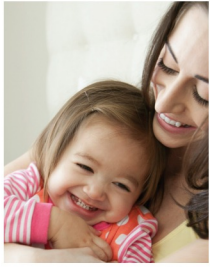

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OF LIFE-SPAN DEVELOPMENT

FOURTH EDITION

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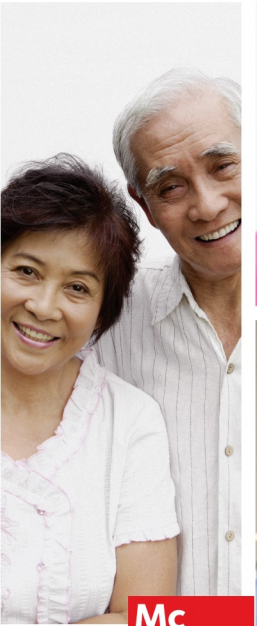

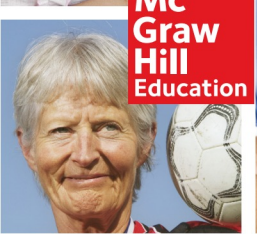
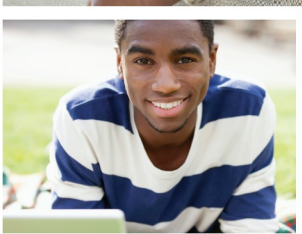
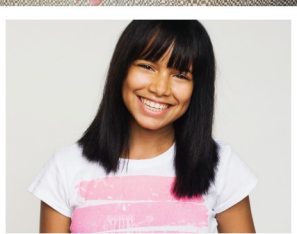
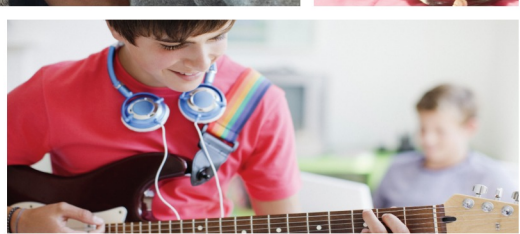

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Essentials of Life-Span Development

FOURTH EDITION

John W. Santrock

University of Texas at Dallas

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About the Author

John W. Santrock

John Santrock received his Ph.D. from the University of Minnesota in 1973. He taught at the University of Charleston and the University of Georgia before joining the Program in Psychology and Human Development at the University of Texas at Dallas, where he currently teaches a number of undergraduate courses and recently was given the University's Effective Teaching Award.

John Santrock, teaching in his undergraduate course in life-span development.

John has been a member of the editorial boards of *Child Development* and *Developmental Psychology*. His research on the multiple factors involved in how divorce affects children's development is widely cited and used in expert witness testimony to promote flexibility and alternative considerations in custody disputes.

John also has authored these exceptional McGraw-Hill texts: *Children* (13th edition), *Adolescence* (15th edition), *Life-Span Development* (15th edition), *A Topical Approach to Life-Span Development* (7th edition), and *Educational Psychology* (5th edition).

For many years, John was involved in tennis as a player, teaching professional, and coach of professional tennis players. At the University of Miami (FL), the tennis team on which he played still holds the NCAA Division I record for most consecutive wins (137) in any sport. His wife, Mary Jo, has a master's degree in special education and has worked as a teacher and a realtor. He has two daughters—Tracy, who also is a realtor, and Jennifer, who is a medical sales specialist. Tracy has run the Boston and New York marathons. Jennifer is a former professional tennis player and NCAA tennis player of the year. John has one granddaughter, Jordan, age 22, currently a graduate student in the Cox School of Business at Southern Methodist University, and two grandsons, Alex, age 10, and Luke, age 8. In the last decade, John also has spent time painting expressionist art.

Dedication:

With special appreciation to my wife, Mary Jo.

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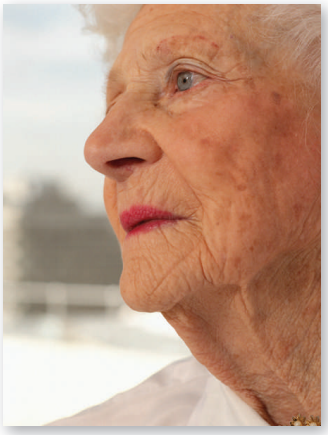

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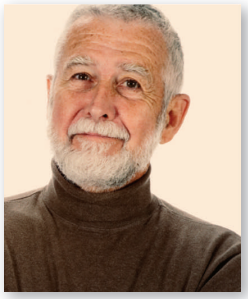

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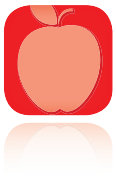

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Santrock—connecting *research* and *results!*

As a master teacher, John Santrock connects students to current research and real-world applications. His integrated, personalized learning program gives students the insight they need to study smarter and improve performance.

Better data, smarter revision, improved results

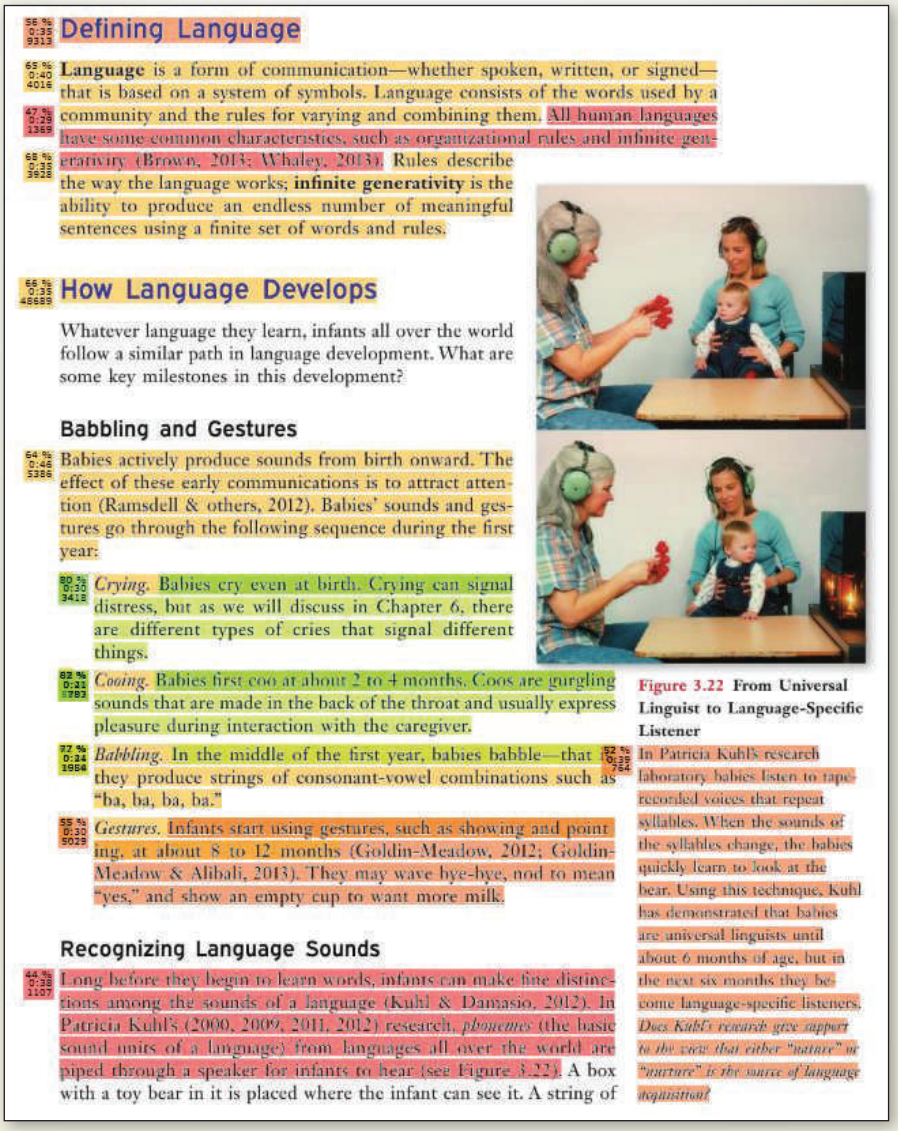
Students helped inform the revision strategy of *Essentials of Life-Span Development.*

