

Essentials of Life-Span Development

SEVENTH EDITION



John W. Santrock

University of Texas at Dallas

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ESSENTIALS OF LIFE-SPAN DEVELOPMENT, SEVENTH EDITION

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About the Author

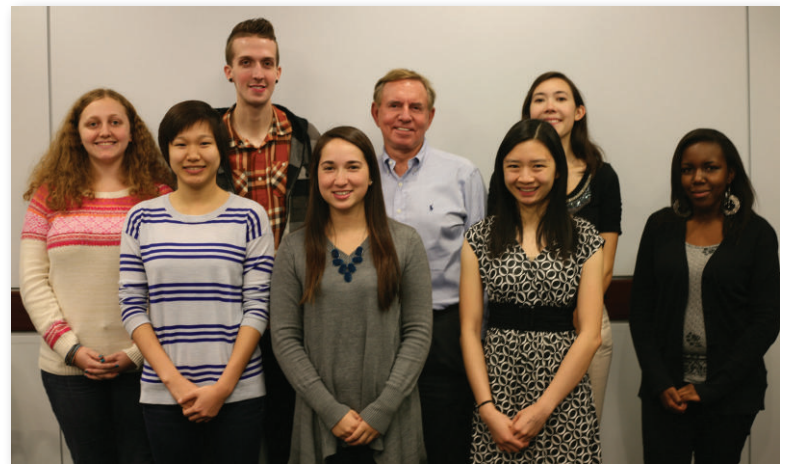
John W. Santrock

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 at the University of Texas at Dallas, where he currently teaches a number of undergraduate courses and received the University's Effective Teaching Award. In 2010, he created the UT-Dallas Santrock undergraduate scholarship, an annual award that is given to outstanding undergraduate students majoring in developmental psychology to enable them to attend research conventions. In 2019, he created an endowment that will permanently provide the travel awards for students at UT-Dallas in future decades. Dr. Santrock and his wife, Mary Jo, also created a permanent endowment that will provide academic scholarships for six to ten undergraduate psychology students each year, with preference given to those majoring in developmental psychology.

John has been a member of the editorial boards of *Child Development* and *Developmental Psychology*. His research on father custody is widely cited and used in expert witness testimony to promote flexibility and alternative considerations in custody disputes.

John also has authored these exceptional McGraw Hill texts: *Child Development* (15th edition), *Children* (15th edition), *Adolescence* (17th edition), *Life-Span Development* (18th edition), *A Topical Approach to Life-Span Development* (10th edition), and *Educational Psychology* (7th 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. John has been married for four decades to his wife, Mary Jo, who created and directed the first middle school program for children with learning disabilities and behavioral disorders in Clarke County Schools in Athens, Georgia, when he was a professor at the University of Georgia. More recently, Mary Jo has worked as a Realtor. John and Mary Jo have two daughters—Tracy, who worked for a number of years as a technology marketing specialist, and Jennifer, who has been a medical sales specialist. However, recently both have followed in their mother's footsteps and are now Realtors. Recently, Jennifer was inducted into the SMU sports hall of fame, only the fifth female to ever have been given this award. John and Mary Jo have one granddaughter, Jordan, age 28, who works at Ernst & Young accounting firm, and two grandsons, Alex, age 15, and Luke, age 13. In the last two decades, John also has spent time painting divisionist and expressionist art.



John Santrock (back row middle) with the 2015 recipients of the Santrock Travel Scholarship Award in developmental psychology. Created by Dr. Santrock, this annual award provides undergraduate students with the opportunity to attend a professional meeting. A number of the students shown here attended the Society for Research in Child Development conference.

Courtesy of Jessica Serna

Dedication:

With special appreciation to my wife, Mary Jo.

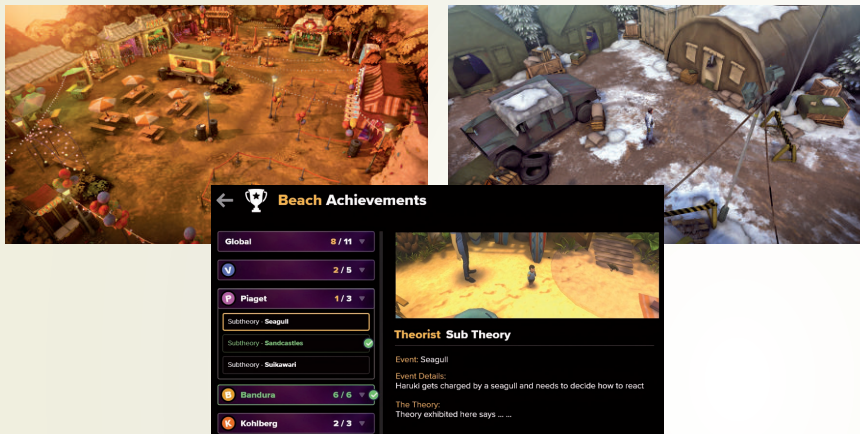
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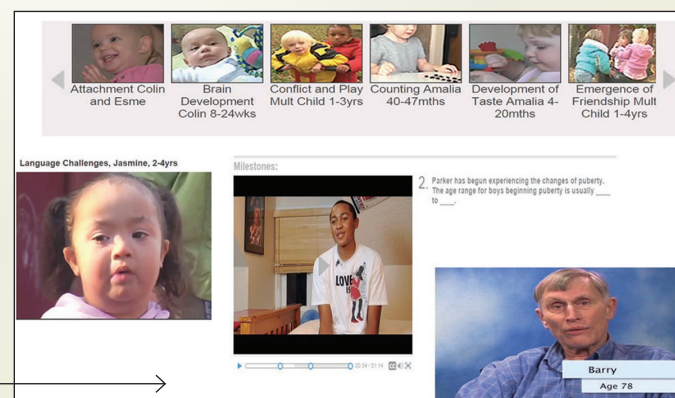
Apply Concepts and Theory in an Experiential Learning Environment

An engaging and innovative learning game,
Quest: Journey Through the Lifespan,

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

Real People, Real World, Real Life

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

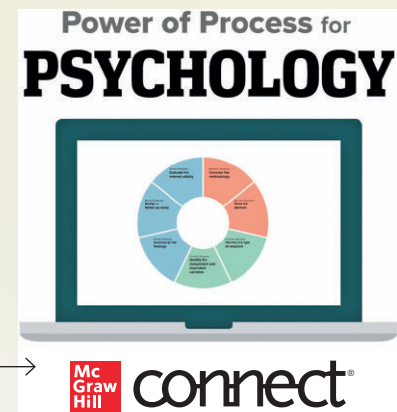


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Prepare Students for Higher-Level Thinking

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



Better Data, Smarter Revision, Improved Results



SMARTBOOK™

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

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

Online Instructor Resources

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

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

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

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

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

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



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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 seventh edition continues my commitment to providing 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 Psychology**, which incorporates this text, and the captivating **Milestones** video modules. Together with the new interactive learning game **Quest: Journey Through the Lifespan**, 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 also 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* has been 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. Updated in this edition to reflect new trends and the latest issues in the field, these questions are strategically placed in the margins to highlight the essential takeaway ideas for 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. One example is Ahou Vaziri and her work with Teach for America, which places teachers in high-poverty areas and provides summer training for their teaching. The feature describes Ms. Vaziri's educational background and the work setting at Teach for America, includes her comments about the benefits of the work, and provides updated information about her ongoing education.

Essential Resources

The following resources accompany *Essentials of Life-Span Development*, seventh 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 (see page xiii).

- Instructor's Manual
- Test Bank
- WCAG Accessible PowerPoint Slides

Content Revisions

A significant reason why *Essentials of Life-Span Development* has been successfully used by instructors edition after edition is the painstaking effort and review that goes into making sure it provides the latest research on all topic areas discussed in the classroom. This new edition is no exception, with more than 1,500 citations from 2018, 2019, 2020, and 2021. Further, a number of older studies and citations that either have become less relevant or were replaced with more current content were removed from each chapter. This has resulted in chapters that are more current, less complex, and easier to read and understand.

New research and content that has especially been updated and expanded for this new edition include the following topics: health and well-being; development of the brain; culture and diversity; technology; and successful aging. For example, you will find discussions and photos in a number of chapters focused on how the 2020 Coronavirus pandemic has challenged and changed individuals' lives at different points in their development. Following is a list of the many chapter-by-chapter changes that were made in this new edition of *Essentials of Life-Span Development*.

Chapter 1: Introduction

- Updates reflecting comments by leading diversity expert James Graham
- New commentary about how significant projected increases in the older population in countries around the world make it necessary for countries to develop innovative policies and expanded services that include housing, employment, health care, and transportation (Carstensen, 2015, 2019)
- Update on life expectancy in the United States (Arias & Xu, 2019)
- New description of how for the first time in history in the United States, in 2019 there were more individuals over the age of 60 than under the age of 18
- Updated data on the percentage of U.S. children and adolescents 17 years and younger from different ethnic groups in 2017 and projected to 2050, with dramatic increases in Latino and Asian American children (ChildStats.gov, 2018)
- Updated data on the percentage of U.S. children and adolescents under 18 years of age living in poverty, including data reported separately for African American and Latino families, statistics that have declined since 2015 (Children's Defense Fund, 2020)
- Inclusion of a recent focus of the Ascend two-generation program on the importance of parents' education, economic stability, and overall health for their children's well-being (Ascend, 2019)
- New projections on the significant increase in older adults in the world, with estimates of a doubling of the population of individuals 60 and over and a tripling or quadrupling of those 80 and over by 2050 (United Nations, 2017)
- Description of a recent research study that found older adults who were more conscientious and emotionally stable were less cognitively vulnerable (Duchek & others, 2020)
- Inclusion of recent research across 150 countries indicating that health was a better predictor of life satisfaction in individuals 58 years and older than in younger age groups (Joshi & Jovanovic, 2020)
- New coverage of the dramatic increase in epigenetics and development in the section on nature and nurture (Franzago & others, 2020; Kresovitch & others, 2020)

- Updated content on Bandura's (2018) social cognitive theory, in which he now emphasizes forethought as a key cognitive factor
- Updated content on cohort effects involving increased interest in a new generation that is labeled generation Z and/or post-millennial, characterized by even greater technological immersion and sophistication, greater ethnic diversity, and higher educational attainment than the millennial generation (Dimock, 2019; Fry & Parker, 2018)

