education,* among others. She has gained practical experiences with children, including by raising two children with her husband and working as an early childhood teacher of toddlers and preschool children, early childhood special education teacher, and volunteer in school and community settings. Teresa enjoys spending time with her children and husband and, when she has the chance, traveling internationally with her family.

JEANNE ELLIS ORMROD (right) is an educational psychologist with specializations in learning, cognition, and child development. She received a Ph.D. and M.S. in educational psychology at The Pennsylvania State University and an A.B. in psychology from Brown University; she also earned licensure in school psychology through postdoctoral work at Temple University and the University of Colorado, Boulder. She has worked as a middle school geography teacher and school psychologist and has conducted research in cognitive development, memory, problem solving, spelling, and giftedness. She is currently Professor Emerita of Psychological Sciences at the University of Northern Colorado; the "Emerita" means that she has officially retired from the university. However, she can't imagine ever *really* retiring from a field she enjoys so much, and so she continues to read and write about current research findings in educational psychology and child development. She is the author or coauthor of several other Pearson books, including *Educational Psychology: Developing Learners; Essentials of Educational Psychology; Human Learning; Practical Research: Planning and Design,* and *Our Minds, Our Memories: Enhancing Thinking and Learning at All Ages.* Jeanne has three grown children and three young grandchildren.

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Preface

As psychologists and teacher educators, we have been teaching child and adolescent development for many years. A primary intention for us has been to help students translate developmental concepts into practical implications in their own teaching. In past years, the child development textbooks available to our students were typically quite thorough in their descriptions of theory and research but limited in concrete suggestions for working with infants, children, and adolescents.

With this book, now in its sixth edition, we bridge the gap between theory and practice. We draw from innumerable theoretical concepts; research studies conducted around the world; and our own experiences as parents, teachers, psychologists, and researchers to identify strategies for promoting young people's physical, cognitive, and social-emotional growth. As in the previous editions, this book focuses on childhood and the adolescent years and derives applications that are primarily educational in focus.

A primary goal for the sixth edition was to convert the information into an electronic format. Achievement of this goal reduced production costs and allowed us to use a dynamic format with powerful pedagogical features. With integrated electronic features, readers are guided through numerous interactive exchanges and provided with feedback along the way.

The shift to digital format inspired an overhaul to the structure of each chapter, elevating clear learning objectives, which are now in one-to-one correspondence with major sections of each chapter. For each objective, readers can engage with several exercises that solidify conceptual understandings and practical knowledge. As readers encounter concepts in the narrative, they can deepen understandings by examining illustrations of various kinds. Readers can review children's artwork and essays, observe children's actions in video clips, and check their comprehension at the end of each section, with explanations immediately accessible to confirm expectations and correct misconceptions.

As we wrote the sixth edition, we took to heart suggestions from reviewers, instructors, and readers about the need to elaborate on the experiences of children from a multitude of backgrounds and with characteristics that are commonly misunderstood in society. We added information about children from families with gay and lesbian parents, adolescent parents, military parents, and incarcerated parents. We also embellished on information about English language learners and children with disabilities.

With growing awareness about the crucial role of self-control in a child's life, we expanded treatment of self-regulation and methods for cultivating it throughout the book. Self-regulation is discussed in the context of parenting, brain development, learning, motivation, and morality.

Several features of the book make it different from other textbooks about child and adolescent development. In particular, the book

- Continually relates abstract theories to educational practices in schools
- Not only describes but also *demonstrates* developmental phenomena
- Guides observations of children
- Facilitates analysis of what children say, do, and create
- Offers concrete strategies for effective teaching of, and working with, children
- Fosters a thorough understanding of children's growth from infancy to late adolescence within the domains of physical, social-emotional, and cognitive development.

In the next few pages, we explain and illustrate how the book helps readers learn how to:

- Apply developmental insights in their work with children
- Refine their observations, assessments, and decisions
- Appreciate and accommodate children's upbringing
- Take a strategic approach to learning concepts in child development

APPLICATION

Readers are shown how to apply concepts. *Child Development and Education* spells out the educational and practical implications of developmental perspectives for those who teach and work with children.

Development and Practice

In addition to formulating recommendations for teachers and other professionals throughout the text, we provide *Development and Practice* features that offer concrete techniques for facilitating children's development. To help readers move from research to practice, each strategy is followed by examples of a professional implementing it in a classroom or other setting. You will find examples of the *Development and Practice* feature on pages 147, 160, 251, and 345 of this text.

DEVELOPMENT AND PRACTICE
Getting and Keeping Children's Attention

Capture children's interest with bright colors, intriguing sounds, and objects that invite exploration.

- A second-grade music teacher provides several instruments (e.g., a xylophone, toy guitar, and set of drums) for children to explore. The teacher also allows the children to take turns playing on a piano keyboard. (Middle Childhood)
- A fourth-grade teacher takes his class on a trip to a local pond to create small biospheres. Children fill their jars with water, mud, and algae. During the following weeks, the children observe changes in the color of water, growth of plants, and emergence of snails. (Middle Childhood)

Minimize loud noises and potential distractions when working with children who are easily diverted from task completion.

- A school psychologist is administering a battery of tests to an easily distracted 7-year-old boy who is suspected of having a learning disability. Before the testing session, the psychologist puts away the Russian nesting dolls that decorate her office shelves. She also removes the testing materials from sight, putting items in front of the boy only when it is time to use them. (Middle Childhood)
- When administering a test at the end of a term, a high school mathematics teacher closes the classroom door, answers questions individually in a hushed voice, and reminds students to remain quiet while waiting for others to finish. (Late Adolescence)

Present stimulating activities in which children *want* to pay attention.

- In a unit on nutrition, a high school biology teacher has students determine the nutritional value of menu items at a popular local fast-food restaurant. (Late Adolescence)
- In a photo editing class, high school students are especially engaged when asked to help with the yearbook. Students design page spreads, crop photos, and apply special effects on images. (Late Adolescence)

Get children physically involved in lessons.

- A middle school history teacher plans a special event late in the school

War. In preparation for the occasion, the students spend several weeks learning about the Battle of Gettysburg, researching typical dress and meals of that era, gathering appropriate clothing and equipment, and preparing snacks and lunches. On the day of the "battle," students assume the roles of Union and Confederate soldiers, government officials, merchants, housewives, and doctors and nurses. (Early Adolescence)

- In an earth systems class, students go outside to examine the relationships among ecological systems: a hydrosphere (e.g., pond), a biosphere (e.g., tree), and a geosphere (e.g., floodplain). The teacher gives students a worksheet and asks them to describe and draw the different systems and speculate about their interdependences. (Late Adolescence)

Incorporate a variety of types of activities into the schedule.