STEP 1. Over the course of three years, data points showing concepts that caused students the most difficulty were anonymously collected from Connect Essentials of Lifespan Development McGraw-Hill LearnSmart® product.

STEP 2. The data from LearnSmart was provided to the author in the form of a ***Heat Map***, which graphically illustrates "hot spots" in the text that impacts student learning (see image below).

STEP 3. The author 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 Lifespan Development to further support student success.

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



Defining Language

Language is a form of communication—whether spoken, written, or signed—that is based on a system of symbols. Language consists of the words used by a community and the rules for varying and combining them. All human languages have some common characteristics, such as organizational rules and infinite generativity (Brown, 2013; Whaley, 2013). Rules describe the way the language works; **infinite generativity** is the ability to produce an endless number of meaningful sentences using a finite set of words and rules.

How Language Develops

Whatever language they learn, infants all over the world follow a similar path in language development. What are some key milestones in this development?

Babbling and Gestures

Babies actively produce sounds from birth onward. The effect of these early communications is to attract attention (Ramsdell & others, 2012). Babies' sounds and gestures go through the following sequence during the first year:

Crying. Babies cry even at birth. Crying can signal distress, but as we will discuss in Chapter 6, there are different types of cries that signal different things.

Cooing. Babies first coo at about 2 to 4 months. Coos are gurgling sounds that are made in the back of the throat and usually express pleasure during interaction with the caregiver.

Babbling. In the middle of the first year, babies babble—that they produce strings of consonant-vowel combinations such as "ba, ba, ba, ba."

Gestures. Infants start using gestures, such as showing and pointing, at about 8 to 12 months (Goldin-Meadow, 2012; Goldin-Meadow & Alibali, 2013). They may wave bye-bye, nod to mean "yes," and show an empty cup to want more milk.

Recognizing Language Sounds

Long before they begin to learn words, infants can make fine distinctions among the sounds of a language (Kuhl & Damasio, 2012). In Patricia Kuhl's (2000, 2009, 2011, 2012) research, *phonemes* (the basic sound units of a language) from languages all over the world are piped through a speaker for infants to hear (see Figure 3.22). A box with a toy bear in it is placed where the infant can see it. A string of

Figure 3.22 From Universal Linguist to Language-Specific Listener

In Patricia Kuhl's research laboratory, babies listen to tape-recorded voices that repeat syllables. When the sounds of the syllables change, the babies quickly learn to look at the bear. Using this technique, Kuhl has demonstrated that babies are universal linguists until about 6 months of age, but in the next six months they become language-specific listeners. *Does Kuhl's research give support to the view that either "nature" or "nurture" is the source of language acquisition?*

LearnSmart is an adaptive learning program designed to help students learn faster, study smarter, and retain more knowledge for greater success. Distinguishing what students know from what they don't, and focusing on concepts they are most likely to forget, LearnSmart continuously adapts to each student's needs by building an individual learning path. Millions of students have answered over a billion questions in LearnSmart since 2009, making it the most widely used and intelligent adaptive study tool that's proven to strengthen memory recall, keep students in class, and boost grades.

Fueled by LearnSmart McGraw-Hill SmartBook™ is the first and only adaptive reading experience currently available.

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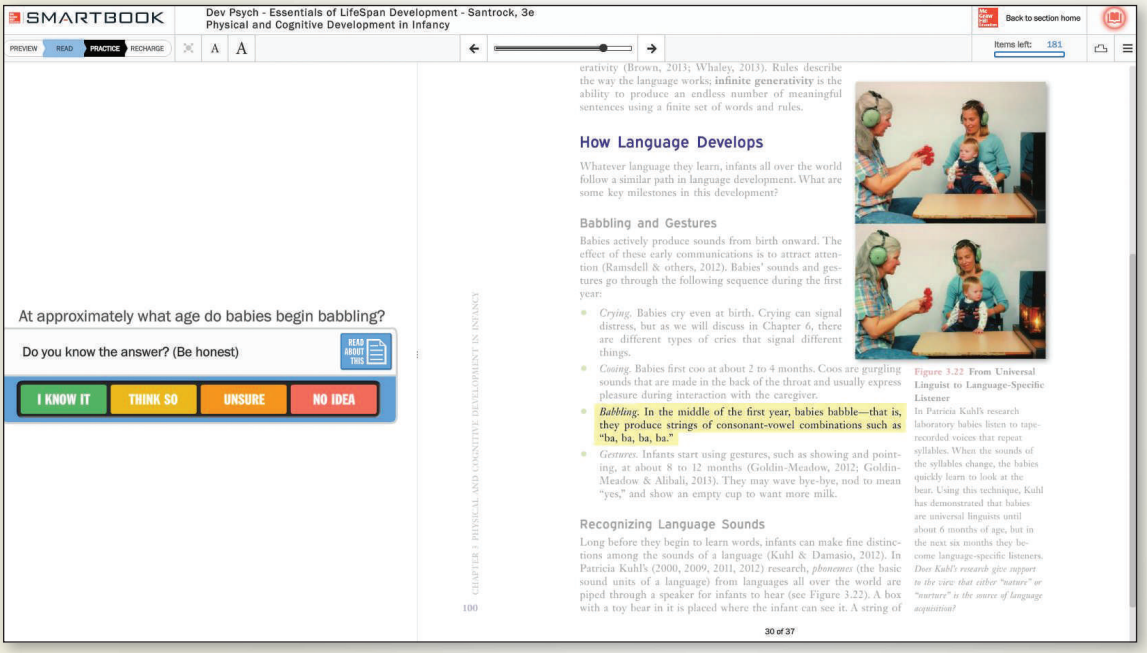

Personalized grading, on the go, made easier

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Real people, real world, real life

McGraw-Hill Education's Milestones is a powerful tool that allows students to experience life as it unfolds, from infancy through emerging adulthood. Students track the early stages of physical, social, and emotional development. By letting students observe one child over time or compare various children, Milestones provides a unique, experiential learning environment that can only be achieved by watching real human development as it happens.