Chapter 2: Biological Beginnings

- Updates and revision of content throughout based on feedback from leading experts David Moore and Charles Nelson
- Expanded criticism of evolutionary psychology noting that it is very difficult to offer direct proof of an argument to support this view
- New criticism of the modularity of the human mind concept offered by evolutionary psychologists, which emphasizes that the human brain has extensive connections across different domains and does not function in nearly as compartmentalized a way as the modularity view proposes
- Updated data on the total number of genes that humans possess, now raised to 21,306 (Salzberg & others, 2018)
- Updated and expanded research on how diet (Dasinger, 2020), tobacco use (Sugden & others, 2019), and sleep (Lehtinen & others, 2019) can modify the expression of genes through the process of methylation
- Inclusion of recent research indicating that methylation may be involved in depression (Payne & others, 2020), breast cancer (Bao-Caamano, Rodriguez-Casanova, & Diaz-Lagares, 2020), leukemia (Bewersdorf & others, 2020), obesity (Marousez, Lesage, & Eberle, 2020), hypertension (Guo & others, 2020), attention deficit hyperactivity disorder (Kim & others, 2020), and neurodevelopmental disorders (Wickramasekara & Stessman, 2019)
- Updated and expanded coverage of susceptibility genes, including those involved in arthritis (Reynard & Barter, 2020), cancer (Liu & Tan, 2019), and cardiovascular disease (Taylor & others, 2019)

- Updated and expanded research on gene-gene interaction to include immune system functioning (Kostel Bal & others, 2020), alcoholism (Chen & others, 2017), cancer (Lee & others, 2019), obesity (Wang & others, 2019), type 2 diabetes (Dominguez-Cruz & others, 2020), arthritis (Fathollahi & others, 2019), cardiovascular disease (Wang & others, 2020), and Alzheimer disease (Li & others, 2020)
- Coverage of a recent study that found XYY boys did not have more cognitive deficits than normal XY boys, but they did have more externalizing and internalizing problems (Operto & others, 2019)
- New content on the number of children born worldwide with sickle-cell anemia and how stem cell transplantation is being explored in the treatment of infants with sickle-cell anemia (Azar & Wong, 2017; Tanhehco & Bhatia, 2019)
- New commentary about neurogenesis being largely complete by about the end of the fifth month of prenatal development (Borsani & others, 2019)
- New coverage of cell-free fetal DNA in maternal blood and its testing as early as 10 weeks into the first trimester of pregnancy to detect disorders such as Down syndrome (Guseh, 2020)
- Inclusion of a recent study using non-invasive fetal diagnosis that determined fetal sex at 4.5 weeks (D'Aversa & others, 2018)
- Discussion of recent research indicating that a high level of oxidative stress is linked to male infertility and that a combination of oral antioxidants and lifestyle changes, such as reduced smoking and drinking, as well as increased exercise may reduce male infertility (Barati, Nikzad, & Karimian, 2020)
- Description of the recent focus on methylation to determine causes of infertility (Mohanty & others, 2020)
- Coverage of a recent study that confirmed a significant risk for suicidal behavior in adolescents with FASD (O'Connor & others, 2019)
- Inclusion of a recent study that revealed maternal alcohol use during pregnancy was associated with offsprings' mental health problems, such as anxiety, depression, and emotional disorders, even at low to moderate levels of consumption (Easey & others, 2019)
- Description of a recent study that found a number of negative cognitive and behavioral outcomes for infants in the first year of life as a consequence of prenatal exposure to cigarette smoke: negative affect, poorer attention, greater excitability, and increased irritability (Froggatt, Covey, & Reissland, 2020)
- Inclusion of a recent analysis that concluded smoking cessation at any point during pregnancy benefitted the fetus (American College of Obstetricians and Gynecologists, 2020). Also in this analysis, the greatest benefits for the fetus occurred when the smoking cessation took place prior to 15 weeks of gestation.
- New coverage of a recent study in which chronic exposure to e-cigarette aerosols was linked to low birth weight in offspring (Orzabal & others, 2019)
- Coverage of a longitudinal study in which prenatal cocaine exposure was linked to early use of marijuana, arrest history, conduct disorder, and emotion regulation problems at 21 years of age (Richardson & others, 2019)
- Discussion of a recent study that found newborns whose mothers had used marijuana during pregnancy were more likely to be born preterm or at low birth weights (Petrangelo & others, 2019)
- Inclusion of a recent study in which marijuana use during pregnancy was associated with an increase in chronic obstructive pulmonary disease in 4-year-old children (Villarreal & others, 2019)
- New section, "Synthetic Opioids and Opiate-Related Pain Killers," that discusses the increasing use of these substances by pregnant women and their possible harmful outcomes for pregnant women and their offspring (Jantzie & others, 2020)
- Inclusion of a recent analysis indicating that approximately one-third of women of reproductive age are obese (Moholdt & Hawley, 2020)
- Discussion of a recent meta-analysis in which offspring of women who were overweight or obese had an increased risk of developing childhood diabetes and obesity (Hidayat, Zou, & Shi, 2019)
- Description of a recent study that found pregnant women 43 years and older were more likely to have infants who were stillborn (Wu & others, 2019)
- Inclusion of a recent large-scale U.S. study that found women 40 years of age and over had a two-fold increased likelihood of having a stillborn baby, a risk that increased to eight-fold at 55 years of age and older (Diaz & others, 2020)
- Coverage of a recent study in which individuals whose mothers reported having higher levels of stress during pregnancy were at a higher risk of developing psychiatric disorders, such as mood disorders, later in life (Brannigan & others, 2019)
- Inclusion of a recent study that revealed prenatal maternal stress was associated with an increase in adolescent depressive symptoms (Davis & others, 2019)
- Discussion of a recent meta-analysis that concluded paternal smoking before and during pregnancy was linked to an increased risk of childhood leukemia (Cao, Lu, & Lu, 2020)
- Coverage of a recent study in which yoga was effective in reducing depressive symptoms in pregnant women (Ng & others, 2019)
- Inclusion of recent research indicating that pregnant women who exercised regularly in the second and third trimesters rated their quality of life higher (Krzepota, Sadowska, & Biernat, 2018)
- Updated data on the percentage of U.S. births attended by a midwife, which increased to 9.1 percent in 2017 (Center for Health Statistics, 2019)
- Coverage of a recent study in which one hour of traditional Thai massage decreased the duration of the first and second stage of labor (Sananpanichkul & others, 2019)

- Discussion of a recent large-scale study that found women who participated in CenteringPregnancy had offspring that were less likely to be born preterm or at low birth weights (Cunningham & others, 2019)
- Inclusion of recent research that indicated women who participated in CenteringPregnancy used pain relief less during labor and were more likely to breast feed their infants (Rijnders & others, 2019)
- Update on the percentage of U.S. births that were cesarean deliveries (31.9 percent in 2018) (Martin & others, 2019)
- Updated data on the percentage of U.S. infants who are born preterm, including ethnic variations (Martin & others, 2019)
- Updated weights for classification as a low birth weight baby, a very low birth weight baby, and an extremely low birth weight baby
- Updated data on the percentage of U.S. babies born at low birth weights, including ethnic variations (Martin & others, 2019)
- Coverage of a recent research review that concluded pregnant women's exercise was linked to a lower incidence of preterm birth (Matei & others, 2019)
- Inclusion of a recent national study of 6- to 11-year-old children in which those born preterm had a higher incidence of developmental delay, intellectual disability, speech/language disorder, learning disability, and ADHD (Kelly & Li, 2019)
- Discussion of a recent study that revealed lower academic trajectories in elementary school for children who were born very preterm (Twilhaar & others, 2019)
- Description of recent research indicating that extremely preterm and low birth weight infants have lower executive function, especially in working memory and planning (Burnett & others, 2018)
- Coverage of a recent study that found kangaroo care promoted earlier initiation of breast feeding with preterm and low birth weight infants (Mekonnen, Yehualashet, & Bayleyegn, 2019)
- Description of a recent research review that concluded massage of preterm infants in the NICU was associated with shorter length of stay, reduced pain, improved weight gain, and better neurodevelopment (Pados & McGlothen-Bell, 2019). Also in this review, parents who performed massage on their preterm infants in the NICU reported experiencing less stress, anxiety, and depression.
- Discussion of a recent study in which parents trained in massage therapy conducted the therapy with their preterm infants and increased the infants' weight, height, and head circumference (Zhang & Wang, 2019)
- Inclusion of recent research in Japan indicating that 11.2 percent of fathers had postpartum depression one month following delivery (Nishigori & others, 2020)
- Description of a recent study that found fathers with postpartum depression had lower levels of responsiveness, mood, and sensitivity when interacting with their infants (Koch & others, 2019)

Chapter 3: Physical and Cognitive Development in Infancy

- Revisions based on comments by leading experts Charles Nelson and Martha Ann Bell
- Coverage of recent research documenting that attention (Bartolomeo & Seidel Malkinson, 2019) and emotion (Gainotti, 2019) are predominantly right hemisphere activities
- New description of some of the aspects of brain activity that the brain imaging technique fNIRS can assess in infancy, including face processing, perception, attention, and memory (Porto & others, 2020)
- Coverage of a follow-up of children who had grown up early in their development in an institutionalized orphanage but were later placed in stable foster care and showed improved brain functioning (Debnath & others, 2020)
- Inclusion of World Health Organization (WHO) recommendations for how much quality sleep infants 0 to 3 months, 4 to 11 months, and 1 to 2 years should get daily (Willumsen & Bull, 2020)
- Inclusion of a recent study that found mothers who implemented a consistent bedtime routine had toddlers with longer sleep duration and fewer nighttime awakenings (Covington & others, 2019)
- Discussion of a recent study that revealed persistent severe infant sleep problems were associated with prenatal and postnatal maternal depression (Cook & others, 2020)
- Coverage of a recent study in which a higher amount of screen time for infants was related to shorter sleep duration, with the link greater for those 6 months and under than those 7 to 24 months in age (Chen & others, 2019)
- Description of a recent research review that concluded the neurotransmitter serotonin plays an important role in SIDS (Cummings & Leiter, 2020)
- Discussion of a study of 732 cases of SIDS that found bed-sharing occurred in 53 percent of the deaths (Drake & others, 2020)
- Coverage of a recent study in which shorter sleep duration in infancy was linked to lower cognitive and language development at 2 years of age (Smithson & others, 2019)
- Discussion of a longitudinal study that found shorter sleep duration at 3, 8, and 24 months was related to inattentive and hyperactive symptoms at 5 years of age (Huhdanpaa & others, 2019)
- Description of a research review that concluded breast feeding benefits the development of the immune system that provide defenses for fighting off disease (Nolan, Parks, & Good, 2019)
- Inclusion of a recent study that revealed breast feeding was associated with a lower risk of being overweight, lower blood pressure, and a lower waist circumference at 12 years of age (Pluymen & others, 2019)
- Discussion of a recent study that revealed breast fed infants were less likely to develop a fever in the first

six months of their lives (Saeed, Haile, & Cherlok, 2020)