- After explaining how to calculate the area of a square and rectangle, a fourth-grade teacher has her students practice calculating area in word problems. She then breaks the class into groups. Each group is given a tape measure and calculator and asked to determine the area of the classroom floor, excluding those parts of the floor covered by cabinets. To complete the task, the students must divide the room into several smaller rectangles, compute the area of each rectangle separately, and add the figures together. (Middle Childhood)
- In a high school drama class, a teacher introduces students to forms of comedy. Students watch and critique a brief recording of a stand-up comedian and then read a couple of pages from a comedic play. Students end the lesson by forming teams and performing brief improvisational skits about awkward high school moments. (Late Adolescence)

Provide breaks during sedentary activities.

- To provide practice with the alphabet, a kindergarten teacher occasionally has students make letters with their bodies: one child standing with arms extended up and out to make a *Y*, two children bending over and joining hands to form an *M*, and so on. (Early Childhood)
- After a class discussion about a book they are reading together, a middle school literacy teacher allows students to move quietly around the room as they plan the key ideas that they will elaborate on in written reports. (Early Adolescence)

Developmental Trends Tables

Six-year-olds often think and act differently than 11-year-olds do, and 11-year-olds are, in turn, quite different from 16-year-olds. Most chapters have one or more *Developmental Trends* tables that highlight developmental differences between infancy (birth–2 years), early childhood (2–6 years), middle childhood (6–10 years), early adolescence (10–14 years), and late adolescence (14–18 years). In the Developmental Trends tables, diversity of potential characteristics is also highlighted, and implications for practice are offered. See pages 263–264, 349–350, and 365–366 for examples.

DEVELOPMENTAL TRENDS
Cognitive Strategies and Metacognitive Understandings at Different Age Levels

AGE	WHAT YOU MIGHT OBSERVE	DIVERSITY	IMPLICATIONS
Infancy (Birth–2 Years)	• Use of one object to obtain another (in the second year) • Ability to plan a simple sequence of actions to accomplish a goal (appearing around age 1) • Absence of intentional learning strategies but preliminary ability to look or point at a location to remember where an object is hidden • Little awareness of thought processes but appreciation that other people have intentions[14]	• Emergence of early problem-solving strategies is dependent on opportunities to experiment with objects. • Willingness to engage in trial-and-error exploratory behavior is partly a function of temperament and motor abilities. • Health and nutrition influence how vigorously infants explore the environment, attend to language, and initiate interactions with caregivers.	• Model tool use and basic problem-solving strategies. • Pose simple problems for infants and toddlers to solve (e.g., place desired objects slightly out of reach), but monitor children's reactions to make sure they are not unnecessarily frustrated. • Be mindful of the tremendous strategies that infants use in mastering language and gaining information about their world, methods that are not necessarily intentional but are adaptive nevertheless.
Early Childhood (2–6 Years)	• Some rehearsal beginning in preschool, but with little effect on learning and memory • Occasional organization of concrete objects • An ability to learn simple strategies modeled by others • Growing awareness of thought in oneself and others • Overestimation of how much information one can remember	• Children's awareness of mental processes depends on the extent to which adults talk about thinking. • Many young children with autism have little conscious awareness of the existence of thought, especially in other people.[15] • Cultural preferences affect opportunities for memorization (e.g., with poetry, scripture, or the alphabet) and active interpretation (e.g., being asked about the moral lesson of a fable or the way a toy operates).	• Talk about thinking processes (e.g., "I *wonder* if . . .," "Do you *remember* when . . .?"). • Model strategies for simple memory tasks (e.g., pinning permission slips on jackets to remind children to get parents' signatures). • Ask children open-ended questions that engage their thinking (e.g., while reading: "What do you think is going to happen to Sam's homework?"). • Encourage children to ask questions as they play (e.g., ask, "What will happen if I mix blue and red on my paper?").

Preparing for Your Licensure Examination

Many prospective teachers are required to demonstrate their knowledge of child development on teaching tests. To prepare for these assessments, readers can focus on key theorists and concepts in the field of child development. As they read through the book, readers will be alerted with margin notes to specific concepts that they might encounter on the *Praxis II™* and other licensure tests. In addition, end-of-chapter exercises pose realistic scenarios and ask readers to prepare brief essays and answer multiple-choice questions, in formats similar to many teacher examinations. Find examples of *Preparing for Your Licensure Examination* on pages 240, 250, and 317, and of *Practicing for Your Licensure Examination features* on pages 273, 311, and 403–404, and 485.

> ### Preparing for Your Licensure Examination
> Your teaching test may ask you how to address children's basic cognitive processes during instruction.

Basic Developmental Issues Tables

To understand particular developmental concepts, theories, and instructional practices, readers can identify positions on significant issues—the degree to which development is presumed to draw from nature and nurture, reflect qualitative and quantitative changes, and represent trends that are universal or varied. Examples of particuar developments and theories analyzed in terms of these key issues can be found on p. 70, 232, and 435.

For Further Exploration

Educators periodically become perplexed with how to motivate a child, resolve a problem with group dynamics, or address another dilemma. When initial strategies are ineffective and colleagues don't have a satisfactory answer, teachers and practitioners may search for expert advice. *For Further Exploration* exercises give readers a chance to refer to specialized topics and consider their relevance for important issues in education. For examples, see pages 48, 243, and 340.

BASIC DEVELOPMENTAL ISSUES Contrasting Piaget and Vygotsky		
ISSUE	**PIAGET**	**VYGOTSKY**
Nature and Nurture	Piaget believed that biological maturation probably constrains the rate at which children acquire new thinking capabilities. However, his focus was on how interactions with both the physical environment (e.g., handling concrete objects) and the social environment (e.g., discussing issues with peers) promote cognitive development.	Vygotsky acknowledged that children's inherited traits and talents affect the ways in which they interpret the environment. But his theory primarily addresses the environmental conditions (e.g., engagement in challenging activities, guidance from more competent individuals, exposure to cultural interpretations) that influence cognitive growth.
Universality and Diversity	In Piaget's view, children make similar advancements in their logical reasoning capabilities despite the particular environment in which they grow up. Children vary in the ages at which they acquire new abilities, however.	From Vygotsky's perspective, the specific cognitive abilities that children acquire depend on the cultural contexts in which the children are raised and the specific activities in which they are encouraged to engage.
Qualitative and Quantitative Change	Piaget proposed that children's logical reasoning skills progress through four qualitatively distinct stages. Any particular reasoning capability continues to improve in a gradual (quantitative) fashion throughout the stage in which it first appears.	Vygotsky acknowledged that children undergo qualitative changes in their thinking. Much of his theory points to gradual and presumably quantitative improvements in skills. A child may initially find a task impossible, later be able to execute it with adult assistance, and eventually perform it independently.