The Essential Approach to Life-Span Development

In the view of many instructors who teach the life-span development course, the biggest challenge they face is covering all periods of human development within one academic term. My own teaching experience bears this out. I have had to skip over much of the material in a comprehensive life-span development text in order to focus on key topics and concepts that students find difficult and to fit in applications that are relevant to students' lives. I wrote *Essentials of Life-Span Development* to respond to the need for a shorter text that covers core content in a way that is meaningful to diverse students.

This fourth edition continues my commitment to provide a brief introduction to life-span development—with an exciting difference. Recognizing that most of today's students have grown up in a digital world, I take very seriously the need for communicating content in different ways, online as well as in print. Consequently, I'm enthusiastic about McGraw-Hill's online assignment and assessment platform, **Connect Life-Span Development,** which incorporates this text and the captivating **Milestones** video modules. Together, these resources give students and instructors the essential coverage, applications, and course tools they need to tailor the life-span course to meet their specific needs.

The Essential Teaching and Learning Environment

Research shows that students today learn in multiple modalities. Not only do their work preferences tend to be more visual and more interactive, but their reading and study sessions often occur in short bursts. With shorter chapters and innovative interactive study modules, *Essentials of Life-Span Development* allows students to study whenever, wherever, and however they choose. Regardless of individual study habits, preparation, and approaches to the course, *Essentials* connects with students on a personal, individual basis and provides a road map for success in the course.

Essential Coverage

The challenge in writing *Essentials of Life-Span Development* was determining what comprises the core content of the course. With the help of consultants and instructors who have responded to surveys and reviewed the content at different stages of development, I am able to present all of the core topics, key ideas, and most important research in life-span development that students need to know in a brief format that stands on its own merits.

The 17 brief chapters of *Essentials* are organized chronologically and cover all periods of the human life span, from the prenatal period through late adulthood and death. Providing a broad overview of life-span development, this text especially gives attention to the theories and concepts that students seem to have difficulty mastering.

Essential Applications

Applied examples give students a sense that the field of life-span development has personal meaning for them. In this edition of *Essentials* are numerous real-life applications as well as research applications for each period of the life span.

In addition to applied examples, *Essentials of Life-Span Development* offers applications for students in a variety of majors and career paths.

- *How Would You . . . ?* questions. Given that students enrolled in the life-span course have diverse majors, *Essentials* includes applications that appeal to different interests. The most prevalent areas of specialization are education, human development and family studies, health professions, psychology, and social work. To engage these students and ensure that *Essentials* orients them to concepts that are key to their understanding of life-span development, instructors specializing in these fields contributed *How Would You . . . ?* questions for each chapter. Strategically placed in the margin next to relevant topics, these questions highlight the essential takeaway ideas for these students.
- *Careers in Life-Span Development.* This feature personalizes life-span development by describing an individual working in a career related to the chapter's focus. Chapter 2, for example, profiles Holly Ishmael, a genetic counselor. The feature describes Ms. Ishmael's education and work setting, includes a direct quote from Ms. Ishmael, discusses various employment options for genetic counselors, and provides resources for students who want to find out more about careers in genetic counseling.

Essential Resources

The following resources accompany *Essentials of Life-Span Development*, 4th 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
- Computerized Test Bank
- PowerPoint Slides

Content Revisions

As an indication of the up-to-date nature of this new edition, the text has more than 1,500 citations from 2013, 2014, and 2015. **New research** highlights include very recent studies on links between infant attachment (including attachment to both parents) and developmental outcomes; whether delay of gratification in early childhood can predict physical and mental health in adulthood; more precise discoveries about the adolescent's changing brain; which cohabitation contexts are not linked to divorce; the far-reaching benefits of exercise in the lives of older adults; and genetic, cellular, and lifestyle factors that characterize individuals with Alzheimer disease. **New techniques** are described, such as neurofeedback and mindfulness training to reduce ADHD symptoms; and **ongoing debates**, such as the extent to which human development is influenced by genes and/or environment, and whether supportive or tiger parenting is better for Chinese American children, are explored. Following are further samplings of numerous chapter-by-chapter changes that were made in this new edition of *Essentials of Life-Span Development*. A more extensive, detailed list of chapter-by-chapter changes can be obtained from a McGraw-Hill sales representative.

Chapter 1: Introduction

- Expanded and updated coverage of ethnic minority children and children living in poverty
- Discussion of Ann Masten's recent research on resilience, including the lives of homeless children
- New description of Robert Siegler's microgenetic method for studying cognitive changes
- Expanded content on physiological assessment of development, including cortisol, EEG, heart rate, and eye movement

Chapter 2: Biological Beginnings

- Extensive editing and updating based on feedback from leading experts Kirby Deater-Deckard and David Moore
- Updated and expanded content on gene-gene interaction to include alcoholism and Alzheimer disease
- Updated and expanded coverage of gene-environment interaction research, including some difficulties in replicating results
- New research on outcomes for offspring of women who drank various amounts of alcohol during pregnancy
- Coverage of recent research on the effects of maternal stress and depression on the fetus and infant outcomes
- Extensive updating of research on prenatal care, including pregnant women's exercise and Centering Pregnancy outcomes
- Inclusion of recent research on doulas
- Discussion of an extensive number of new research studies on reducing negative outcomes for preterm birth and low birth weight infants

Chapter 3: Physical and Cognitive Development in Infancy

- Inclusion of changes in the development of the brain by leading expert Martha Ann Bell
- New section on links between infant sleep and cognitive development
- Editing and changes made on infant perceptual development based on leading expert Scott Johnson's feedback
- Much expanded and updated coverage of the dramatic increase in the use of sophisticated eye-tracking equipment in the study of infant perception
- New discussion of Daphne Maurer's research on infants who have cataracts removed at different points in development and links to how deprivation and experience influence visual development
- Inclusion of recent research indicating that preverbal infants as young as 4 months of age may show an innate sense of morality
- Expanded criticism of the nativist approach to infant cognition
- Coverage of recent research on infant attention and links to executive function in the preschool years