- Coverage of a recent meta-analysis in which breast feeding was linked to a higher level of cardiovascular fitness in children 4 to 18 years of age (Berlanga-Macias & others, 2020)
- Description of a recent study that found slightly higher intelligence in children whose mothers engaged in breast feeding (Strom & others, 2019)
- New summary content on a key aspect of motor development that involves behavioral flexibility to do what is necessary to accomplish life's everyday goals (Adolph, 2021; Rachwani, Hoch, & Adolph, 2020). For example, an infant's movements cannot be repeated in the same way across time and situations because bodies, environments, and tasks change constantly, requiring infants to engage in adaptive behavior.
- Updated and expanded content on eye tracking to include research on attention (D'Souza & others, 2020), memory (Edgin & others, 2020), face processing (Wagner & others, 2020), intermodal perception (Ogren & Johnson, 2020), language (Franklin, Wright, & Holmes, 2020), object categorization (LaTourrette & Waxman, 2020), and understanding of others' needs (Koster & others, 2019)
- Coverage of a recent study that found infants' looking times were highest for blue hues and lowest for yellow-green hues (Skelton & Franklin, 2020)
- Updated and expanded discussion of infant pain
- Inclusion of a longitudinal study that found attention at 5 months was related to A-not-B performance at 10 months and also to executive function in early childhood and reading competence at 6 years of age (Blankenship & others, 2019)
- Added criticism of the core knowledge approach noting that the modularity of the mind view does not adequately recognize the extensive connectivity of various regions of the brain
- Coverage of a recent study in which both joint attention and sustained attention at 9 months of age predicted vocabulary size at 12 and 15 months but sustained attention was a better predictor of vocabulary size (Yu, Suanda, & Smith, 2019)
- Inclusion of a recent study that revealed initiation of joint attention is impaired from 12 months onward in children with autism spectrum disorder and language delay (Franchini & others, 2019)
- Coverage of a recent eye-tracking study that found 10- to 18-month-old infants who showed deficits in responding to others' joint attention bids and in initiating joint attention episodes were more likely to later be diagnosed with autism spectrum disorder (Nystrom & others, 2019)
- Description of a longitudinal study of individuals from 1.5 to 16 years of age that revealed the age of first memory increased from 40 to 52 months as adolescents matured from 12 to 16 years of age (Reese & Robertson, 2019). In this study, individual differences in age

of first memory were linked to the extent to which mothers engaged in elaborative reminiscing.

- Discussion of a recent study in which infants at high risk for autism spectrum disorder used fewer gestures than their counterparts who were at low risk for autism (Choi & others, 2020)
- Expanded content on Richard Aslin's (2020) conclusions that in addition to word segmentation, statistical learning has been documented as important in other domains such as musical tones, phonetic categories, sequences of visual shapes, sequences of motor responses, and combination of object parts in complex visual scenes
- Coverage of a recent study that revealed vocabulary comprehension at 23 months was linked to language skills (morpheme knowledge and identification of correct sentences, for example) at 36 months of age (Friend & others, 2019)
- Description of a recent study in which learning new words at 21 months was associated with receptive vocabulary at 7 to 10 years of age (Rajan & others, 2019)
- Inclusion of a recent study that found parental coaching of 6- and 10-month-old infants involving child-directed speech, back-and-forth interactions, and parentese speech style improved the infants' language outcomes (more advanced babbling and greater word production) at 14 months of age (Ferjan Ramirez & others, 2019)
- Coverage of a recent study in which conversational turn counts at 18 to 24 months were linked to receptive and expressive vocabulary development 10 years later (Gilkerson & others, 2018)
- New discussion of a study involving English-speaking preschool children that revealed those from lower-income families had less advanced language-processing skills, as well as a smaller vocabulary and syntax deficiencies (Levine & others, 2020)
- Discussion of a recent study that found children living in extreme poverty had much lower vocabulary and reading comprehension (Lervag & others, 2019)
- Description of a recent meta-analysis that concluded shared picture book reading was linked to children having better expressive and receptive language (Dowdall & others, 2020)
- Inclusion of a recent study that revealed greater engagement in parent-child book reading interactions with 1- to 2.5-year-olds was linked to better language development in terms of receptive vocabulary, reading comprehension, and motivation to read in elementary school (Demir-Lira & others, 2019)

Chapter 4: Socioemotional Development in Infancy

- Revisions based on feedback from leading experts Pamela Cole and Martha Ann Bell
- Updated data on the percentage of stay-at-home dads (Livingston, 2018)

- Coverage of a recent study in which children reported using more suppression and disengagement when experiencing early life stress, while adolescents used more engaging coping strategies when facing such stress (Johnson & others, 2019)
- New transition paragraph from the description of emotion in general to content on emotion regulation that emphasizes the positive, adaptive nature of emotion, as it is reflected in the capacity for emotion regulation
- Coverage of a recent intervention study in which mothers were trained to effectively use soothing techniques in the fourth week after birth, which resulted in infants waking up less often at night and crying less when assessed at 7, 11, and 23 weeks after birth (Ozturk Donmez & Temel, 2019)
- Inclusion of a recent study that found letting infants “cry it out” in the first six months was not linked to adverse behavioral development and attachment at 18 months of age (Bilgen & Wolke, 2020)
- Description of a recent study that revealed when parents let their infant “cry it out,” it was associated with highly problematic behavior at 3 months of age but with reduced problematic behavior at 12 months of age (Giesbrecht & others, 2020)
- Discussion of a longitudinal study that revealed happiness at 1.5 years of age predicted intelligence in childhood (6 to 8 years of age) and educational attainment in adulthood (29 years of age) (Coffey, 2020)
- Inclusion of recent research indicating that when fear was assessed at 6, 8, 10, and 12 months, it peaked at 10 months (Gartstein, Hancock, & Iverson, 2018)
- Expanded recommendations on parenting strategies for improving infants’ and children’s temperament
- Coverage of a longitudinal study that found infant attachment insecurity was linked to less effective emotion regulation strategies 20 to 35 years later (Girme & others, 2020)
- Inclusion of a recent meta-analysis that concluded secure attachment is linked to being more resilient (Darling Rasmussen & others, 2019)
- Discussion of a recent study that found an infant’s secure attachment to its father was not enough to reduce the infant’s stress reactivity when the mother-infant attachment was insecure (Kuo & others, 2019)
- Description of a recent study in which destructive marital conflict was linked to lower levels of coparenting alliance (Kopystynska, Barnett, & Curran, 2020)
- Inclusion of a recent study that revealed a higher level of anxiety and depression symptoms in the mother in the last trimester of pregnancy was associated with infants’ externalizing problems at 2 years of age, and a higher level of these symptoms in fathers in the last trimester of pregnancy was related to a higher level of infants’ internalized and externalized problems at 14 months of age (Hughes & others 2020)
- Coverage of a recent study involving the Bringing Home Baby project that found fathers who participated in the program felt more appreciated by their wives, and wives

were more satisfied with the division of labor when fathers were more involved in parenting (Shapiro, Gottman, & Fink, 2020)

Chapter 5: Physical and Cognitive Development in Early Childhood

- Description of a recent study that found maltreatment risk and home adversity in infancy were linked to cortical delays and brain immaturity at 8 years of age (Bick & others, 2019). However, children assigned to a biobehavioral catchup treatment showed improved brain functioning.
- Discussion of a recent research review that concluded advances in gross motor skills in early childhood are linked to better expressive and receptive language development (Gonzalez, Alvarez, & Nelson, 2019)
- New section focusing on aspects of young children’s sleep
- New description of the World Health Organization’s recommendations for 10 to 13 hours of quality sleep for young children (Willumsen & Bull, 2020)
- Coverage of a recent study indicating that only 29.5 percent of Chinese preschoolers meet the WHO guidelines for young children’s sleep (Guan & others, 2020)
- New discussion of recent research on parental influences on young children’s sleep problems (Dubois-Comtois & others, 2019)
- Inclusion of a recent study in which having nightmares at 24 months of age and restless sleep at 48 months of age were related to ADHD at 11 years of age (Carpena & others, 2020)
- Coverage of a recent national study that indicated children’s dietary quality decreased between the ages of 6 months and 4 years (Hamner & Moore, 2020)
- Updated data on increasing rates of obesity among young children (Hales & others, 2017)
- Inclusion of a recent study in which positive parenting that emphasized praise for healthy eating behavior improved young children’s eating behavior and helped overweight children lose weight more effectively than negative comments by parents (Rotman & others, 2020)
- Discussion of WHO’s recommendation that 3- to 4-year-old children should engage in no more than 1 hour of sedentary screen time daily (Willumsen & Bull, 2020)
- Inclusion of a recent study that revealed 3- to 4-year-old African American children and children who lived at or below the poverty level were more likely than other children to engage in more than 1 hour of screen time daily (Kracht, Webster, & Staiano, 2020)
- Coverage of a recent Chinese study that linked longer TV viewing time to increased rates of obesity in 4- to 5-year-olds (Hu & others, 2019)
- Description of a recent study that found high-risk infants in a WIC program had higher cognitive scores on the Bayley Scales of Infant Development than their counterparts who were not in the WIC program (Lakshmanan & others, 2020)