> ### FOR FURTHER EXPLORATION . . .
> Read about the properties of three interventions in character education.
>
> ENHANCEDetext
> *content extension*

OBSERVATION

Readers are encouraged to refine their interpretations of children. Foundational to effective teaching is the ability to identify children's thoughts, feelings, and abilities from their drawings, work samples, statements, and behavior. *Child Development and Education* provides numerous exercises for readers to watch and listen to children and examine their work. As they make independent judgments from what they see, readers can sharpen their interpretations with viewpoints from the authors.

Observation Guidelines

To work productively with children, educators must first be able to draw appropriate inferences from their behavior. *Observation Guidelines* tables help readers recognize developmental nuances in infants, children, and adolescents with whom they work. By learning how to recognize particular qualities in each area of growth, readers gain a deeper capacity for recognizing milestones and states to accommodate. As you can see on pages 213, 361, and 416, these tables offer specific characteristics to look for, present illustrative examples, and provide specific recommendations for practitioners.

OBSERVATION GUIDELINES
Assessing Piagetian Reasoning Processes in Children and Adolescents

CHARACTERISTIC	LOOK FOR	EXAMPLE	IMPLICATION
Concrete Thought	• Heavy reliance on concrete objects to understand concepts • Difficulty understanding abstract ideas	Tobey solves arithmetic word problems more easily when he can draw pictures of them.	Use concrete objects, drawings, and other realistic illustrations of abstract situations, concepts, and problems.
Abstract Thought	• Ability to understand strictly verbal explanations of abstract concepts and principles • Ability to reason about hypothetical or contrary-to-fact situations	Elsa can imagine how two parallel lines might go on forever without ever coming together.	When working with adolescents, occasionally use verbal explanations (e.g., short lectures) to present information, but assess students' understanding frequently to make sure they understand.
Idealism	• Idealistic notions about how the world should be • Difficulty taking other people's needs and perspectives into account when offering ideas for change • Inability to adjust ideals in light of what can realistically be accomplished	Martin advocates a system of government in which all citizens voluntarily contribute their earnings to a common "pool" and then withdraw money only as they need it.	Engage adolescents in discussions about challenging political and social issues.
Scientific Reasoning Skills	• Formulating multiple hypotheses for a particular phenomenon • Separation and control of variables	Serena proposes three possible explanations for a result she has obtained in her physics lab.	Have middle school and high school students design and conduct simple experiments in which they are shown how to control variables. Include interventions related to their interests.
Mathematical Reasoning Skills	• Understanding abstract mathematical symbols (e.g., π, the variable x in algebraic equations) • Understanding proportions in mathematical problem solving	Giorgio uses a 1:240 scale when drawing a floor plan of his school building.	Initially, introduce abstract mathematical tasks using simple examples (e.g., when introducing proportions, begin with fractions such as ½ and ¼). Progress to more complex examples only when youngsters are ready.

Observing Children 2-8

Observe a first-grade teacher guide children's nonfiction writing with a rubric.

ENHANCEDetext *video example*

Observing Children

New for this edition, the *Observing Children* feature illustrates particular characteristics and conditions described in the book with videos. As readers learn about a developmental concept, such as toddlers becoming scared with the presence of a stranger, a child being aware of memory limitations, or a classroom of children learning how to write with a rubric, they can see one or more children in a relevant situation. You can find examples on p. 52, 125, 168, 220, and 332.

Assessing Children

In another new tool for this edition, readers are provided with videos and students' creations and asked questions that guide their interpretations. By carefully inspecting children's activities, readers gain experience in analyzing children's facial expressions, body language, and behavior for clues as to their needs and abilities. Readers also have the opportunity to compare their judgments with interpretations from the authors. You can find examples on pages 184, 228, 287, and 346.

Assessing Children 8-1

Practice identifying intellectual abilities that are tapped in academic lessons.

ENHANCEDetext *application exercise*

Artifacts

Interspersed throughout the book, artifacts provide windows into children's development. Each artifact is described in terms of applicable chapter concepts. You will find examples of children's artifacts on pages 72, 211, 285, 329, and 471.
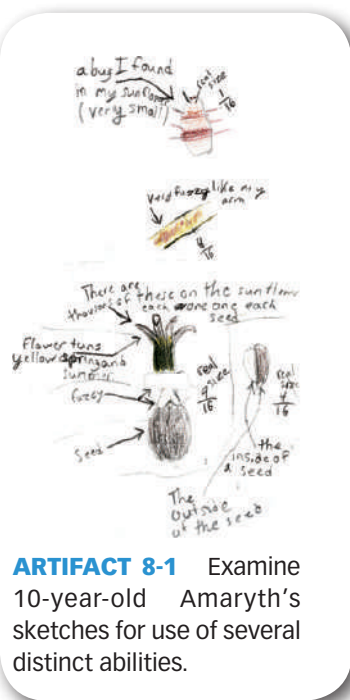
ARTIFACT 8-1   Examine 10-year-old   Amaryth's sketches for use of several distinct abilities.

SENSITIVITY

Readers are shown how to demonstrate acceptance for children's upbringing. *Child Development and Education* situates children in the contexts of their lives and articulates how adults can address this personal knowledge. Through numerous illustrations of distinct family, cultural, and socioeconomic backgrounds, readers gain a practical understanding of adjustments that meet the needs of individual children.

Bioecology of Child Development

Skilled teachers and practitioners appreciate that a child is embedded within the interrelated contexts in which he or she grows. Within every chapter, one or more illustrations of a breadth of bioecological factors are identified as influences on a particular aspect of children's growth. You can see examples of the bioecological notation on pages 68, 262, 346, and 364.

BIOECOLOGY OF DEVELOPMENT

In the bioecological model, families are at the heart of children's development.

DEVELOPMENT IN CULTURE
Immigrant Children

Individual children in immigrant families have a few similar experiences. They go to school, make friends, learn about two or more cultures, and master increasingly difficult concepts and skills. Often they learn a second language and adjust to discrepant expectations at home and in the dominant community. But children from immigrant families are by no means fully alike. They have quite different experiences depending on their personal characteristics and the circumstances of their family's immigration, their parents' jobs and income, and their culture's standing in the adopted society (Akiba & García Coll, 2003; Glick & Bates, 2010; Hernandez, Denton, & Macartney, 2010; Urdan, 2012).

Such similarities and differences are evident among children from immigrant families in Providence, Rhode Island (García Coll & Marks, 2009). Many of the immigrant families there had moved from Cambodia, the Dominican Republic, or Portugal. Children from these three cultural groups had somewhat comparable experiences in that they grew up in low-income families, had parents with high expectations for their education, and achieved at relatively high levels at school. Yet the three groups also varied in their beliefs and customs. Cambodian, Dominican, and Portuguese American children ate the foods of their ancestors, celebrated holidays compatible with their separate heritages, and worshipped in their own churches or temples. Within each group, individual children developed unique habits and self-perceptions.