Chapter 4: Socioemotional Development in Infancy

- Expanded and updated discussion of infants' biological recovery from stressors and the role that caregivers play in this recovery
- Description of recent research on infants' emotions, including how babies pick up on their mothers' stress and negative emotion, as well as parents' elicitation of emotion talk and its link to toddlers' sharing and helping
- Updates on developmental outcomes of infant attachment, including a recent study of infants' insecure attachment to both their mother and father and links to more externalizing problems later in childhood and a research review of stability and change in attachment from infancy to early adulthood
- New discussion of the inconsistency in gene-environment interaction studies related to infant attachment

- Inclusion of recent research on the role of fathers in infant development
- Updates on research on variations in child care and links to child outcomes

Chapter 5: Physical and Cognitive Development in Early Childhood

- Expanded and updated coverage of recent trends in overweight and obesity in early childhood and connections with later outcomes
- Coverage of a number of recent studies on the positive role of exercise and physical activity in young children's lives
- Inclusion of new information on young children's cognitive development based on feedback from leading expert Philip Zelazo and Patricia Miller
- Expanded discussion of Vygotsky's theory, including factors that influence the zone of proximal development and the positive role of scaffolding
- Expanded and updated coverage of sustained attention in young children
- New section on young children's autobiographical memories
- Expanded and updated coverage of delay of gratification, including recent research on connections between delay of gratification in early childhood and outcomes three decades later
- Inclusion of recent research on theory of mind, including the role of language and links to executive function
- New content on six principles for optimal word learning in young children

Chapter 6: Socioemotional Development in Early Childhood

- Description of recent research on children's emotion regulation
- New coverage of recent research by Cybele Raver and her colleagues on links between caregiver emotional expression, self-regulation, and behavior problems in children growing up in poverty conditions
- Coverage of recent research that found parents were more satisfied with their lives than were nonparents
- Updated discussion of punishment's effects on children, including commentary from a recent research review by Elizabeth Gershoff
- Expanded description of family-related factors that contribute to child maltreatment and recent research linking child maltreatment to depression in early adulthood
- Coverage of recent research on the positive aspects of gay and lesbian parenting, including higher rates of co-parenting compared with heterosexual parents
- Expanded and updated content on the stressors that immigrant families face and new discussion of transnational parents
- Description of a recent meta-analysis of research in 14 countries on the positive effects of *Sesame Street* in a number of areas of children's development

Chapter 7: Physical and Cognitive Development in Middle and Late Childhood

- Coverage of a number of recent research studies on the positive outcomes of exercise for elementary-school-aged children
- Updated research on ADHD, including executive function deficits and the influence of neurofeedback, mindfulness training, and exercise in reducing ADHD symptoms
- Inclusion of recent proposals to use mindfulness training, as well as other aspects of contemplative science such as yoga, to improve children's cognitive and socioemotional skills
- New coverage of the underrepresentation of ethnic minority children in programs for children who are gifted
- Updated and revised content on English language learners (ELLs)

Chapter 8: Socioemotional Development in Middle and Late Childhood

- Expanded and updated coverage of the consequences of low self-esteem for children
- Discussion of recent research on the negative outcomes of giving inflated praise to children
- Recent research that revealed self-regulation was a protective factor in helping children in low-income circumstances to avoid developing emotional problems
- New content on gender in school and achievement contexts, including research on same-sex schools
- Updated information about gender differences in the brain
- New research linking low peer status in childhood with work and mental health problems in early adulthood
- Considerable research updates on bullying, including outcomes for victims and also the increasing incidence of cyberbullying and its effects on children

- New coverage of two recent books on the strongly disciplinarian orientation of Chinese parents
- New research by Eva Pomerantz and her colleagues on the role of parenting in children's learning and achievement
- Inclusion of recent research that found supportive parenting, not tiger parenting, was the most common type of parenting used by Chinese American parents, and that tiger parenting was associated with negative academic and emotional outcomes

Chapter 9: Physical and Cognitive Development in Adolescence

- Inclusion of some changes based on feedback from leading experts Elizabeth Susman and Bonnie Halpern-Felcher
- Revised definition of puberty to include neuroendocrine processes
- Description of recent research on negative sexual relationships for early-maturing girls
- New commentary on the developmental trajectory of the adolescent brain occurring in a bottom-up, top-down sequence
- Updated and revised content on changes in the limbic system and its role in the influence of reward during adolescence
- New discussion of increased focal activity within a brain region and increasing connectedness across more distant brain regions during adolescence
- New closing statement about research on the adolescent brain being correlational in nature
- Updated data on the sexual activity of U.S. adolescents, including risk factors, condom use, and pregnancy
- Coverage of a number of recent studies on the positive outcomes of exercise during adolescence
- Updated data on adolescent substance use and risk factors for substance abuse
- Inclusion of some changes in the description of cognitive development based on leading expert Valerie Reyna's feedback

Chapter 10: Socioemotional Development in Adolescence

- Substantial updating and expansion of cultural and ethnic identity
- New research on the positive outcomes of parental monitoring
- Coverage of recent research on the positive outcomes of adolescent self-disclosure to parents
- Inclusion of recent research on parent-adolescent conflict
- Considerable expansion and updating of the role of immigration in adolescent development, including the complexity of immigration and stressful circumstances
- New research on depression and suicide, including family factors, peer victimization, cyberbullying, and playing sports
- Updated research on outcomes for the Fast Track delinquency intervention study

Chapter 11: Physical and Cognitive Development in Early Adulthood

- New research on the negative outcomes of chronic sleep deprivation
- Updated content on overweight and obesity trends in college and early adulthood
- New research on binge drinking in emerging adulthood
- Inclusion of recent research on sexual risk factors in emerging adulthood, such as those involving hooking up and friends with benefits, as well as gender differences in sexual encounters
- New commentary about how many individuals increasingly are working at a series of jobs and short-term jobs
- Updated data on the percentage of full-time and part-time college students who work while attending college
- Inclusion of recent research on factors that predict unemployment and links of unemployment to an increase in cardiovascular disease

Chapter 12: Socioemotional Development in Early Adulthood

- New content exploring whether online dating is a good idea and recent research on links between online dating and marital satisfaction
- Inclusion of recent research on various aspects of cohabitation, including contextual variations in whether cohabitation is likely to influence the success of marriages
- New research on the high expectations newly married individuals have for the success of their marriage, including the fact that forecasts often are too optimistic
- Updated data on the percentage of marriages that are likely to end in divorce over 20 years of time, as well as other recent data on marriage and divorce rates
- Expanded discussion of the negative outcomes of divorce on physical and psychological well-being

- New research comparing attitudes about divorce, marital quality, and divorce proneness in remarried individuals with the corresponding attributes of their counterparts in first marriages