- Coverage of a recent study in which African American women who participated in WIC had lower diet quality than their counterparts from other ethnic groups (Parker & others, 2020)
- Description of the World Health Organization's (2019) recent guidelines for 3- to 4-year-olds' physical activity, which they emphasized should be 3 hours per day in a variety of physical activities of any intensity, of which at least 60 minutes should be moderate- to vigorous-intensity physical activity, spread throughout the day
- Update on the leading causes of death in young children, which has changed in recent years with malignant neoplasms and homicides now the third and fourth leading causes of death and accidents and congenital malformation continuing to be the first and second leading causes, respectively (Centers for Disease Control and Prevention, 2019)
- New content indicating that children living in poverty have higher rates of accidents, asthma, and death than children from higher-income families (Kelleher, Reece, & Sandel, 2019)
- Discussion of a recent national study that found children with a smoker in the home were 30 percent more likely to have an asthma diagnosis than children who did not have a smoker in their home (Xie & others, 2020)
- Coverage of a recent study in which young children exposed to environmental smoke were more likely to have hyperactive and conduct problem symptoms than their counterparts who were not exposed to environmental smoke (Gatzke-Kopp & others, 2020)
- Discussion of a recent study that revealed mothers who engaged in sensitive parenting had children who engaged in private speech more often (Day & Smith, 2019)
- Description of a recent study in which executive attention was a good predictor of self-regulation (Tiego & others, 2020)
- Inclusion of a recent research review that concluded interviewer support is linked to children's memory accuracy (Saywitz & others, 2019)
- Coverage of recent research on 3- to 6-year-olds that found the volume of their autobiographical memories was linked to the volume of their self-knowledge (Ross, Hutchison, & Cunningham, 2020)
- Discussion of a recent study of preschool children in which conditions of socioeconomic disadvantage exerted a stressful influence on parent-child interactions and, in turn, negatively affected young children's emergent executive function skills (Baker & Brooks-Gunn, 2020)
- Inclusion of a recent study of children in low-income families in Ghana that indicated executive function assessed at 5 years of age predicted higher subsequent literacy and math skills across the next two years (Wolf & McCoy, 2019)
- Description of a recent study in which a lower level of executive function in preschool children was linked to the onset and worsening of attention deficit hyperactivity disorder and depression at 6 to 12 years of age (Hawkey & others, 2019)
- Coverage of a recent cohort study that revealed young children in the 2000s are delaying gratification longer than their counterparts in the 1960s and 1980s, including content about why this might be happening (Carlson & others, 2018)
- Discussion of a recent study in which higher levels of educational attainment in parents predicted children's superior executive function, whereas harsh parenting forecast children's lower executive function (Halse & others, 2019)
- Description of a recent study of preschool children that indicated a lower level of executive function was associated with inattention and hyperactivity (Landis & others, 2020)
- Inclusion of a recent study that found fathers' autonomy support improved young children's executive function (Meuwissen & Carlson, 2018)
- Discussion of a recent study that indicated teachers who conducted a 6-week small-group training program that focused on mindfulness and reflective thinking improved young children's executive function better than a business-as-usual condition, but a literacy training program was as effective in improving their executive function as the mindfulness and reflective thinking condition (Zelazo & others, 2018)
- Description of a recent study that found that fast mapping was engaged in as early as 24 months of age in remembering novel object names after a single learning event (Remon & others, 2020)
- Coverage of an experimental study with young children in high-poverty urban areas indicating that over a 3-year time period, those randomly assigned to Montessori programs fared better on academic achievement, social understanding, and mastery orientation (Lillard & others, 2017)
- Inclusion of a recent study in which young children who attended Montessori schools displayed better creativity skills than their counterparts in traditional schools (Denervaud & others, 2019)
- New description of leading American businessman Jeff Bezos, the CEO of Amazon, who recently provided 2 billion dollars to fund a new network of preschools in underserved communities that he says will be Montessori inspired
- Coverage of a recent study of 3- to 4-, 5- to 6-, and 8- to 9-year-olds that found children in foster care who participated in Head Start programs had better cognitive, socioemotional, and health outcomes than their foster care counterparts who did not attend Head Start programs (Lee, 2020)
- Discussion of an early childhood intervention designed to improve preschool children's developmental outcomes and the Head Start programs they attended in a high-violence, high-crime area of Chicago (Watts & others, 2018). The program was effective in improving the children's executive function and academic achievement 10 to 11 years after the intervention.

Chapter 6: Socioemotional Development in Early Childhood

- Coverage of a recent study that found by 5 years of age, children made both character and behavior judgments from others' facial characteristics (Charlesworth & others, 2019). For example, they were more likely to give a gift to others who had trustworthy and submissive faces.
- Discussion of a recent study of young children in which a lower level of maternal depression and a higher level of children's executive control predicted a higher level of children's emotion knowledge (Thompson & others, 2020)
- Coverage of a recent study in which children's emotion regulation, expressed in being able to manage feelings of sadness and worry, served as a buffer against the internalized symptoms associated with peer victimization (Cooley & others, 2020)
- Inclusion of a recent study that revealed low emotion regulation at age 5 was associated with emotional and school problems at age 10 (Perry & others, 2018a)
- New discussion of a longitudinal study in which a higher level of emotion regulation in early childhood was linked to a higher level of externalizing problems in adolescence (Perry & others, 2018b)
- Coverage of a recent study that found emotion-dismissing mothers' parenting was linked to toddlers' lower emotional competence, while mothers' emotion-coaching parenting was associated with their toddlers' higher emotional competence (Ornaghi & others, 2019)
- Description of a recent study of 3- to 4-year-olds that indicated paternal emotion coaching predicted children's positive emotional expression one year later (Gerhardt & others, 2020)
- New summary of key supportive and unsupportive caregiver emotion socialization with children, based on research conducted in the last two decades (Spinrad, Morris, & Luthar, 2020)
- Coverage of a recent study in which young children with higher emotion regulation were more popular with their peers (Nakamichi, 2020)
- Description of a recent study of preschool children in which frequent expression of anger predicted lower social competence one year later (Lindsey, 2019)
- Discussion of a recent study of 4- to 9-year-olds in which gender-nonconforming children were perceived more negatively than gender-conforming children (Kwan & others, 2020). Also in this study, gender-nonconforming boys were perceived more negatively than gender-nonconforming girls.
- Coverage of a recent study of 3- to 7-year-olds that revealed boys were more likely to engage in gender stereotyping, especially with masculine stimuli such as toys, and to be sanctioned for not conforming to gender stereotypes (Skocajic & others, 2020)
- Discussion of a recent study that revealed authoritarian parenting was associated with being a bully perpetrator in adolescence (Krisnana & others, 2020)
- Inclusion of a recent study that found authoritarian parenting was linked to all forms of child maltreatment, while authoritative parenting was associated with a lower risk for all types of child maltreatment (Lo & others, 2019)
- Coverage of a recent study in which daughters reported being less likely to experience physical punishment than sons, and the daughters also indicated they were less likely to be physically punished by both parents (Mehlhasen-Hassoen, 2019)
- Updates on the controversy about whether research adequately documents that physical punishment has detrimental effects on children's development (Gershoff & others, 2019; Larzelere & others, 2019)
- Discussion of recent research that revealed coparenting when children were 3 to 5 years of age was linked to lower rates of externalizing problems 8 to 10 years later (Parkes, Green, & Mitchell, 2019)
- Coverage of a recent study of low-income, unmarried couples that revealed cooperative coparenting at earlier points in time resulted in fewer child behavior problems later on (Choi, Parra, & Jiang, 2019)
- Update on the number of countries that ban corporal punishment of children (an increase from 34 in 2012 to 59 in 2020) (Global Initiative to End All Corporal Punishment of Children, 2020)
- Updated data on the extent of child maltreatment in the United States, including new data on specific types of abuse (Administration for Children & Families, 2020)
- Inclusion of a recent large-scale Canadian study in which a history of child maltreatment involving either physical abuse or sexual abuse was linked to having physical and mental health problems in adulthood (Cameranesi, Lix, & Piotrowski, 2019)
- Description of a longitudinal study in which experiencing physical abuse or neglect in the first five years of life was linked to having more interpersonal problems and lower academic achievement from childhood through the thirties (Raby & others, 2019)
- Coverage of a recent study that found child maltreatment was associated with increased rates of psychiatric problems and substance abuse in adulthood (Wang & others, 2020)
- Inclusion of a recent study of low-income families that revealed high rates of intergenerational abuse, reflecting a pathway that increased children's maladaptive socioemotional development (as indicated in emotion dysregulation, for example) (Warmingham, Rogosch, & Cicchetti, 2020)
- Discussion of a recent study that revealed child maltreatment was linked to increased emotion-focused coping and decreased problem-solving coping (VanMeter, Handley, & Cicchetti, 2020)
- Inclusion of a recent large-scale study in which social support and coping skills were linked to positive adult mental health outcomes for maltreated children (Su, D'Arcy, & Meng, 2020)

- Description of two recent national surveys focusing on issues in working parent families (Career Builder, 2018; Livingston & Bialik, 2018)
- Discussion of a recent meta-analysis of 54 studies that concluded children who experience parental divorce are especially at risk for depression, anxiety, suicide attempts, distress, alcohol abuse, drugs, and smoking (Auersperg & others, 2019)
- Inclusion of recent research indicating that lesbian mothers, heterosexual mothers, and gay fathers reported higher parenting competence than heterosexual fathers (Farr & Vazquez, 2020a)
- Coverage of a recent study of 3- to 4- and 6- to 7-year-olds that revealed boys were more likely to engage in gender stereotyping, especially with masculine stimuli such as toys, and to be sanctioned for not conforming to gender stereotypes (Skocajic & others, 2019). In addition, gender stereotyping was stronger in 6- to 7-year-olds than in 3- to 4-year-olds.
- Coverage of a longitudinal study that indicated low SES in childhood was associated with lower cognitive function and more cognitive decline in middle and late adulthood (Liu & Lachman, 2019)
- Description of a recent Australian study in which children and adolescents from lower-SES backgrounds were less likely to achieve a healthy level of physical fitness than their higher-SES counterparts (Peralta & others, 2019)
- New opening commentary in the “Ethnicity” section focused on the importance of not using a deficit model in studying ethnic minority adolescents and of recognizing not just stressors in their lives but also the positive aspects of their lives (Weissmark & others, 2020)
- Updated data on the percentage of 18-year-old and younger children from different ethnic groups in the United States (U.S. Census Bureau, 2018)
- Coverage of a recent study in which immigrant children who were once separated from their parents had a lower level of literacy and a higher level of psychological problems than those who migrated with parents (Lu, He, & Brooks-Gunn, 2020). Also in this study, a protracted period of separation and prior undocumented status of parents further increased the children’s disadvantages.
- Description of the World Health Organization’s (WHO) recommendation that 3- to 4-year-old children spend no more than 1 hour in screen time daily (Willumsen & Bull, 2020)
- Coverage of a recent study that revealed 3- to 4-year-old children and children who lived at or below the poverty line were more likely than other children to engage in more than 1 hour of screen time daily (Kracht, Webster, & Staiano, 2020)
- Inclusion of a recent study of 2- to 5-year-olds in which television/DVD/video viewing was negatively linked to young children’s social skills, while outdoor play was positively associated with their social skills (Hinkley & others, 2018)

- Discussion of a recent study of preschool children in which those who engaged in two or more hours of screen time per day were much more likely to have inattention problems (including a higher risk of developing ADHD symptoms) and externalizing problems than were children who engaged in less than 30 minutes of screen time per day (Tamana & others, 2019)

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

- Description of a recent study of 9- to 10-year-olds in which children with a high body mass index has less cortical thickness, which was linked to a lower level of executive function (Laurent & others, 2020)
- Coverage of recent research indicating that emerging cognitive control in children is mainly supported by the development of distributed neural networks in which the prefrontal cortex is central (Chevalier & others, 2019)
- Inclusion of a recent study in which reduced amygdala-prefrontal connectivity occurred in children with autism spectrum disorder (Ibrahim & others, 2019)
- Discussion of a recent study that examined children’s physical activity in the transition from elementary to middle school (Pate & others, 2019). In this study, the following activities were associated with children’s greater physical activity: parents’ encouragement of physical activity, parents’ support of physical activity, time children spent outdoors, children’s sports participation, and number of activity facilities near their home.
- Description of a meta-analysis that concluded prolonged exercise interventions with 6- to 12-year-olds were effective in improving the children’s executive function in general and inhibitory control in particular (Xue, Yang, & Huang, 2019)
- Inclusion of a recent study in which heavy screen time at 11 years of age was linked to increased body mass index three years later (Engberg & others, 2020)
- Updated data on the percentage of children who are obese, with continuing increases through 2015–2016 (Hales & others, 2017)
- Description of a recent Chinese study in which children and adolescents who were obese were more likely to have depression and anxiety symptoms than their non-obese counterparts (Wang & others, 2019)
- Coverage of a recent research review that concluded obesity is linked with low self-esteem in children (Moharei & others, 2018)
- Discussion of a recent study of Latino parents who had a healthy weight were 3.7 times more likely than other parents to have a child with a healthy weight (Coto & others, 2019)
- Inclusion of a recent study in which parental overweight and high blood pressure were linked to children’s high blood pressure (Xu & others, 2019)