Families from Cambodia had moved to the United States to escape war, starvation, and persecution. Two parents with approximately 4 years of formal education were typical heads of Cambodian American families. Parents spoke Khmer to their children and were somewhat segregated from others in the new society. Teachers perceived Cambodian American parents to be uninvolved because the parents rarely came to school. However, from the parents' perspective, parents should defer to teachers' authority and not interfere with instruction. Teachers saw these children as attentive, conscientious, and socially skilled.

Families from the Dominican Republic had usually moved to the United States for economic opportunities and a safe environment for their children. Single-parent and two-parent families were both common in Dominican immigrants. Families remained closely connected with extended family members back on the island, traveling back and forth between Providence and the Dominican Republic for birthdays, weddings, funerals, and family crises; likewise Dominican relatives often came to visit families in Providence. A strong network of Dominicans in the United States eased the adaptation of new immigrants and enriched children with role models, festivals, and other cultural resources. With their typically dark skin, Dominican American youngsters were perceived to be black by others, yet the Dominican American children generally identified with their Dominican heritage and not as African Americans. The children tended to do well in school but frequently received lower grades as they grew older, and they had relatively high rates of absenteeism from school.

Families from Portugal tended to enter long-standing communities of Portuguese Americans. Recently emigrating Portuguese families had moved to the United States for economic opportunities. Most families had two parents in the home. Members of the Portuguese American community celebrated their cultural heritage but also moved in and out of the mainstream society with ease, in part because their white, European American facial features resembled the appearance of local residents. Established Portuguese sports clubs and religious societies welcomed new immigrants, and numerous Portuguese Americans had penetrated positions of authority, including as police, political officials, and teachers. Two parents with little formal education were the typical heads of family.

Development in Culture

Every child acquires the values and traditions of one or more cultures, and these cultural frameworks give meaning to everything the child experiences. It is crucial for teachers and practitioners to gain a cultural perspective, in which they develop insights into their own backgrounds and learn how to identify, respect, and adjust to the practices of children and their families. In the *Development in Culture* feature, a particular aspect of development is illustrated in one or more cultural settings. You can find examples of this feature on pages 48, 342, and 378.

Case Studies

Case studies reveal how a particular facet of a development, for example language or morality, unfolds in a particular child. Each chapter begins with a case study and related questions that illustrate and frame chapter content. You will find examples of the introductory case studies on pages 115, 313, and 350.

CASE STUDY: Mario

As a young boy growing up in rural Vermont, Mario had the good fortune to learn two languages. At home, his parents spoke Spanish almost exclusively, communicating to one another in their shared native tongue and passing along their cultural heritage to their son. Most of Mario's early exposure to English was in the child care centers and preschools he attended off and on from the time he was 2 years old.

When Mario was 5, his dominant language was Spanish, but he was proficient in English as well. After his first 2 months in kindergarten, his teacher wrote the following in a report to Mario's parents:

[Mario is] extremely sociable. He gets along fine with all the children, and enjoys school. He is quite vocal. He does not seem at all conscious of his speech. His slight accent has had no effect on his relations with the others. Whenever I ask the class a question, he is always one of the ones with his hand up.

His greatest problem seems to be in the give and take of conversation. Since he always has something to say, he often finds it difficult to wait his turn when others are talking. When he talks, there are moments when you can see his little mind thinking through language—for he sometimes has to stop to recall a certain word in English which he might not have at his finger tips. (Fantini, 1985, p. 28)

The "slight accent" in Mario's English led a speech therapist to recommend speech therapy, which Mario's parents declined. In fact, all traces of an accent disappeared from Mario's speech by age 8, and his third-grade teacher was quite surprised to learn that he spoke a language other than English at home.

Standardized tests administered over the years attested to Mario's growing proficiency in English. Before he began kindergarten, his score on a standardized English vocabulary test was at the 29th percentile, reflecting performance that, although a little on the low side, was well within the average range. Later, when he took the California Achievement Test in the fourth, sixth, and eighth grades, he obtained scores at the 80th percentile or higher (and mostly above the 90th percentile) on the reading, writing, and spelling subtests. When Mario spent a semester of fifth grade at a Spanish-speaking school in Bolivia, he earned high marks in Spanish as well, with grades of 5 on a 7-point scale in reading, writing, and language usage.

As Mario grew older, his vocabulary and written language skills developed more rapidly in English than in Spanish, in large part because most of his instruction at school was in English. His father described the situation this way:

[B]y about fifth grade (age ten), he had entered into realms of experience for which he had no counterpart in Spanish. A clear example was an attempt to prepare for a fifth grade test on the topic of "The Industrial Revolution in England and France." It soon became clear that it was an impossibility to try to constrain the child to review materials read and discussed at school—in English—through Spanish. With this incident,

INVIGORATE LEARNING WITH THE ENHANCED PEARSON ETEXT

The Enhanced Pearson eText provides a rich, interactive learning environment designed to improve student mastery of content with the following multimedia features:

- **Overall design** that fosters readers' self-regulated learning with objectives, clear explanations, concrete illustrations, applications, and feedback.
- **Embedded videos** in the *Observing Children* feature show one-on-one interviews with children and adolescents and also students in the classroom and playground. These videos help readers actually see development, not simply read about it. (See pages 119, 124, 198, and 204 for examples.)
- **Scaffolded video analysis exercises** in the *Assessing Children* features challenge readers to apply chapter content to reflect upon teaching and learning in real classrooms. (See pages 128, 139, 228, and 229 for examples.)
- ***Practicing for Your Licensure Exam*** assessments, modeled after questions found on teacher licensure tests, help readers prepare for their certification exams. (See page 150 for example.)
- **Embedded assessments with feedback** throughout the eText help readers assess how well they have mastered the content. (See pages 215, 228, and 234 for examples.)

CURRENCY

More than a thousand new citations are included with this edition, reflecting the many important discoveries that have been made in recent years. Every chapter includes updates that together offer a cutting-edge perspective on children's growth. With this up-to-date knowledge, readers will be better prepared to meet the needs of children from many walks of life. Selected examples are as follows.