Chapter 13: Physical and Cognitive Development in Middle Adulthood

- New chapter opening story, "Changing Perceptions of Time," that describes how time seems to pass more quickly in middle age and the possible reasons for this perception
- Coverage of a recent British study on when middle age begins and what characterizes it
- Discussion of recent research on many facets of obesity and cardiovascular disease in middle age
- New research on sleep-related problems in middle age
- New research on factors such aerobic training and yoga that are associated with a decrease in menopausal symptoms
- New discussion of leading Finnish expert Clas-Haken Nygard's research indicating that effectiveness at work peaks in middle age
- Recent data on age variations in the percentage of U.S. adults who have a religious affiliation

Chapter 14: Socioemotional Development in Middle Adulthood

- New research on emotional reactivity to daily stressors and links to health outcomes
- Inclusion of recent research studies on daily stressors and their link to cortisol secretion
- Updated commentary on stability or changes in a positive direction (lower neuroticism, for example) being associated with better health and more competent functioning
- Coverage of recent research on individuals' perceptions of the extent to which their personality changed in the past and is likely to change in the future, as well as how accurate they were in such estimations
- Recent research on outcomes for women who get divorced in middle age

Chapter 15: Physical and Cognitive Development in Late Adulthood

- Updated life expectancy data, including the narrowing life expectancy gap between men and women
- Coverage of comments by the person who lived longer than anyone else—Jeanne Louise Calment—about her views on life
- Expanded and updated coverage of pain perception, persistent pain, most frequent pain complaints, and tolerance of pain
- Coverage of a number of recent studies on the benefits of exercise on aging, including the positive effects of long-term aerobic exercise and the effects of exercise on coping skills, mitochondrial functioning, cardiovascular and respiratory functioning, balance and strength, and allocation of attention
- Inclusion of recent research on video game training to reduce distraction and increase alertness
- Coverage of a number of recent studies on memory, including working memory
- New research on executive function, including links to falls and speed of processing training
- Recent research by Denise Park and her colleagues on the positive outcomes of sustained engagement in cognitively demanding, novel activities
- Coverage of recent meta-examinations of four major longitudinal studies of cognitive aging
- Recent research on older adults working later in their lives and the role of working in a job with high cognitive demands
- New discussion of the roles that tau and amyloid likely play in Alzheimer disease

Chapter 16: Socioemotional Development in Late Adulthood

- Recent research on the roles of physical activity, life satisfaction, and social interaction
- Inclusion of recent research on changes in peripheral social contacts and close relationships from 18 to 94 years of age
- New research on experiencing positive emotion from 22 to 93 years of age, including the influence of the time of day when emotion is assessed
- Discussion of recent research on the Internet activity of older adults
- New section on attachment from early adulthood to late adulthood, including a recent research review of change across these age periods
- Inclusion of recent research on social activities, social isolation, and loneliness

Chapter 17: Death, Dying, and Grieving

- Inclusion of recent research studies on advance care planning and the type of care people receive at the end of life
- Updated content on assisted suicide in various countries
- Recent research on links between older adults' bereavement and dysregulated cortisol patterns
- Coverage of recent research studies on widowhood and its links to longevity (including gender differences), depression and marital quality, and bereavement

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The development and writing of the first four editions of *Essentials of Life-Span Development* were strongly influenced by a remarkable group of consultants, reviewers, and adopters.

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1 Introduction

CHAPTER OUTLINE

THE LIFE-SPAN PERSPECTIVE
The Importance of Studying Life-Span Development
Characteristics of the Life-Span Perspective
Contemporary Concerns in Life-Span Development

THE NATURE OF DEVELOPMENT
Biological, Cognitive, and Socioemotional Processes
Periods of Development
Conceptions of Age
Developmental Issues

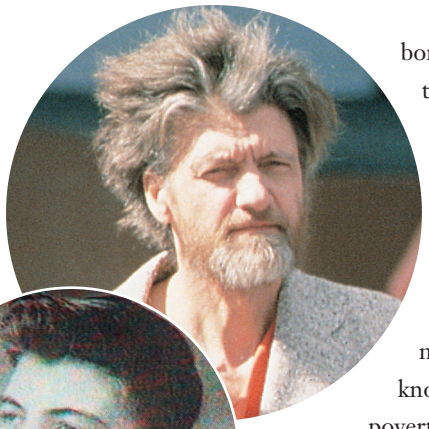
THEORIES OF DEVELOPMENT
Psychoanalytic Theories
Cognitive Theories
Behavioral and Social Cognitive Theories
Ethological Theory
Ecological Theory
An Eclectic Theoretical Orientation

RESEARCH IN LIFE-SPAN DEVELOPMENT
Methods for Collecting Data
Research Designs
Time Span of Research
Conducting Ethical Research

Stories of Life-Span Development: How Did Ted Kaczynski Become Ted Kaczynski and Alice Walker Become Alice Walker?

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.

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. Since 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.

Alice Walker won the Pulitzer Prize for her book *The Color Purple*. Like the characters in her book, Walker overcame pain and anger to triumph and celebrate the human spirit.

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 in this book.

This book is a window into the journey of human development—your own and that of every other member of the human species. Every life is distinct, a new biography in the world. Examining the shape of life-span development helps us to understand it better. In this first chapter, we explore what it means to take a life-span perspective on development, examine the nature of development, and outline how science helps us to understand it. ■

The Life-Span Perspective

Each of us develops partly like all other individuals, partly like some other individuals, and partly like no other individual. Most of the time we notice the qualities in an individual that make that person unique. But as humans, we have all traveled some common paths. Each of us—Leonardo da Vinci, Joan of Arc, George Washington, Martin Luther King, Jr., and you—walked at about 1 year, engaged in fantasy play as a young child, and became more independent as a youth. Each of us, if we live long enough, will experience hearing problems and the death of family members and friends. This is the general course of our **development,** the pattern of movement or change that begins at conception and continues through the human life span.

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

In this section we explore what is meant by the concept of development and why the study of life-span development is important. We outline the main characteristics of the life-span perspective and discuss various influences on development. In addition, we examine some contemporary concerns related to life-span development.

The Importance of Studying Life-Span Development

How might you benefit from studying life-span development? Perhaps you are, or will be, a parent or teacher. If so, responsibility for children is, or will be, a part of your everyday life. The more you learn about them, the better you can raise them or teach them. Perhaps you hope to gain some insight about your own history—as an infant, a child, an adolescent, or a young adult. Perhaps you want to know more about what your life will be like as you grow through the adult years—as a middle-aged adult, or as an adult in old age, for example. Or perhaps you just stumbled across this course, thinking that it sounded intriguing. Whatever your reasons, you will discover that the study of life-span development addresses some provocative questions about who we are, how we came to be this way, and where our future will take us.

In our exploration of development, we will examine the life span from the point of conception until the time when life (at least, life as we know it) ends. You will see yourself as an infant, as a child, and as an adolescent, and you will learn about how those years influenced the kind of individual you are today. And you will see yourself as a young adult, as a middle-aged adult, and as an adult in old age, and you may be motivated to consider how your experiences will affect your development through the remainder of your adult years.