- Description of a recent research review that concluded physical activity intervention improves cognitive performance (especially executive function) in overweight or obese children (Sun & others, 2020)
- Updated data on the percentage of children with a disability receiving special education services in various disability categories (National Center for Education Statistics, 2019)
- Description of recent research that found preterm birth was linked to ADHD (Walczak-Kozłowska & others, 2020)
- Coverage of recent research indicating that low socioeconomic status is linked to the development of ADHD and is also associated with inferior brain functioning (Machlin, McLaughlin, & Sheridan, 2020)
- Inclusion of content indicating that the neurotransmitter GABA is linked to the development of ADHD (Yokokura & others, 2020)
- New commentary about the increased concern that taking drugs such as Ritalin and Adderall for ADHD could increase susceptibility to subsequent substance abuse problems (Van der Burg & others, 2019)
- Updated content on links between ADHD and increased risk of school dropout, adolescent pregnancy, substance abuse, and antisocial behavior (Machado & others, 2019; van der Burg & others, 2019)
- Coverage of a recent meta-analysis that found neurofeedback had moderate effects on improving children's attention and reducing their hyperactivity/impulsivity (Van Doren & others, 2019)
- Inclusion of a research review of meta-analyses and randomized experiments that concluded neurofeedback has medium to large effects, with 32 to 47 percent remission rates lasting from 6 to 12 months (Arns & others, 2020)
- Discussion of a research review that indicated physical exercise was effective in improving the attention of children with ADHD (Jeyanthi, Arumugam, & Parasher, 2019)
- Inclusion of a recent meta-analysis that found regular exercise was more effective than neurofeedback, cognitive training, and cognitive therapy in treating ADHD (Lambez & others, 2020)
- Description of a recent study that revealed children with ADHD were 21 percent less likely to engage in regular exercise than children not diagnosed with ADHD (Mercurio & others, 2020)
- New content on the dramatic increase in the percentage of children receiving special education services who are autistic (National Center for Education Statistics, 2019)
- Description of a recent review that concluded there are approximately 800 genes linked to autism (Gabrielli, Manzardo, & Butler, 2019)
- Discussion of a recent research summary that concluded key early warning signs for autism spectrum disorder are lack of social gestures at 12 months, using no meaningful words at 18 months, and having no interest in other children or no spontaneous two-word phrases at 24 months (Tsang & others, 2019)
- Description of recent research confirming that working memory is a foundational cognitive ability, with the frontoparietal network playing a key role in its development (Rosenberg & others, 2020)
- Coverage of research indicating that children with ADHD have working memory deficits (Kofler & others, 2020; Valladares & others, 2020)
- Inclusion of a recent study in which components of executive function, inhibition, and working memory were associated with children's mindfulness (Geronimi, Arellano, & Woodruff-Borden, 2019)
- Coverage of a recent series of meta-analyses to discover which interventions are most likely to improve children's executive function. It was concluded that (a) for typically developing children, mindfulness training was effective, and (b) for non-typically developing children (including those with neurodevelopmental or behavioral problems), strategies focused on self-regulation and biofeedback-enhanced relaxation were the most effective (Takacs & Kassai, 2019).
- Discussion of a recent study in which mindful parenting was effective in improving children's social decision making (Wong & others, 2019)
- Description of a recent study of 7- and 8-year-olds in which task-specific metacognitive monitoring skills in noticing one's own errors and learning from mistakes were linked to superior performance in arithmetic (Bellon, Fias, & De Smedt, 2019)
- Discussion of a recent survey of 102 experts on intelligence around the world that found most supported the concept of general intelligence (Rindermann, Becker, & Coyle, 2020)
- Inclusion of a recent study that revealed higher-IQ adolescents engaged in a range of healthier behaviors such as exercise, better diet, and not smoking in middle adulthood (Wraw & others, 2018)
- Coverage of a recent study in which higher IQ in adolescence was associated with having a younger subjective age 50 years later in late adulthood (Stephan & others, 2018)
- Description of a recent study that found genes were much more strongly linked to a person's scientific achievement than to his/or artistic achievement (de Manzano & Ullen, 2018)
- Inclusion of a recent study of 22 countries in which intelligence varied across the countries, with the variation linked to income, educational attainment, health, and socioeconomic status (Lynn, Fuerst, & Kirkegaard, 2018)
- New content indicating that intelligence has decreased in several Scandinavian countries and suggestions for possible reasons (Dutton & Lynn, 2013; Ronnlund & others, 2013)
- New coverage of how IQ gains continue to occur in the United States and developing countries (Flynn & Shayer, 2018; Flynn, 2020), including a study that found IQ increased by 10 points from 2004 to 2016 in Khartoum, the capital of Sudan (Dutton & others, 2018) and slightly more than 5 points from 2003 to 2018 in Romania (Gunnesch-Luca & Iliescu, 2020)
- Inclusion of a recent analysis across a number of countries that found bilingual children consistently

- had better executive function (Schirmbeck, Rao, & Maehler, 2020)
- Description of recent research that indicated 3-year-old bilingual children adapted to the needs of their communication partners better than their monolingual counterparts did (Gampe, Wermelinger, & Daum, 2019)
- Inclusion of recent research that found that shared book reading with young children at home and school in a second language improved their second-language learning and also that the perspective taking emphasized in the shared reading program increased their ability to shift perspectives and understand others' emotional states (Grover & others, 2020)
- New discussion of a recent study of Chinese children in which bilingual children who were fluent in English outperformed monolingual Chinese children on an attention task and also had higher activation of their prefrontal cortex (Li & others, 2020)

Chapter 8: Socioemotional Development in Middle and Late Childhood

- Inclusion of recent research indicating that children who engage in less perspective taking are less likely to give to others (van de Groep, Zanolie, & Crone, 2020)
- Coverage of a recent study in which parental warmth, monitoring, low maternal depression, economic well-being, and father presence (versus father absence) were linked to higher self-esteem in children and adolescents (Krauss, Orth, & Robins, 2020)
- New commentary on the stress that the Coronavirus that appeared in 2020 has caused for children and advice on strategies parents can use to help children cope with the uncertainties of the virus
- Significant revisions and updates based on feedback from leading expert Darcia Narváez
- Extensive updating and rewriting of Kohlberg's theory and criticisms of his view
- Discussion of a recent study in which children and adolescents said that changes in moral beliefs are more disruptive to one's identity than are changes in social conventional beliefs (Lefebvre & Krettenaur, 2020). Also in this study, children and adolescents reported that changes in negative moral beliefs are more disruptive to one's identity than changes in positive moral beliefs.
- Coverage of a recent study in 12 countries that found sharing increased from 4 to 12 years of age in each of the countries (Samek & others, 2020)
- Inclusion of a recent conclusion by Janet Shibley Hyde and her colleagues (2019) that because the distributions for males and females on different brain features are so overlapping, in most instances it is more accurate to characterize human brains as a mosaic of these features rather than as binary male-typical and female-typical brains
- Updated data on math and reading scores at the fourth- and eighth-grade levels in the National Assessment of Educational Progress (2017)
- Coverage of a recent large-scale study of seventh-grade girls that found girls' perceptions of teachers' gendered math expectations and how relevant and meaningful the math curriculum was for them were linked to their math beliefs and math achievement (McKellar & others, 2019)
- Update on Urban Prep Academy, the first all-male African American charter school, indicating that from 2010 (its first year as a school) through 2018, 100 percent of the students in each graduating class went on to college
- Inclusion of a recent study that revealed females are better than males at facial emotion perception across the life span (Olderbak & others, 2019)
- Coverage of a recent study of adolescents that revealed those who observed relational aggression on television were more likely to engage in relational aggression when they were texting one year later (Coyne & others, 2019)
- Description of recent research in which stepfathers' affinity-seeking (developing a friendship with stepchildren) was linked to less conflict with stepchildren, a better couple relationship, and closer stepfamily ties (Ganong & others, 2020)
- Discussion of recent research with third- and fourth-graders in which feeling related to peers at school was associated with the children's positive affectivity both at school and at home (Schmidt, Dirk, & Schmiedek, 2019)
- Inclusion of a recent study of adolescents in which peer rejection increased the likelihood that victims and bullies would engage in non-suicidal self-injury, such as cutting, burning, or hitting oneself (Esposito, Bacchini, & Affuso, 2019)
- Description of a recent analysis of bullying from 1998 to 2017 in the United States that indicated a significant increase in cyberbullying and face-to-face bullying in females (Kennedy, 2020)
- Coverage of a recent study of 12- to 15-year-olds in 48 countries worldwide that found being the victim of bullying was linked to an increased risk of suicide in 47 of the 48 countries (Koyanagi & others, 2019)
- Discussion of a recent study of 10- to 14-year-olds in which being a victim of a bully often led to a cascading effect of bullying perpetration that eventually produced disordered eating behavior (Lee & Vaillancourt, 2019)
- Description of a recent large-scale Norwegian study that concluded bullies, victims, and bully-victims all are at risk for developing sleep problems, including shorter duration of sleep and higher prevalence of insomnia, as well as a lower grade point average (Hysing & others, 2020)
- Coverage of a recent study indicating that the most common behavioral reactions to cyberbullying were informing a friend, counterattacking, and ignoring the cyber incident (Heiman, Olenik-Shemesh, & Frank, 2019)

- New commentary that the federal government had suspended high-stakes testing because most schools were closed during the Coronavirus pandemic
- Inclusion of a longitudinal study that involved implementation of the Child-Parent Center Program in high-poverty neighborhoods of Chicago that provided school-based educational enrichment and comprehensive family services from 3 to 9 years of age (Reynolds, Ou, & Temple, 2018). Children who participated in the program had higher rates of postsecondary completion, including more years of education, an associate's degree or higher, and a master's degree.
- New coverage of the potential influence of peer mindsets on students' learning (Sheffler & Cheung, 2019), including description of a recent study that found students who were around peers with a growth mindset for 7 months increased their growth mindset across that time frame (King, 2020)
- New content on a brief, online, direct-to-student growth mindset intervention that increased the grade-point average of underachieving students and also improved the challenge-seeking mental activity of higher-achieving students (Dweck & Yeager, 2020). In other recent research, the positive outcomes of the U.S. online growth mindset intervention were replicated with students in Norway (Bettinger & others, 2018).