- New information on classroom assessment, including an example of a rubric and recommendations for advising children how to prepare for standardized tests, examining performance over time, and supplementing testing with other measures (Chapter 2, now retitled Research and Assessment).
- New sections on families with gay and lesbian parents, families with adolescent parents, families with military parents, and families with incarcerated parents (Chapter 3).
- New emphasis on special education and children with disabilities (e.g., Chapter 4, Chapter 7, Chapter 15)
- Reorganization and reframing of content on cognitive sciences and information processing (Chapter 7), with new emphasis on executive processing and exceptionalities (Chapter 8).
- Recent research on second language learners, in particular English Language Learners in the classroom (Chapter 9).
- Description of the Common Core standards and academic standards frameworks, along with recommendations for applying standards in a developmentally appropriate manner (Chapter 10).
- Reorganization of content focused on development of the self (Chapter 12) and self-regulation and motivation (Chapter 13), with increased attention to diversity.
- Emphasis on contemporary topics such as cyber-bullying (Chapter 14), self-control (Chapter 13), emergent literacy and expository writing (Chapter 10), and health and nutrition (Chapter 5).
- New and expanded material on instruction with advanced technology and integration of electronic media into peer relationships (Chapter 15)

SUPPLEMENTARY MATERIALS

The following supplements are available to help instructors organize, manage, and enliven their courses and to enhance students' learning and development as teachers.

Online Instructor's Manual

Available to instructors for download at www.pearsonhighered.com/educator is an *Instructor's Manual* with suggestions for learning activities, supplementary lectures, group activities, and class discussions. These have been carefully selected to provide opportunities to support, enrich, and expand on what students read in the textbook.

Online PowerPoint® Slides

PowerPoint slides are available to instructors for download on www.pearsonhighered.com/educator. These slides include key concept summarizations and other graphic aids to help students understand, organize, and remember core concepts and ideas.

Online Test Bank

The *Test Bank* that accompanies this text contains both multiple-choice and essay questions. Some items (lower-level questions) simply ask students to identify or explain concepts and principles they have learned. But many others (higher-level questions) ask students to apply those same concepts and principles to specific classroom situations—that is, to actual student behaviors and teaching strategies. The lower-level questions assess basic knowledge of development and its implications in educational settings. But ultimately it is the higher-level questions that can best assess students' ability to use principles of child and adolescent development in their own teaching practice.

TestGen

TestGen is a powerful test generator available exclusively from Pearson Education publishers. You install TestGen on your personal computer (Windows or Macintosh) and create your own tests for classroom testing and for other specialized delivery options, such as over a local area network or on the web. A test bank, which is also called a Test Item File (TIF), typically contains a large set of test items, organized by chapter and ready for your use in creating a test, based on the associated textbook material. Assessments—including equations, graphs, and scientific notation—may be created for both print and testing online. The tests can be downloaded in the following formats:

TestGen Testbank file — PC
TestGen Testbank file—MAC
TestGen Testbank—Blackboard 9 TIF
TestGen Testbank—Blackboard CE/Vista (WebCT) TIF
Angel Test Bank (zip)
D2L Test Bank (zip)
Moodle Test Bank
Sakai Test Bank (zip)

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Special Features

Basic Developmental Issues

Development in Culture

CHILD DEVELOPMENT AND EDUCATION

Making a Difference in the Lives of Children and Adolescents

CASE STUDY: Tonya

At any given moment, in almost every classroom, at least one child is having difficulty in adjusting to the demands of school. The struggling child may be delayed in academic skills, careless in following classroom rules, or rejected by peers. Mary Renck Jalongo remembers one first-grade child, Tonya, who had faced each of these problems (Jalongo, Isenberg, & Gerbracht, 1995).

Fortunately for Tonya, Mary was knowledgeable about child development. Mary realized that Tonya, like every child, had positive qualities and, with the right support, would be able to overcome her challenges. To determine how best to help Tonya, Mary considered the little girl's circumstances. Academically, Tonya was delayed. She had been retained in kindergarten and was not catching up as quickly as Mary would have liked. Physically, Tonya received inadequate nutrition and was chronically hungry at school. Socially, Tonya had few friends, having previously badgered classmates into giving her their snacks and prized possessions and, when they refused, having pilfered the items from their desks.

Mary reports that Tonya's mother was sick, at a debilitating point, with lupus, and not able to work outside the home or attend school functions. To compound her problems, Tonya lacked the support of her principal, who thought that a harsh punishment—no recess for a month—was an appropriate response to Tonya's thefts.

In spite of these challenging conditions, Tonya was eager to develop productive skills and solve some of her own problems. When Mary asked Tonya why she took other children's snacks, she answered simply that she was hungry. When asked if she ate breakfast, Tonya replied that she had not because she needed to take care of her younger brother. After Mary invited her to think about possible solutions, Tonya volunteered that she and her brother might be able to get breakfast at their aunt's house. Tonya followed through with this solution, walking daily with her brother to her aunt's house for an early morning meal.

Mary also realized that Tonya had the capacity to repair her relationships with peers. After obtaining Tonya's promise that she would stop taking other children's things, Mary stood proudly by Tonya's side and announced to the class that Tonya had agreed not to take anyone's belongings. Afterward, Tonya earned the acceptance of the other children and began to concentrate on her schoolwork. Ultimately Tonya blossomed into a healthy, well-adjusted young woman (M. R. Jalongo, personal communication, June 12, 2007).

- What kind of impact did Mary Jalongo have on Tonya's life?
- How did Mary apply her understanding of child development in her work with Tonya?

In drawing on her knowledge of child development, Mary realized that Tonya could grow and change if given sensitive, loving care. By encouraging Tonya and her brother to eat breakfast with their aunt, Mary helped meet Tonya's physical needs and paved the way for closer ties to extended family. By repairing Tonya's damaged reputation with the other children, Mary helped Tonya earn their acceptance. Feeling comfortable physically and secure emotionally, Tonya was better prepared to tackle academic tasks and develop a healthy sense of who she was and how she fit in the world around her. Thanks, in part, to Mary Jalongo's thoughtful intercession, Tonya would ultimately thrive.

THE STUDY OF CHILD DEVELOPMENT

The study of human development helps us understand how human beings change from the time of conception, through the childhood and adolescent years, and on into adulthood, old age, and death. This book covers the early part of the human journey—beginning with the union of sperm and ovum and including prenatal growth, birth, infancy, childhood, and

adolescence. The field of **child development** seeks to identify and explain changes in the physical, cognitive, and social-emotional development of children and adolescents.

The developmental changes of childhood have three essential qualities. First, the abilities that emerge during developmental changes tend to be *persistent*: Once a new developmental ability is introduced, it typically remains in the child's repertoire of skills, as with abilities to walk and talk. Second, developmental changes are *cumulative*: A new ability builds on the previous one, as when a toddler shifts from eating with his fingers to using utensils, first occasionally and then consistently. Finally, developmental changes are *progressive:* Children gradually become more capable and responsible, even though they sometimes revert to less mature forms, as when a 4-year-old girl, who has learned the need to express her disagreements verbally, every now and then regresses to hitting a classmate during a heated argument.