Characteristics of the Life-Span Perspective

Growth and development are dramatic during the first two decades of life, but development is not something that happens only to children and adolescents. The traditional approach to the study of development emphasizes extensive change from birth to adolescence (especially during infancy), little or no change in adulthood, and decline in old age. Yet a great deal of change does occur in the decades after adolescence. The life-span approach emphasizes developmental change throughout adulthood as well as childhood (Borghesani & others, 2014; Schaie & Willis, 2014).

Recent increases in human life expectancy have contributed to greater interest in the life-span approach to development. The upper boundary of the human life span (based on the oldest age documented) is 122 years. The maximum life span of humans has not changed since the beginning of recorded history. What has changed is life expectancy, the average number of years that a person born in a particular year can expect to live. In the twentieth century alone, life expectancy increased by 30 years, thanks to improvements in sanitation, nutrition, and medicine (see Figure 1.1). At the beginning of the second decade of the twenty-first century, the life expectancy in the United States was 78 years of age (U.S. Census Bureau, 2013). Today, for most individuals in developed countries, childhood and adolescence represent only about one-fourth of their lives.

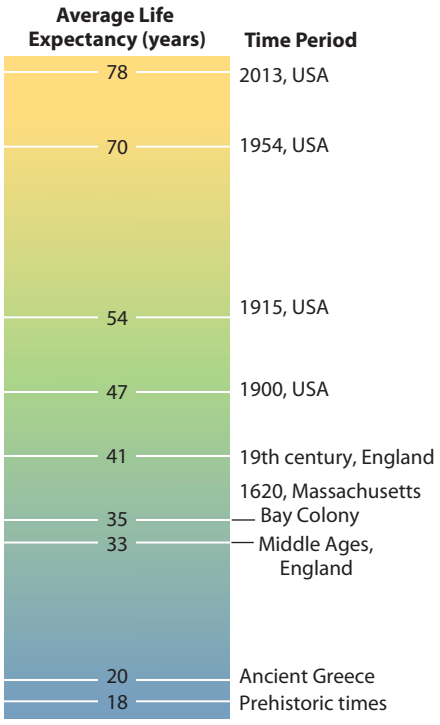


Figure 1.1 Human Life Expectancy at Birth from Prehistoric Time to Contemporary Times
It took 5,000 years to extend human life expectancy from 18 to 41 years of age.

The belief that development occurs throughout life is central to the life-span perspective on human development, but this perspective has other characteristics as well. According to life-span development expert Paul Baltes (1939–2006), the **life-span perspective** views development as lifelong, multidimensional, multidirectional, plastic, multidisciplinary, and contextual, and as a process that involves growth,

life-span perspective The perspective that development is lifelong, multidimensional, multidirectional, plastic, multidisciplinary, and contextual; that it involves growth, maintenance, and regulation; and that it is constructed through biological, sociocultural, and individual factors working together.

maintenance, and regulation of loss (Baltes, 1987, 2003; Baltes, Lindenberger, & Staudinger, 2006). In this view, it is important to understand that development is constructed through biological, sociocultural, and individual factors working together (Baltes, Reuter-Lorenz, & Rösler, 2006). Let's look at each of these characteristics.

Development Is Lifelong

In the life-span perspective, early adulthood is not the endpoint of development; rather, no age period dominates development. Researchers increasingly study the experiences and psychological orientations of adults at different points in their lives. Later in this chapter we describe the age periods of development and their characteristics.

Development Is Multidimensional

Development consists of biological, cognitive, and socioemotional dimensions. Even within each of those dimensions, there are many components (Dixon & others, 2013). The cognitive dimension, for example, includes attention, memory, abstract thinking, speed of processing information, and social intelligence. At every age, changes occur in every dimension. Changes in one dimension also affect development in the other dimensions.

To get an idea of how interactions occur, consider the development of Ted Kaczynski, the so-called Unabomber discussed at the opening of the chapter. When he was 6 months old, he was hospitalized with a severe allergic reaction, and his parents were rarely allowed to visit him. According to his mother, the previously happy baby was never the same after his hospital stay. He became withdrawn and unresponsive. As Ted grew up, he had periodic "shutdowns" accompanied by rage. In his mother's view, a biological event in infancy warped the development of her son's mind and emotions.

Development Is Multidirectional

Throughout life, some dimensions or components of a dimension expand and others shrink. For example, when one language (such as English) is acquired early in development, the capacity for acquiring second and third languages (such as Spanish and Chinese) decreases later in development, especially after early childhood (Levelt, 1989). During adolescence, as individuals establish romantic relationships, their relationships with friends might decrease. During late adulthood, older adults might become wiser by being able to call on experience to guide their intellectual decision making (Dixon & others, 2013), but they perform more poorly on tasks that require speed in processing information (Maynard & others, 2014; Salthouse, 2012).

Development Is Plastic

Even at 10 years old, Ted Kaczynski was extraordinarily shy. Was he destined to remain forever uncomfortable with people? Developmentalists debate how much plasticity people have in various dimensions at different points in their development (Yu & others, 2014). Plasticity means the capacity for change. For example, can you still improve your intellectual skills when you are in your seventies or eighties? Or might these intellectual skills be fixed by the time you are in your thirties so that further improvement is impossible? Researchers have found that the cognitive skills of older adults can be improved through training and developing better strategies (Park & others, 2014; Rebok & others, 2014). However, possibly we possess less capacity for change when we become old (Salthouse, 2012). The exploration of plasticity and its constraints is a key element on the contemporary agenda for developmental research (de Frias & Dixon, 2014; Yu & others, 2014).

Developmental Science Is Multidisciplinary

Psychologists, sociologists, anthropologists, neuroscientists, and medical researchers all share an interest in unlocking the mysteries of development through the

life span. How do your heredity and health limit your intelligence? Do intelligence and social relationships change with age in the same way around the world? How do families and schools influence intellectual development? These are examples of research questions that cut across disciplines.

Development Is Contextual

All development occurs within a **context,** or setting. Contexts include families, schools, peer groups, churches, cities, neighborhoods, university laboratories, countries, and so on. Each of these settings is influenced by historical, economic, social, and cultural factors (Lerner, Easterbrooks, & Mistry, 2013).

Contexts, like individuals, change (Clarke-Stewart & Parke, 2014; Gauvain, 2013). Thus, individuals are changing beings in a changing world. As a result of these changes, contexts exert three types of influences (Baltes, 2003): (1) normative age-graded influences, (2) normative history-graded influences, and (3) nonnormative or highly individualized life events. Each of these types can have a biological or environmental impact on development.