Chapter 9: Physical and Cognitive Development in Adolescence

- Description of a recent study of adolescent boys that indicated a high level of testosterone was linked to less delay of gratification (Laube, Lorenz, & van den Bos, 2019)
- Inclusion of a recent study of early adolescent boys in Japan that found a lower level of testosterone was associated with social withdrawal (Hayashi & others, 2020)
- Discussion of a recent study that revealed menarche has been coming earlier in recent years in Portugal (Queiroga & others, 2020)
- Coverage of recent research that found a higher body mass index (BMI) (Deng & others, 2018) and obesity (Busch & others, 2020) were associated with earlier pubertal onset
- New discussion of research with seventh- and twelfth-graders in Thailand that indicated spending more time on the Internet, especially when engaging in activities related to self-image and eating attitudes and behavior, was linked to increasing body dissatisfaction (Kaewpradub & others, 2017)
- Inclusion of a recent study of young adolescents in which girls had a more negative body image when they identified with an idealized social media portrayal (Rodgers & others, 2020)
- Coverage of recent research in which higher social media use was linked to more negative body images for adolescents, more so for girls than boys (Kelly & others, 2019)
- Description of a recent Korean study of more than 30,000 girls that found early menarche was associated with increased risk-taking (Kim & others, 2017)
- New commentary about why early-maturing girls may engage in problematic behavior and also a summary of the effects of early and late maturation on boys and girls
- Coverage of a recent study that found the fibers in the corpus callosum increased in adolescence (Genc & others, 2018)
- Discussion of recent research indicating that connectivity between the frontal cortex and hippocampus increased from adolescence to emerging and early adulthood, with this connectivity linked to improvement in higher-level cognition, especially in problem solving and planning (Calabro & others, 2020)
- A number of changes in the discussion of adolescent sexuality made based on feedback from leading experts Bonnie Halpern-Felsher and Ritch Savin-Williams
- New emphasis on the similarities in sexual timing and developmental sequences in heterosexual and sexual minority adolescents, except that sexual minority adolescents have to cope with the more stressful aspects of their sexual identity and disclosing this identity (Savin-Williams, 2019)
- Updated data on the percentage of U.S. high school students who have ever had sexual intercourse, are currently sexually active, had sexual intercourse before 13 years of age, and engaged in sexual intercourse with four or more persons (Kann & others, 2018)
- Updated data on ethnic variations in the percentages of adolescents who have ever had sexual intercourse (Kann & others, 2018)
- Description of a recent study of South African youth that found early sexual debut predicted a lower probability of graduating from high school (Bengesai, Khan, & Dube, 2018)
- Inclusion of a recent Australian study in which sex at age 15 or younger predicted higher rates of pregnancy in emerging adulthood, higher numbers of lifetime sexual partners, and higher rates of sex without using a condom (Prendergrast & others, 2019)
- New discussion of links between substance abuse and sexual risk practices, including a recent study in which the likelihood of initiating sexual intercourse before age 13 was higher among adolescents who engaged in substance abuse and had mental health problems (Okumu & others, 2019)
- Description of a recent study of adolescents that indicated a higher quality of experiences with parents were linked to less likelihood of engaging in vaginal sex, anal sex, oral sex, accessing pornography, and masturbation (Astle, Leonhardt, & Willoughby, 2020)
- Coverage of a recent study in which talk about sexual protection with extended family members was linked to adolescents having fewer sexual partners, while such talk about sexual risks was associated with adolescents having more sexual partners (Grossman & others, 2019)

- New description of a recent study of adolescents that linked low self-control to reduced rates of risky social behavior (Magnusson, Crandall, & Evans, 2019)
- Updated data on the percentage of U.S. adolescents who used a contraceptive the last time they had sexual intercourse (Kann & others, 2018)
- Coverage of a recent national study that indicated adolescent use of long-acting reversible contraception (LARC) had increased from 1.8 percent in 2013 to 5.3 percent in 2017 (Aligne & others, 2020)
- Updated data on STIs in young people, with 15- to 24-year-olds accounting for almost half of the new STIs in the United States (Kann & others, 2018)
- Updated data on HIV in the United States, with 13- to 24-year-olds receiving 21 percent of all HIV diagnoses and of these individuals, 81 percent being gay or bisexual males (Kann & others, 2018)
- Updated data on births to U.S. 15- to 19-year-olds, which in 2017 reached its lowest rate in history (Centers for Disease Control and Prevention, 2019). Especially noteworthy was the substantial decline in births to Latina and African American adolescent girls.
- Coverage of a recent Canadian study that found adolescent mothers were much more likely than young adult mothers to live in low-SES neighborhoods, to be depressed, and to use tobacco, marijuana, and alcohol (Wong & others, 2020)
- Update on programs offered by Girls Inc. (2020), including recent research indicating their adolescent pregnancy prevention program was effective in preventing pregnancy
- Update on the continuing government funding of pregnancy prevention programs through the Office of Adolescent Health (2020) and a description of the focus of several of the programs
- Description of recent data from Youth Risk Behavior Surveillance research documenting a continued linear decline in vegetable consumption through 2017, indicating that 59.2 percent of U.S. high school students had not eaten one or more vegetables in the last 7 days (Kann & others, 2018)
- Updated data from a recent national survey on the percentage of adolescents who are obese, which has now reached 20.6 percent (National Center for Health Statistics, 2017)
- Inclusion of recent research indicating that a higher level of parental monitoring was linked to adolescents' healthier dietary intake and lower weight status (Kim & others, 2019)
- New content indicating that adolescents who engage in higher levels of screen time are more likely to be overweight or obese (Furthner & others, 2018)
- Updated data on the continuing dramatic gender difference in exercise during adolescence, with 56.9 percent of adolescent males exercising 5 or more days out of 7 per week, compared with only 38.8 percent of their female counterparts (Kann & others, 2018)
- Inclusion of research in which an after-school athletic program reduced the obesity risk of adolescents after one year of intervention (Glabska & others, 2019)
- Coverage of a recent experimental study that found a 12-week jump rope exercise program was effective in improving obese adolescent girls' body composition, blood pressure, insulin level, and self-regulation (Kim & others, 2020)
- Discussion of a recent study of 13- to 19-year-olds in Singapore in which sleep duration of less than seven hours on school nights was associated with being overweight, having depressive symptoms, being less motivated, not being able to concentrate adequately, having a higher level of anxiety, and engaging in self-harm/suicidal thoughts (Yeo & others, 2019)
- Updated data indicating that adolescents are not getting nearly enough sleep, based on recent national research (Kann & others, 2018)
- Coverage of a recent study in which adolescents with shorter or poorer-quality sleep in conjunction with less physical activity showed elevated levels of internalizing and externalizing problems (Gillis & El-Sheikh, 2019)
- Discussion of a recent study that revealed the highest level of internalizing and externalizing problems occurred for adolescents from lower-SES homes who had short sleep duration and poor-quality sleep (El-Sheikh & others, 2019)
- Coverage of a recent study in which spending multiple hours with portable electronic devices was linked to shorter sleep duration in adolescence, while time spent using non-portable electronic devices was not related to shorter sleep duration (Twenge, Hisler, & Krizan, 2019)
- Discussion of research indicating that frequency of cordless phone calls, mobile phone dependency, and tablet use were linked to sleep problems in adolescence (Cabr  -Riera & others, 2019)
- Description of recent research in which the Seattle School District delayed the school start time for secondary school students by nearly one hour and student sleep duration increased by an average of 34 minutes; the increased sleep duration was accompanied by a 4.5 percent increase in grade point average and improved school attendance (Dunster & others, 2018)
- Coverage of a recent study of college students in which shorter sleep duration was associated with increased suicide risk (Becker & others, 2018a)
- Inclusion of a recent study of college students that found 27 percent described their sleep as poor and 36 percent reported getting 7 hours or less of sleep on weeknights (Becker & others, 2018b)
- Description of a recent experimental study in which emerging adults who were given a brief sleep quality intervention reported improved sleep, stopped using electronic devices earlier, kept a more regular sleep schedule, and had earlier weekday rise times than a control group who did not participate in the intervention (Hershner & O'Brien, 2018)

- Coverage of a longitudinal study that found binge drinking in the twelfth grade was linked to driving while impaired (DWI), riding with an impaired driver (RWI), blackouts, and riskier driving up to 4 years later (Vaca & others, 2020)
- New content on suicide replacing homicide recently as the second leading cause of death in U.S. adolescents (National Center for Health Statistics, 2020)
- Updated national data on the extent of illicit drug use by U.S. eighth-, tenth-, and twelfth-graders (Miech & others, 2019)
- Updated national data on the dramatic increase in U.S. adolescents who are vaping nicotine, which now far surpasses their cigarette smoking, which continues to decline (Miesch & others, 2019)
- Inclusion of a recent study in which maternal and paternal knowledge of adolescent activities and whereabouts at age 13 was linked to lower alcohol use at age 16 for boys and girls (Lindfor & others, 2019)
- Description of a recent study of 14- and 15-year-olds that found heavy episodic drinking by parents was a risk factor for adolescent drinking, with girls being especially vulnerable to their parents' episodic drinking (Homel & Warren, 2019)
- Inclusion of recent research indicating that increased e-cigarette use by adolescents may be a gateway for subsequent combustible cigarette smoking as well as marijuana use (Fadus, Smith, & Squeglia, 2019)
- Coverage of a recent meta-analysis that concluded both anorexics and bulimics engage in maladaptive perfectionism (Norris, Gleaves, & Hutchinson, 2019)
- Description of a recent national study that found anorexia nervosa and bulimia nervosa were associated with a higher incidence of major depressive disorder than any other disorder, followed by alcohol use disorder (Udo & Grilo, 2019)
- New coverage of the distinction between “hot” executive function and “cool” executive function (Koukari, Tsermentseli, & Monks, 2019; Semenov & Zelazo, 2018)
- Description of a recent study of 12- to 17-year-olds in which cool executive function increased with age, while hot executive function peaked at 14 to 15 years of age and then declined (Poon, 2018)
- Discussion of a recent study of eighth-graders with high test anxiety in which an attention training intervention was effective in reducing their test anxiety and pre-test worrying (Fergus & Limbers, 2019)
- Inclusion of a recent Spanish study revealing that middle school students had a lower self-concept in a number of areas (academic, social, family, and physical) than elementary school students (Onetti, Fernandez-Garcia, & Castillo-Rodriguez, 2019)
- New description and photograph of adolescents engaging in a peaceful Black Lives Matter protest and its association with increased hypothetical deductive reasoning
- Discussion of a recent study that revealed increased teacher-student conflict during the transitions from elementary school to middle school and middle school

to high school were linked to an increase in externalizing symptoms in the students' first year at the new school (Longobardi & others, 2019)

- Update on results achieved by the “I Have a Dream” Foundation (2019), including data about its students from low-income families' impressive college graduation rates compared with their low-income peers who did not participate in the program
- Updated data on recent declines in school dropout rates, with the biggest percentage decline occurring for Latino adolescents (National Center for Education Statistics, 2019)