As you will learn in this chapter, a child's developmental journey is guided by four factors:

- *Nature*—the genetic inheritance guiding the child's growth
- *Nurture*—the influences of the social and physical environment in which the child lives
- *Existing conditions for the child*—the physiological and psychological foundations upon which new advancements can be built
- *The child's own activity*—the child's choices, mental processes, emotional responses, and behaviors

As you will also discover in your reading, development includes changes that are common to most children as well as those that are specific to particular individuals, groups, or those who share a particular characteristic. At times, we talk about developments that nearly everyone undergoes, such as acquiring complex language skills and becoming increasingly considerate of other people's feelings. At other times, we discuss developments that differ considerably among youngsters. For example, some children respond to difficulties at school by seeking support from peers, teachers, and family members, whereas others withdraw from teachers and classmates and participate in risky behaviors (M. B. Spencer, 2006).

To describe the many specific influences on children's growth, scholars of child development draw from several academic disciplines. In this book, our descriptions pull from research primarily in psychology but also in biology, sociology, anthropology, and the applied fields of early intervention, education, child and family studies, juvenile justice, counseling, social work, and medicine. We emphasize research that is relevant to children's experiences in schools.

Our primary goal is to help you support healthy, optimal development in all children in your care. We pursue this goal by focusing on two objectives. First, we want you to learn how children think, feel, and act at various ages. This information can help you understand children with whom you work. Second, we want you to be able to apply what you learn in your classroom, school, and community. We will show you how you can integrate practical ideas from the field of child development into your instruction, classroom routines, and relationships with children.

Three Developmental Domains

The study of child development is organized into three domains, or broad areas of study: physical development, cognitive development, and social-emotional development. **Physical development** is concerned with the biological changes of the body. It includes genetics, a fetus's growth in the mother's womb, the birth process, brain development, and the acquisition of such motor skills as throwing a ball and cutting paper with scissors. It also encompasses behaviors and environmental factors that promote and impede growth and health. **Cognitive development** refers to the age-related transformations that occur in children's reasoning, concepts, memory, language, and intellectual skills—changes that are cultivated by children's involvement in families, schools, and communities. **Social-emotional development** includes the many modifications that occur in emotions, self-concept, motivation, social relationships, and moral reasoning and behavior—advancements that depend in large part on children's interactions with other people.

Although the three domains may appear to be independent areas, they are in fact closely intertwined. An increase in the ability to look at situations from multiple perspectives, a cognitive ability, enhances social skills. A second-grade girl becomes more skilled at pursuing personal goals (e.g., wanting to tell Natalie about her upcoming birthday party) while respecting others' needs (e.g., realizing that she should comfort Natalie about her dog having died last night before mentioning the birthday get-together). The three domains are also inseparable such that every activity by the child has ripple effects. An exercise break allows for better concentration, second-language instruction permits new friendships, and, as occurred with Tonya, emotional support from a teacher enables academic progress.

Effects of Context on Development

All areas of development depend on the **context** of children's lives—their experiences in families, schools, neighborhoods, community organizations, cultural and ethnic groups, and society at large. Child development research has shown that some sort of "family" or other cluster of close, caring relationships is a critical condition for optimal development. Schools, too, play a significant role, not only by fostering cognitive skills but also by supplying a teacher and peers whose relationships are influential. As a member of one or more ethnic groups and **cultures**—long-standing groups with defined values, traditions, and symbol systems—children form interpersonal relationships and enter into daily activities with a sense of purpose. And in their local communities and broader societies, children gain access to peers, adult role models, recreation, the media, and such institutions as social services, banks, and medical clinics.

In preparing to teach or in some other way care for children, you are about to become a vital part of their context. Your productive role in that setting will be strengthened by a thorough foundation in child development. One of the ways you can gain this foundation is by becoming familiar with three key issues that child development theorists have grappled with, but not yet resolved. First, experts wonder how genetic factors and the environment combine to influence development. Second, they speculate about which developmental paths are true for everyone and which others are unique to specific groups and individuals. Third, they debate about the developmental changes that can be characterized as major transformations or, alternatively, as a series of gradual trends. Let's now look more closely at these three issues, which are referred to as questions of (a) nature and nurture, (b) universality and diversity, and (c) qualitative and quantitative change.

Nature and Nurture

In the study of development, **nature** refers to the inherited characteristics that influence growth. **Nurture** consists of the environmental conditions that additionally affect the progression of changes. Nature and nurture are partners in a child's growth.

Nature contributes to both common human traits and individual differences in children. Some genes (the basic units of heredity) appear in virtually everyone. Almost all children have the capacity to learn to walk, understand language, imitate others, use simple tools, and draw inferences about how other people view the world. Other characteristics, including stature, eye color, and facial appearance, vary among children and are also strongly determined by heredity. Similarly, children's **temperaments**—their characteristic ways of responding to emotional events, novel stimuli, and impulses—are affected by their individual genetic makeup (Rothbart & Bates, 2006; Wang & Deater-Deckard, 2013). Likewise, being slow or quick to learn from everyday experiences has a partial genetic basis (Calvin et al., 2012; Kan, Wicherts, Dolan, & van der Maas, 2013; Petrill et al., 2004).

Heredity is powerful, but it has limits. For one thing, the child's present developmental level affects which genes come into play. Whereas some hereditary instructions, such as the chromosomes that determine sex, exert an influence from the beginning, other instructions emerge only gradually through the process of **maturation**, the genetically guided changes that occur over the course of development. For example, puberty begins when the pituitary gland in the brain senses it is time to release certain hormones, the excretion of which initiates sexual maturation.

Children's experiences affect all aspects of their being, from the health of their bodies to the curiosity of their minds. *Nurture* affects children's development through multiple channels: physiologically through nutrition, activity, affection, and exposure to light, viruses, and stress; intellectually through informal experiences and formal instruction; and socially through exposure to adult role models and participation in peer relationships. However, nurture faces definite limits. Even the best environments cannot overpower every possible defective gene. And, unfortunately, optimal conditions in the environment do not always exist. Abuse, neglect, poor nutrition, pollution, and racism are just a few threats that children may encounter.

Historically, many theorists saw nature and nurture as separate and rival factors. Several early theorists believed that biological factors are ultimately responsible for growth. Other theorists assumed that children become whatever the environment shapes them to be. In recent decades, developmental theorists have learned that nature and nurture intermesh dynamically in the lives of busy, active children. Consider the following principles of how nature and nurture exert their effects in development.