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

normative age-graded influences Biological and environmental influences that are similar for individuals in a particular age group.

normative history-graded influences Biological and environmental influences that are associated with history. These influences are common to people of a particular generation.

nonnormative life events Unusual occurrences that have a major impact on a person's life. The occurrence, pattern, and sequence of these events are not applicable to many individuals.

Normative age-graded influences are similar for individuals in a particular age group. These influences include biological processes such as puberty and menopause. They also include sociocultural, environmental processes such as beginning formal education (usually at about age 6 in most cultures) and retirement (which takes place during the fifties and sixties in most cultures).

Normative history-graded influences are common to people of a particular generation because of historical circumstances. For example, in their youth American baby boomers shared the experience of the Cuban missile crisis, the assassination of John F. Kennedy, and the Beatles invasion. Other examples of normative history-graded influences include economic, political, and social upheavals such as the Great Depression in the 1930s, World War II in the 1940s, the civil rights and women's rights movements of the 1960s and 1970s, the terrorist attacks of 9/11/2001, as well as the integration of computers and cell phones into everyday life during the 1990s (Schaie, 2013). Long-term changes in the genetic and cultural makeup of a population (due to immigration or changes in fertility rates) are also part of normative historical change.

Nonnormative life events, such as Hurricane Sandy in October 2012, are unusual circumstances that can have a major influence on a person's development.

Nonnormative life events are unusual occurrences that have a major impact on the individual's life. These events do not happen to all people, and when they do occur they can influence people in different ways. Examples include the death of a parent when a child is young, pregnancy in early adolescence, a fire that destroys a home, winning the lottery, or getting an unexpected career opportunity.

How Would You...?

As a **social worker,** how would you explain the importance of considering nonnormative life events when working with a new client?

Development Involves Growth, Maintenance, and Regulation of Loss

Baltes and his colleagues (2006) assert that the mastery of life often involves conflicts and competition among three goals of human development: growth, maintenance, and regulation of loss. As individuals age into

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 provide information about the degree to which children's development is similar, or universal, across cultures, and to the degree to which it is culture-specific.

ethnicity A range of characteristics rooted in cultural heritage, including nationality, race, religion, and language.

middle and late adulthood, maintenance and regulation of loss in their capacities takes center stage away from growth. Thus, a 75-year-old man might aim not to improve his memory or his golf swing but to maintain his independence and to continue playing golf. In Chapters 15 and 16, we will discuss these ideas about maintenance and regulation of loss in greater depth.

Development Is a Co-Construction of Biology, Culture, and the Individual

Development comes from biological, cultural, and individual factors influencing each other (Baltes, Reuter-Lorenz, & Rösler, 2006). For example, the brain shapes culture, but it is also shaped by culture and the experiences that individuals have or pursue. In terms of individual factors, we can go beyond what our genetic inheritance and environment give us. We can create a unique developmental path by actively choosing from the environment the things that optimize our lives (Rathunde & Csikszentmihalyi, 2006).

Contemporary Concerns in Life-Span Development

Pick up a newspaper or magazine and you might see headlines like these: "Political Leanings May Be Written in the Genes," "Mother Accused of Tossing Children into Bay," "Gender Gap Widens," "FDA Warns About ADHD Drug," "Heart Attack Deaths Higher in African American Patients," "Test May Predict Alzheimer Disease." Researchers using the life-span perspective explore these and many other topics of contemporary concern. The roles that health and well-being, parenting, education, and sociocultural contexts play in life-span development, as well as how social policy is related to these issues, are a particular focus of this textbook.

Health and Well-Being

Health professionals today recognize the power of lifestyles and psychological states in health and well-being (Donatelle, 2015; Insel & Roth, 2014). Clinical psychologists are among the health professionals who help people improve their well-being. Read about one clinical psychologist who helps adolescents who have become juvenile delinquents or substance abusers in the *Careers in Life-Span Development* profile.

Careers in life-span development

Luis Vargas, Child Clinical Psychologist

Luis Vargas is Director of the Clinical Child Psychology Internship Program and a professor in the Department of Psychiatry at the University of New Mexico Health Sciences Center. He also is Director of Psychology at the University of New Mexico Children's Psychiatric Hospital.

Luis obtained an undergraduate degree in psychology from St. Edward's University in Texas, a master's degree in psychology from Trinity University in Texas, and a Ph.D. in clinical psychology from the University of Nebraska–Lincoln.

Luis' main areas of interest are cultural issues and the assessment and treatment of children, adolescents, and families.

Luis Vargas (*left*) conducting a child therapy session.

Two Korean-born children on the day they became United States citizens. Asian American and Latino children are the fastest-growing immigrant groups in the United States. *How diverse are the students in your life-span development class? Are their experiences in growing up likely to have been similar to or different from yours?*

Parenting and Education

Can two gay men raise a healthy family? Do children suffer if both parents work outside the home? Are U.S. schools failing to teach children how to read and write and calculate adequately? We hear many questions like these related to pressures on the contemporary family and the problems of U.S. schools (Kilbane & Milman, 2014; Skolnick & Skolnick, 2014). In later chapters, we analyze child care, the effects of divorce, parenting styles, intergenerational relationships, early childhood education, relationships between childhood poverty and education, dual-language education, new educational efforts to improve lifelong learning, and many other issues related to parenting and education (Bredekamp, 2014; Cicchetti & Toth, 2015; Lynch, 2015).

Sociocultural Contexts and Diversity

Health, parenting, and education—like development itself—are all shaped by their sociocultural context. To analyze this context, four concepts are especially useful: culture, ethnicity, socioeconomic status, and gender.

Culture encompasses the behavior patterns, beliefs, and all other products of a particular group of people that are passed on from generation to generation. Culture results from the interaction of people over many years (Gauvain, 2013). A cultural group can be as large as the United States or as small as an isolated 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 provides information about the degree to which development is similar, or universal, across cultures, or is instead culture-specific (Mistry, Contreras, & Dutta, 2013; Postert & others, 2012).

Ethnicity (the word *ethnic* comes from the Greek word for "nation") is rooted in cultural heritage, nationality, race, religion, and language. African Americans, Latinos, Asian Americans, Native Americans, European Americans, and Arab Americans are a few examples of broad ethnic groups in the United States. Diversity exists within each ethnic group (Koppelman, 2014; Spring, 2014). In recent years, there has been a growing realization that research on children's development

How Would You...?

As a **health-care professional,** how would you explain the importance of examining cross-cultural research when searching for developmental trends in health and wellness?

He is motivated to find better ways to provide culturally responsive mental health services. One of his special interests is the treatment of Latino youth for delinquency and substance abuse.

Clinical psychologists like Luis Vargas seek to help people with psychological problems. They work in a variety of settings, including colleges and universities, clinics, medical schools, and private practice. Some clinical psychologists only conduct psychotherapy; others do psychological assessment and psychotherapy; some also do research. Clinical psychologists may specialize in a particular age group, such as children (child clinical psychologist) or older adults (geropsychologist).