Chapter 10: Socioemotional Development in Adolescence

- Coverage of a recent study that revealed enhanced resilience against discrimination in Latino youth when they had more experiences with ethnic family socialization and had engaged in ethnic identity exploration and resolution (Martinez-Fuentes, Jager, & Umana-Taylor, 2020)
- Description of a recent study of young adolescents that found they got more sleep when their parents engaged in a higher level of parental monitoring of their waking activities (Gunn & others, 2019)
- Discussion of a recent study that revealed when parents had little awareness of their adolescents' whereabouts, the adolescents were more likely to smoke cigarettes and to initiate smoking at an earlier age (Sartor & others, 2020)
- Inclusion of a recent study in which parental active tracking measures during adolescence and college were associated with better health behavior in both developmental time frames (Abar & others, 2020)
- Discussion of a recent study that found adolescents who engaged in more problem behaviors were more secretive and revealed less information to their parents (Darling & Tilton-Weaver, 2019)
- Description of a recent study of Lebanese adolescents that found those who were securely attached had lower rates of addiction to alcohol and cigarettes than their insecurely attached counterparts (Nakhoul & others, 2020)
- Inclusion of a recent study that indicated maltreated and delinquent adolescents had high levels of insecure attachment (Protic & others, 2020)
- Coverage of a recent study that revealed adolescents who had grown up in poverty engaged in less risk-taking if they had a history of secure attachments to caregivers (Delker, Bernstein, & Laurent, 2018)
- Inclusion of a recent analysis that found secure attachment to the mother and to the father was associated with fewer depressive symptoms in adolescents (Kerstis, Aslund, & Sonnby, 2018)
- Description of a longitudinal study in which establishing positive expectations and the capacity to be assertive with peers at age 13, social competence at 15 and 16, and the ability to form and maintain strong close

friendships at 16 to 18 predicted romantic life satisfaction at 27 to 30 years of age (Allen & others, 2020)

- Coverage of a recent study of Saudi Arabian youth that found they had a higher rate of suicidal thoughts and behavior when their friends disclosed depression and self-harm (Copeland & others, 2020)
- Inclusion of a recent study that revealed peers' influence on adolescents' healthy eating behavior is often negative and characterized by increased consumption of high-calorie, non-nutritious foods (Rageliene & Granhoj, 2020)
- New description of a recent study of young adolescents that revealed that for non-Latino white and Asian Americans, higher academic achievement was associated with having same-ethnic friends, while for African Americans and Latinos, higher academic achievement was linked with having cross-ethnic friends (Chen, Saafir, & Graham, 2020)
- New discussion of five ways that social media have transformed peer and friendship interactions and relationships in adolescence (Nesi, Choukas-Bradley, & Prinstein, 2018)
- Inclusion of a recent study of eighth-graders that connected peer pressure to substance use (Jeisma & Varner, 2020)
- Discussion of a recent study that found the Hip Hop crowd and the alternative crowd were at increased risk for a number of negative behaviors (Jordan & others, 2019)
- New content on adolescent social distancing as a consequence of the Coronavirus pandemic and recommendations for parental discussions with adolescents regarding safety precautions during the pandemic
- Description of a recent study in which lower SES was linked to less cortical surface area in the adolescent brain as well as less effective working memory (Judd & others, 2020). The SES factor most closely associated with the lower level of brain functioning was less parental education.
- Inclusion of a recent study indicating that of 13 risk factors, low SES was the most likely to be linked to initiation of smoking by fifth-graders (Wellman & others, 2018)
- Description of a longitudinal study that revealed low SES in adolescent females was linked to increased likelihood of depression at 54 years of age (Pino & others, 2018)
- New description and photograph of adolescents participating in a Black Lives Matter protest and their concern about continuing bias, prejudice, and discrimination against ethnic minority individuals
- Coverage of a recent study of 11- to 18-year-olds in Spain in which media multitasking while doing homework was linked to lower executive function, a lower level of working memory, and worse academic performance in language and math (Martin-Perona, Vinas Poch, & Malo Cerrato, 2019)
- Discussion of recent research indicating that parental monitoring of media violence exposure was linked to

lower levels of aggression in adolescents (Khurana & others, 2018)

- Description of two recent studies of adolescents that found higher levels of screen time were linked to lower academic achievement (Hunter & others, 2018; Poulan & others, 2018)
- Inclusion of recent research on 13- to 18-year-olds in the United States and the United Kingdom that revealed significant gender differences in the types of digital media they used (Twenge & Martin, 2020)
- Update on the percentage of adolescents who own a smartphone, which increased from 66 percent in 2009 to 95 percent in 2018 (Anderson & Jiang, 2018)
- Inclusion of a recent large-scale study of more than 32,000 15-year-olds in 37 countries that found that problematic social media use and low social support were the best predictors of low life-satisfaction (Walsh & others, 2020)
- Coverage of a longitudinal study that indicated low SES in childhood was associated with lower cognitive function and more cognitive decline in middle and late adulthood (Liu & Lachman, 2019)
- New discussion of updated data (2017) on delinquency cases handled in juvenile court, including gender differences (Hockenberry & Puzzanchera, 2019)
- Inclusion of a recent research review that concluded lack of academic success and having a learning disability were linked to juvenile delinquency (Grigorenko & others, 2019)
- Description of a recent Australian study in which children and adolescents from lower-SES backgrounds were less likely to achieve a healthy level of physical fitness than their higher-SES counterparts (Peralta & others, 2019)
- Coverage of a recent study that found delinquency in adolescence was linked to a greater likelihood of being unemployed in adulthood (Carter, 2019)
- Inclusion of recent research indicating that family therapy is effective in reducing juvenile delinquency (Henderson, Hogue, & Dauber, 2019)
- Description of a recent study that revealed having a best friend who was delinquent increased the probability that adolescents themselves would become delinquent (Levey & others, 2019)
- Discussion of recent research indicating for populations with high-risk profiles, as little as one teacher screen taken during kindergarten or the first grade predicted which males would have adult criminal convictions by age 25 (Kassing & others, 2019)
- Coverage of a recent study in which low self-esteem and negative emotion management were linked to adolescent depression (Fiorilli & others, 2019)
- Description of recent research in which interpersonal stress was linked to increased depression in adolescent girls (Slavich & others, 2020)
- Inclusion of a recent research review that concluded adolescents are very poor at recognizing depression, more likely to seek help from informal rather than

- professional sources, and tend to attach stigma to depression (Singh, Zaki, & Farid, 2019)
- Description of a longitudinal study that found a majority of adolescents who had a major depressive episode were likely to experience a recurrence of depression 15 years later (Alaie & others, 2019). In addition, adolescent depression was associated with other mental health problems, low educational attainment, and problems in intimate relationships when assessed 15 years later.
 - Inclusion of recent research that indicated adolescents with depressive symptoms who were most likely to have emotional and drug use disorders over 30 years of age were characterized by high levels of loneliness and anxiety, having a persistent depressive disorder, and low engagement in exercise during adolescence (Essau & others, 2020)
 - Coverage of a recent study that revealed having a persistent depressive disorder in adolescence was linked to requiring more health care resources at 54 years of age (Ssegonia & others, 2019)
 - New content based on a national study of 10- to 19-year-olds indicating that suicide rates for males and females have increased since 2007 with a disproportionate, steeper increase for 10- to 14-year-old females (Ruch & others, 2019)
 - New discussion of cross-cultural suicide rates for 15- to 19-year-olds with New Zealand, followed by Iceland, having the highest rates, and Greece and Israel the lowest rates (OECD, 2017)
 - Updated data on the percentage of U.S. adolescents who seriously consider suicide each year and attempt suicide each year, including gender and ethnicity figures (Kann & others, 2018)
 - Coverage of a recent study in which a sense of hopelessness predicted an increase in suicide ideation in depressed adolescents (Wolfe & others, 2019)
 - Discussion of a recent cross-cultural study of more than 130,000 12- to 15-year-olds indicating that in 47 of 48 countries, being a victim of bullying was associated with a higher probability of attempting suicide (Kovanagi & others, 2019)
 - Inclusion of recent research indicating that adolescents who had been victims of cyberbullying were 2.5 times more likely to attempt suicide and 2 times more likely to have suicidal thoughts than non-victims (John & others, 2018)

Chapter 11: Physical and Cognitive Development in Early Adulthood

- Coverage of a recent study of individuals ages 18 to 60 indicating the five characteristics used to describe emerging adulthood (identity exploration, self-focus, feeling in-between, instability, and possibilities/optimism) were more likely to be endorsed by 18- to 25-year-olds than older individuals (Arnett & Mitra, 2020)

- Updated content on American college freshmen's views on the importance of being well-off financially versus developing a meaningful philosophy of life (Stolzenberg & others, 2019)
- New content on individual variations in health during emerging adulthood indicating that there are clusters of emerging adults who engage in health-enhancing behaviors while many others are engaging in health-damaging behaviors (Schwartz & Petrova, 2019)
- Coverage of a recent study of college students in which regularly eating breakfast was associated with having a higher grade point average (GPA) while regularly eating fast food was linked to having a lower GPA (Reuter, Forster, & Brister, 2020)
- Inclusion of a recent study of college students in which sleep deprivation was linked to a lower grade point average and delayed college graduation (Chen & Chen, 2019)
- Discussion of a recent study that found poorer sleep quality was associated with smartphone dependence and less effective stress management (Wang & others, 2019)
- Coverage of the National Sleep Foundation's (2020) recommendation that emerging and young adults sleep for 7 to 9 hours per night
- New description of the National Sleep Foundation's (2019) explanation of why pulling an all-nighter to cram for an exam is not likely to be a good idea
- Updated data on the percentage of American college freshmen who felt overwhelmed with all they had to do, felt depressed, and felt anxious (Stolzenberg & others, 2019)
- Updated data from 2017 to 2018 on the percentage of obese adults in the United States, which continues to increase and is now 42.4 percent (Hales & others, 2020)
- Updated data on obesity rates for genders and ethnicities in the United States (Hales, 2020)
- Updated content on countries with the highest and lowest obesity rates (OECD, 2017)
- New commentary that researchers have found higher levels of physical activity, especially endurance training, are linked to weight loss maintenance (Petridou, Sippi, & Mouglos, 2019)
- Inclusion of a longitudinal study of individuals from adolescence through early adulthood that found three factors predicted healthy weight maintenance: having higher body satisfaction, avoiding unhealthy weight control behaviors, and dieting (Larson & others, 2018)
- New commentary from the World Health Organization underscoring that physical inactivity is a key factor in dying earlier (Han, Neuffer, & Pilegaard, 2019)
- Coverage of a recent national poll conducted by the Centers for Disease Control and Prevention indicating that only 22 percent of U.S. adults 18 to 64 years of age met federal guidelines for aerobic and muscle-strengthening exercise (Blackwell & Clarke, 2018). In this poll, 27.2 percent of men and 18.7 percent of women met the exercise guidelines.