Nature and nurture are constrained by the developmental process. Genes and environment alone are not sufficient to explain the complex sequences of events that occur in the changing brain and body. The *developmental process* itself is a factor in growth. In other words, current structures in the child's brain and body constrain the handiwork of nature and nurture (Champagne, 2009; Stiles, 2008). For example, during a child's prenatal growth in the womb, new cells specialize in particular ways and move to appropriate locations depending on signals from nearby cells. In the globular hands that first emerge during prenatal development, cells respond to certain chemicals by duplicating, taking on certain properties, and in boundaries between fingers, perishing to separate the digits. This cascade of reactions allows fingers to sprout, project from the palm, elongate, and differentiate into the elegant digits that will permit buttoning a shirt and drawing with crayons.

The relative effects of heredity and environment vary for different areas of development. Some abilities are strongly influenced by genetically controlled systems in the brain. For example, the abilities to distinguish among various speech sounds and use appropriate grammatical structures develop without formal training under a wide range of environmental conditions (Archer & Curtin, 2011; Gallistel, Brown, Carey, Gelman, & Keil, 1991). In contrast, abilities in traditional school subject areas (e.g., reading, geography, and music) rely heavily on instruction (Bruer, 1999; R. K. Olson, 2008).

Inherited tendencies make individual children more or less responsive to particular environmental influences. Because of their genetic makeup, some children are easily affected by certain conditions in the environment, whereas others are less affected (Bugental, 2009; La Greca, Lai, Joormann, Auslander, & Short, 2013; Rutter, 1997). Children who are, by nature, inhibited may be quite shy around other people if they have few social contacts. However, if their parents and teachers arrange for them to make friends, these otherwise shy children may become more socially outgoing (Arcus, 1991; Kagan & Fox, 2006). Children who have more extroverted temperaments may be sociable regardless of their specific environment because they will seek out peers with whom they can talk, laugh, and play.

Some genes exert their effects only in certain environments. Children are sometimes born with particular genes that put them at risk for developing psychological problems. For example, a certain chemical, serotonin, is produced in the brain and influences a person's mood. Some people have a short form of a gene (known as 5-HTT) that makes it difficult for their brains to recycle serotonin, such that insufficient amounts of it are available for maintaining positive emotions. As a result, these individuals are at risk for becoming chronically sad and irritable. Yet the short form of this gene does not cause emotional depression unless these individuals are also maltreated as children or grow up in a stressful environment (Caspi et al., 2003). Conversely, being raised in a potentially traumatizing environment is associated with later depression mainly in individuals who have this short gene.

Individual differences in heredity may exert stronger effects when environments are favorable than when environments are impoverished. When youngsters have decent experiences in their culture, community, and age-group, heredity often plays a strong role in their individual characteristics. Thus, when children grow up with adequate nutrition, a warm

and stable home environment, and appropriate educational experiences, heredity affects how quickly and thoroughly they acquire new skills. But when they have experiences that are quite unusual—for instance, when they experience extreme deprivation—the environment outweighs heredity (D. C. Rowe, Almeida, & Jacobson, 1999; Sameroff, 2009). When children grow up deprived of adequate nutrition and stimulation, they may fail to develop advanced intellectual skills, even though they had been born with such potential (N. A. Fox, Almas, Degnan, Nelson, & Zeanah, 2011; Plomin & Petrill, 1997).

Timing of environmental exposure matters. When children are changing rapidly in any area, they are especially prone to influence by the environment. Early in a mother's pregnancy, her use of certain drugs may damage her future offspring's quickly growing organs and limbs. Just prior to birth, exposure to the same drugs may adversely affect the baby's brain, which at that point is forming the neurological connections needed for survival and learning in the outside world. In a few cases a particular stimulation *must* occur during a brief period if a prospective ability is to become functional (C. Blakemore, 1976; Hubel & Wiesel, 1965). In such cases there is a *critical period* for stimulation.

At birth, certain areas of the brain are tentatively reserved for processing visual patterns—lines, shapes, contours, depth, and so forth. In virtually all cases, infants encounter adequate stimulation to preserve these brain circuits. However, when cataracts are present at birth and not removed for a few years, a child's vision is obstructed, and areas of the brain that otherwise would be devoted to these visual functions are redirected for other purposes.

In many and probably most other developmental areas, however, children may be most receptive to a certain type of stimulation at one point in their lives but remain able to benefit from it to some degree later as well. Many theorists use the term **sensitive period** when referring to such a long time frame of heightened receptivity to particular environmental experiences. Sensitive periods appear to be more common than critical periods, reflecting nature's fortunate practice of giving children second chances to learn important skills. During early childhood, children are naturally predisposed to tune in to the sounds, structure, and meaning of language, suggesting a sensitive period for learning language. Educators can realistically expect to make meaningful progress with children who are delayed in language as long as missing experiences are provided.

Children's actions affect their environment. In addition to being affected by nature and nurture, children's growth is influenced by their own behaviors. Youngsters make many choices, seek out information, and, over time, refine their knowledge and beliefs. Children often request information ("What does *cooperate* mean, Mommy?") and experiences ("Uncle Ignacio, can I play on your computer?"). Children even create environments that intensify their genetic tendencies. Those with irritable dispositions might pick fights, thereby creating a more aggressive climate in which to interact.

As children get older, they become increasingly able to seek stimulation that suits their tendencies. Imagine that Marissa has an inherited talent for verbal processing. As a young child, Marissa depends on her parents to read to her. As she grows older, Marissa chooses her own books and begins to read to herself. Marissa's experience would suggest that genetic tendencies become more powerful as children grow older—an expectation that is consistent with genetic research (Haworth & Plomin, 2012; Scarr & McCartney, 1983; Trzaskowski, Yang, Visscher, & Plomin, 2014; Tucker-Drob & Harden, 2012).

Universality and Diversity

Developmental changes that occur in just about everyone are said to reflect a certain degree of **universality**. Unless significant disabilities are present, all young children learn to sit, walk, and run, almost invariably in that order. Other developmental changes are highly individual or are different between groups—for example, in boys and girls or among members of different cultures. These variations reflect **diversity** and remind us of the many healthy manifestations of children's growth—and, unfortunately, of a few maladaptive pathways.

Theorists differ in their beliefs regarding the extent to which developmental accomplishments are universal among human beings or unique to individuals and groups. Some scholars propose that shared genes and maturational processes contribute to universality in

development (e.g., Gesell, 1928). They point out that despite widely varying environments, virtually all human beings acquire basic motor skills, proficiency in language, and the ability to inhibit immediate impulses. Certain consistencies in children's environments provide an additional route to universality. In all corners of the world, children observe objects falling down rather than up and people getting angry when someone intentionally hurts them. In the same manner, children commonly participate in everyday cultural activities, for example, household chores, which prepare them for adult roles.