Clinical psychologists like Dr. Vargas have either a Ph.D. (which involves clinical and research training) or a Psy.D. degree (which only involves clinical training). This graduate training usually takes five to seven years and includes courses in clinical psychology and a one-year supervised internship in an accredited setting toward the end of the training. Most states require clinical psychologists to pass a test to become state licensed and to call themselves clinical psychologists.

socioeconomic status (SES) Refers to the conceptual grouping of people with similar occupational, educational, and economic characteristics.

gender The characteristics of people as females and males.

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

needs to include more children from diverse ethnic groups (Schaefer, 2015). A special concern is the discrimination and prejudice experienced by ethnic minority children (Banks, 2014; Cushner, McClelland, & Safford, 2015; Renzetti & Kennedy-Bergen, 2015).

Socioeconomic status (SES) refers to a person's position within society based on occupational, educational, and economic characteristics. Socioeconomic status implies certain inequalities. Differences in the ability to control resources and to participate in society's rewards produce unequal opportunities (Macionis, 2014; Parillo, 2014).

Gender, the characteristics of people as females and males, is another important aspect of sociocultural contexts. Few aspects of our development are more central to our identity and social relationships than gender (Hyde, 2014; Liben, Bigler, & Hilliard, 2014). We discuss sociocultural contexts and diversity in each chapter.

The conditions in which many of the world's women live are a serious concern (UNICEF, 2014). Inadequate educational opportunities, violence, and lack of political access are just some of the problems faced by many women. One analysis found that a higher percentage of girls than boys around the world have never had any education (UNICEF, 2004) (see Figure 1.2). The countries with the highest percentages of uneducated females are in Africa. In contrast, Canada, the United States, and Russia have the highest percentages of educated women. In developing countries, 67 percent of women over the age of 25 (compared with 50 percent of men) have never been to school. At the beginning of the twenty-first century, 80 million more boys than girls were in primary and secondary educational settings around the world (United Nations, 2002).

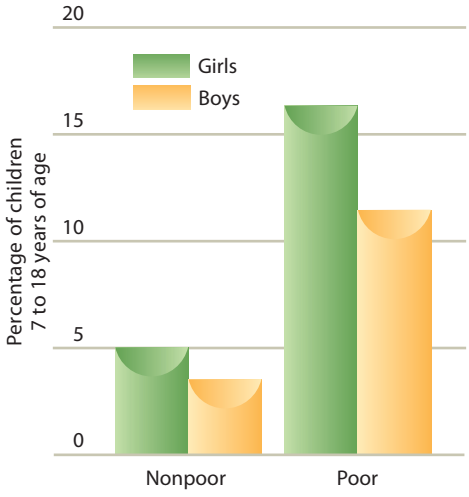


Figure 1.2 Percentages of Children 7 to 18 Years of Age Around the World Who Have Never Been to School of Any Kind
When UNICEF (2004) surveyed the education that children around the world are receiving, it found that far more girls than boys receive no formal schooling at all.

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. The monitoring 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 marriage 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).

Social Policy

Social policy is a government's course of action designed to promote the welfare of its citizens. Values, economics, and politics all shape a nation's social policy. Out of concern that policy makers are doing too little to protect the well-being of children and older adults, life-span researchers are increasingly undertaking studies that they hope will lead to effective social policy (Fisher & others, 2013; Yeung & Mui-Teng, 2015).

Children who grow up in poverty represent a special concern (Duncan, Magnuson, & Votruba-Drzal, 2015; McCartney & Yoshikawa, 2015). In 2012, 21.8 percent of U.S. children were living in families with incomes below the poverty line, with African American and Latino families with children having especially high rates of poverty (more than 30 percent) (U.S. Census Bureau, 2012). This is an increase from 2001 (16 percent) but slightly down from a peak of 23 percent in 1993. As indicated in Figure 1.3, one study found that a

How Would You...?
As a **psychologist,** how would you explain the importance of examining sociocultural factors in developmental research?

higher percentage of 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).

Developmental psychologists are seeking ways to help families living in poverty improve their well-being, and they have offered many suggestions for improving government policies (Crosnoe & Leventhal, 2014; McLoyd, Mistry, & Hardaway, 2014). 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 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. How did the increase in income affect their children? A study of the effects of MFIP found that higher 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. A current MFIP study is examining the influence of specific services on low-income families at risk for child maltreatment and other negative outcomes for children (Minnesota Family Investment Program, 2009).

A recent large-scale effort to help children escape from poverty is the Ascend two-generation educational intervention being conducted by the Aspen Institute (2013). The focus of the intervention emphasizes education (increasing postsecondary 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).

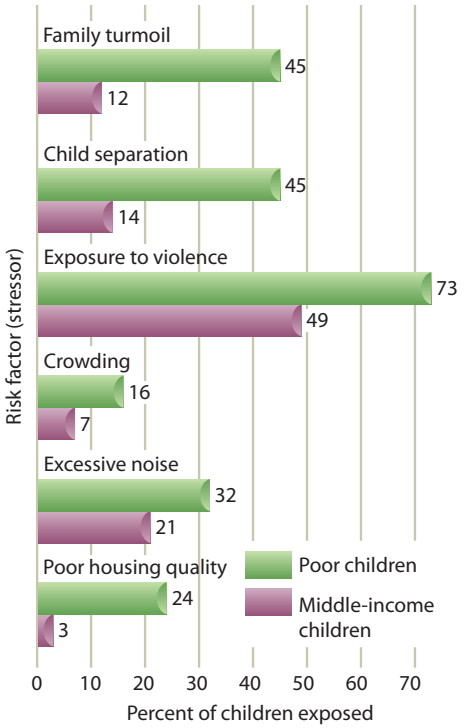


Figure 1.3 Exposure to Six Stressors Among Poor and Middle-Income Children One study analyzed the exposure to six stressors among poor children and middle-income children (Evans & English, 2002). Poor children were much more likely to face each of these stressors.

Some children triumph over poverty or other adversities. They show *resilience* (Cutuli & others, 2014; Masten, 2013). 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.

Ann Masten (*right*) with a homeless child who is participating in her research on resilience. She and her colleagues (Cutuli & others, 2014; Masten, 2014a) 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 well when they enter elementary school.

Are there certain characteristics that make children like Alice Walker resilient? Are there other characteristics that influence children like Ted Kaczynski, who despite his intelligence and education, became a killer? After analyzing research on this topic, Ann Masten and her colleagues (Masten, 2006, 2011, 2013, 2014a, b, c, d; Masten, Burt, & Coatsworth, 2006; Masten & Monn, 2014; Motti-Stefanidi & Masten, 2013) concluded that a number of individual factors, such as good intellectual functioning, influence resiliency. In addition, family and extrafamilial