Yet other theorists have been impressed by diversity in child development. They point out that nature permits variations in genes affecting facial features, physical characteristics, and intellectual abilities. Still other scholars view the environment (nurture) as weighing heavily in diversity. They propose that factors as global as the historical period of one's upbringing and as personal as one's family relationships generate individuality (Baltes, Lindenberger, & Staudinger, 2006; Bornstein & Lansford, 2010; Giallo, Cooklin, Wade, D'Esposito, & Nicholson, 2014). Many theorists also see culture as a significant source of diversity: Children differ in the competencies they acquire based on the particular tools, communication systems, and values they encounter in society (Göncü & Gauvain, 2012; Griedler & Shields, 2008; Rogoff, 2003).

Earlier we mentioned that the relative influences of nature and nurture vary from one area of development to another. The same pattern is true for universality and diversity. Development tends to be similar in some aspects of physical development, such as the sequences in which puberty unfolds. In other areas, including many aspects of cognitive and social-emotional development, diversity is prevalent. Nevertheless, there is always *some* diversity, even in physical development. Obviously, children vary in height, weight, and skin color, and some are born with physical disabilities or become seriously injured.

Throughout this book you will find instances of developmental universality, but just as often, you will see divergence in developmental pathways. Gaining an appreciation for both common trends and the many exceptions will help you meet the needs of children.

Qualitative and Quantitative Change

Sometimes development reflects dramatic changes in the essence or underlying structure of a characteristic. Such major reorganizations are called **qualitative changes**. When children learn to run, they propel their bodies forward in a way that is distinctly different from walking—they are not simply moving faster. When they begin to talk in two-word sentences rather than with single words, they are, for the first time, using rudimentary forms of grammar. And when they shift from obeying a teacher because they do not want to be punished to following classroom rules because it is the right thing to do, they are transforming the way they look at morality.

But not all development involves dramatic change. In fact, development frequently occurs as a gradual progression, or *trend,* with many small additions and modifications to behaviors and thought processes. These progressions are called **quantitative changes**. For example, children gradually grow taller and learn more and more things about such diverse realms as the animal kingdom and society's rules for showing courtesy.

Stage Theories

Theorists who emphasize qualitative changes often use the term **stage** to refer to a period of development characterized by a particular way of behaving or thinking. According to a **stage theory** of development, individuals progress through a series of stages that are qualitatively different from one another.[1]

Some stage theories include *hierarchical* levels. In hierarchical models, each stage is seen as providing the essential foundation for modifications that follow. After observing children in a wide variety of thought-provoking situations, the eminent psychologist **Jean Piaget** (1896–1980) proposed a stage theory to describe transformations in children's logical

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[1] Note that developmental scholars have a more precise meaning for the term *stage* than is communicated by the same word in everyday speech. Parents often make comments like "He's at the *terrible twos stage.*" Such comments reflect the idea that children are behaving typically for their age group. When developmental scientists say a child is in a certain stage, they additionally assume that the child is undergoing a series of age-related qualitative transformations.

reasoning. His observations led him to conclude that as infants, children interact with the world primarily through trial-and-error behavior, for example, in discovering the properties of a rubber ball as they mouth it and roll it on the floor. As children mature, they begin to symbolically represent concepts and make mental predictions about objects and actions in the world around them. They know that the ball will bounce when they drop it on a wooden floor. Later they begin to derive logical deductions about concrete, real-world situations, perhaps inferring that the ball must be made out of a pliable substance. And once they reach adolescence, they become capable of thinking systematically about abstract ideas—for instance, by thinking about the unseen physical factors (e.g., *momentum, gravity*) influencing the ball's bounce.

Another famous stage theorist, **Erik Erikson** (1902–1994), focused on a set of primary challenges that individuals face at different points in their lives. During their infancy and early childhood years, youngsters learn first to trust others and then to act self-sufficiently. As adolescents, youngsters reflect on their *identities* as boys or girls, members of particular ethnic groups, and individuals with defined interests and goals for the future. In Erikson's theory, stages are "soft": People do not fully replace earlier developments with new modes of thinking (Kohlberg, Levine, & Hewer, 1983). Instead, earlier struggles persist—and sometimes intrude—in the form of new challenges. Hence a young adult who has failed to develop a clear identity may be confused about the kind of role to play in a romantic relationship (J. Kroger, 2003).

Historically, stage theories emphasized *universal* progressions: All children were thought to go through the same sequence of changes, with slight variations in timing due to dissimilarities in environmental support. Piaget was a strong believer in universal progressions in children's thinking. However, research has *not* entirely confirmed the idea that young people proceed through general stages one at a time or that they always move in the same direction (e.g., Ceci & Roazzi, 1994; K. W. Fischer & Bidell, 2006; Voutsina, 2012). A 9-year-old girl may easily plan ahead while playing chess (her hobby) but have difficulty organizing a complex essay (an unfamiliar activity). Nor do stage progressions always appear to be universal across cultures and educational contexts (e.g., H. Keller, 2011; Sachdeva, Singh, & Medin, 2011; S.-C. Li, 2007). Youngsters raised in vastly different cultures often learn to think in significantly different ways. Given these and other research findings, few contemporary developmental theorists endorse strict versions of stage theories (Parke, Ornstein, Rieser, & Zahn-Waxler, 1994).

Many theorists now believe that qualitative changes do exist—not as inevitable, universal, and hierarchical patterns, but rather as dynamic and somewhat individual states of thinking and acting that evolve as children mature and try new things. It is obvious that the actions of adolescents differ from those of 2-year-old children. Fifteen-year-olds are not simply taller and more knowledgeable about the world; they go about their day-to-day living in qualitatively different ways. Maturation-based developments, such as the brain's increases in memory capacity, plus ever-expanding knowledge and experience, permit both gradual and occasionally dramatic changes in thinking and behaving (Barrouillet, Gavens, Vergauwe, Gaillard, & Camos, 2009; Morra, Gobbo, Marini, & Sheese, 2008). Thus, contemporary developmental theorists tend to see both qualitative and quantitative changes in children's development.

Applying Lessons from Basic Issues in Child Development

As you read this book, you will find that the three basic developmental issues of nature and nurture, universality and diversity, and qualitative and quantitative change surface periodically within individual chapters. They also are presented in Basic Developmental Issues tables in each chapter. The first of these tables, "Illustrations in the Three Domains," provides examples of how these dimensions are reflected in the domains of physical, cognitive, and social-emotional development. These big ideas also have several broad implications for your work with children:

• **Accept the powerful influences of both nature and nurture.** A child's fate is never sealed—it always depends on care from adults and the child's own efforts. Again and again, nurture matters. But so does nature. How children respond to guidance depends, in part,