- Inclusion of a recent study of almost 18,000 adults in which engaging in both regular moderate-to-vigorous physical activity and muscle-strengthening exercise were linked with the lowest incidence of depressive symptoms (Bennie & others, 2019)
- Updated data on binge drinking in college students (Schulenberg & others, 2019)
- Updated data on when binge drinking peaks in the 18- to 30-year age range (Schulenberg & others, 2018)
- Coverage of recent research across the college years of reported kissing, touching, performing and receiving oral sex, and penetrative sex (Lefkowitz & others, 2019). Also in this study, across the college years, contraceptive use decreased, especially for males and for students in a serious romantic relationship.
- Discussion of a recent study of first-year college students in six focus groups that found the following was a common theme in their discussion: “Sex is easier to get and love is harder to find” (Anders & others, 2020)
- Description of a recent study of emerging adults in which a higher percentage of women than men reported having sex, hooking up with an acquaintance, using partner characteristics as a reason to hook up, and having negative reactions to their most recent hookup (Olmstead, Norona, & Anders, 2019). Also in this study, a higher percentage of men reported hooking up with a stranger, meeting someone at a bar/club, and hooking up at a party.
- Updated data on HIV statistics in the United States and worldwide (Centers for Disease Control and Prevention, 2018; UNAIDS, 2019)
- Major new section, “Achievement,” at the beginning of the discussion of Achievement, Careers, and Work
- Inclusion of recent research indicating that engaging in a strategic mindset was critical in achieving goals (Chen & others, 2020). College students with a strategic mindset used more metacognitive strategies and got higher grade point averages while making greater progress toward their professional, educational, and health goals.
- New coverage of motivation for success, with a focus on intrinsic and extrinsic motivation (Ryan & Deci, 2019; van Egmond & others, 2020)
- New section on “Goal-Setting, Planning, and Self-Monitoring” (Schunk, 2020)
- New section, “Grit,” including questions students can ask themselves to determine whether they have grit (Clark & Malecki, 2019)
- New coverage of the very positive job outlook for college graduates at the beginning of 2020 that turned steeply downward in March and April 2020 with the onset of the Coronavirus pandemic (NACE, 2020)
- Update on the percentage of full-time and part-time students who are working while going to college (National Center for Education Statistics, 2018)
- New content on the major change in the context of work that was mandated by the onset of the Coronavirus pandemic, involving large numbers of employees abruptly shifting from working in an office, school, or other context to working from home

- Updated information about the fastest-growing jobs anticipated through 2028 in the 2020–2021 Occupational Outlook Handbook
- Discussion of a recent study in which following a period of unemployment, recovery of a sense of well-being upon reemployment was fast and enduring even when individuals took less favorable jobs upon returning to work (Zhou & others, 2019)
- New content on the extensive increase in unemployment that occurred in 2020 because of the Coronavirus pandemic

Chapter 12: Socioemotional Development in Early Adulthood

- Inclusion of a recent longitudinal study revealing that in comparison with stable securely attached infants, their stable insecurely attached infant counterparts had worse emotion-regulation strategies in relationship-challenging contexts 20 to 35 years later (Girme & others, 2020)
- Discussion of a research review that revealed having an insecure attachment style increased the risk of engaging in suicidal thoughts (Zortea, Gray, & O'Connor, 2020)
- Description of a recent study that indicated college students with an anxious attachment style were more likely to be addicted to social networking sites (Liu & Ma, 2019)
- Coverage of a recent meta-analysis that revealed adults with insecure attachment styles were more likely to engage in risky sexual behaviors (Kim & Miller, 2020)
- Inclusion of a recent study in which greater self-disclosure was associated with higher relationship intimacy offline but with lower relationship intimacy with romantic partners but not friends online (Lee, Gillath, & Miller, 2019)
- Description of a recent study that found being in a romantic relationship, interacting with a partner, and investing more time and effort in the relationship all predicted greater well-being (Hudson, Lucas, & Donnellan, 2020). However, these effects were moderated by relationship quality.
- Updated data on the percentage of U.S. individuals 18 years of age and older who are single (U.S. Census Bureau, 2018)
- Coverage of a recent nationally representative survey of more than 35,000 U.S. single adults that found they are increasingly having uncommitted sexual encounters but taking far longer to make a formal commitment to a partner, a circumstance described as “fast sex and slow love” (Fisher & Garcia, 2019). Nonetheless, in this survey, today’s singles show a strong interest in finding romantic love and a partner they can live with forever.
- Updated data on the increasing percentage of emerging and young adults who are cohabiting (U.S. Census Bureau, 2019)
- Discussion of a recent study that indicated early transitioning into a stepfamily home, especially for females, was linked to earlier entry into cohabitation (Johnston, Cavanagh, & Crosnoe, 2020)

- Inclusion of recent research that confirms cohabitation is a risk factor for intimate partner violence in emerging adults (Manning, Longmore, & Giordano, 2018)
- Description of a recent study in which cohabiting individuals were more likely to engage in risky sexual relationships and more likely to have an unintended birth (Nugent & Daugherty, 2018)
- Discussion of a recent study that indicated cohabitation was associated with a risk for increased marijuana use among women but not men (Hoffman, 2018)
- Coverage of a recent study that found men had a higher level of marital satisfaction than women across a number of countries (Sorokowski, Kowal, & Sorokowska, 2019). In this study, marital satisfaction was similar among Muslims, Christians, and atheists.
- Updated data on the percentage of U.S. adults 18 years of age and older who were married in 2017, which was 48.2 percent (U.S. Census Bureau, 2019)
- Updated data on the age of first marriage in the United States, which in 2018 was 29.8 for men and 27.8 for women, higher than at any other point in history (U.S. Census Bureau, 2019)
- New comparison of age at first marriage in a number of developed countries, with individuals in Sweden getting married latest and those in Israel and Turkey earliest
- Inclusion of a recent study that explored why individuals get married, with love (88 percent of the respondents) at the top of their list (Geiger & Livingston, 2019)
- Coverage of a recent study of recently married low-income adults that revealed those who had received premarital counseling were more likely to seek therapy when the marriage became distressed than those who had not received premarital counseling (Williamson & others, 2018)
- New Figure 2, Trends and Proposal for Improving Premarital Education in the Next Generation (Clyde, Hawkins, & Willoughby, 2020)
- Updated data on divorce rates in different countries, with Russia having the highest and Chile the lowest (OECD, 2019)
- Inclusion of a recent research review that concluded divorced adults have a higher rate of adverse cardiovascular events, including death due to cardiovascular disease, than their married counterparts (Dhindsa & others, 2019)
- Discussion of a recent study in which adults in same-sex relationships experienced levels of commitment, satisfaction, and emotional intimacy similar to those of couples in different-sex relationships (Joyner, Manning, & Prince, 2019)
- New coverage of factors such as forgiveness and commitment as important determinants of whether a marriage will be successful (Lavner & Bradbury, 2019)
- Inclusion of a recent study in which couples high in neuroticism were less satisfied with their marriage than those high in conscientiousness (Sayehmiri & others, 2020)
- Updated data on the average age at which U.S. mothers give birth, which is now at the oldest age ever—26.9 years (National Center for Health Statistics, 2019)

Chapter 13: Physical and Cognitive Development in Middle Adulthood

- Description of a recent study that found middle-aged adults 44 to 64 years of age perceived themselves to be younger than they actually were and wanted to be younger than their chronological age (Shinan-Altman & Werner, 2019). In this study, the beginning of old age was perceived to be 69 years.
- Coverage of a recent study of U.S. and Japanese adults in which younger adults in both countries perceived an improvement in their life satisfaction from the past to the present and from the present to the future, but the improvement was more modest for middle-aged adults, and then shifted to a perceived decline in life satisfaction for older adults (Hong & others, 2019)
- New discussion of how multiple adaptive factors, such as positive physical health (regular exercise and sleep, for example), perceived self-control, and social connections, help to buffer declines in physical and cognitive development in middle adulthood (Liu & Lachman, 2020)
- Updated content on the highest rate of obesity for women occurring in middle adulthood (44.8 percent), compared with early (40 percent) or late adulthood (42.8 percent) (Hales & others, 2020). Also, middle-aged men had a higher obesity rate (46.4 percent) than middle-aged women (43.3 percent).
- New commentary that for individuals who are 30 percent or more overweight, the probability of dying in middle adulthood increases by 40 percent
- Description of a recent large-scale study in which obesity was associated with shorter longevity and increased risk of death due to cardiovascular disease compared with normal-weight individuals (Khan & others, 2018)
- Inclusion of a recent study in which cigarette smoking and diabetes were risk factors for accelerated loss of muscle mass in middle-aged women (Lee & Choi, 2019)
- Coverage of a recent study of middle-aged adults that found higher cardiorespiratory fitness predicted lower cardiovascular disease risk (Swainson, Ingle, & Carroll, 2019)
- Inclusion of a recent global study that revealed from 1990 to 2017, a decline in cardiovascular mortality rates occurred in high-income regions but only slightly decreased or even increased in most low- and middle-income regions of the world (Jagannathan & others, 2019). In this study, high blood pressure, unhealthy diet, high glucose levels, and high LDL accounted for most of the cardiovascular-linked deaths.
- New discussion of metabolic syndrome in middle adulthood (Alves Freire Ribeiro & others, 2019)
- Coverage of a recent study that found the triple combination of lower HDL, higher blood pressure, and larger waist circumference were linked to a combination of metabolic syndrome and cardiovascular disease (Mansourian & others, 2019)
- Description of a recent study in which sedentary behavior, especially moderate and high TV viewing time, was linked to metabolic syndrome (Lemes & others, 2019)

- Inclusion of a recent study that revealed lower body mass index, less exercise, frequent alcohol drinking, and a meat-based diet were risk factors for lung cancer in never-smoking women (Ko & others, 2020)
- New commentary that the National Sleep Association (2019) recommends that middle-aged adults get 7 to 9 hours of sleep per night
- Discussion of a recent research review of sleep in normal aging that concluded shortened nighttime sleep duration, increased nocturnal awakenings, and increased frequency of daytime naps are common changes in sleep patterns associated with aging (Li, Vitiello, & Gooneratne, 2019). Also in this review, it was concluded that these changes occur mainly between early and middle adulthood, with sleep patterns remaining largely stable in healthy older adults.
- New description of a recent study of middle-aged adults that indicated lower sleep quality was linked to a lower level of executive function, lower processing speed, increased learning difficulty, and poorer memory recall (Kaur & others, 2019)
- Inclusion of recent national data analyzed by the National Center for Health Statistics indicating that deaths caused by cancer recently declined but those due to cardiovascular disease increased; however, cancer is still the number one cause of death in middle age (Curtin, 2019)
- Coverage of a recent study of more than 300,000 women that found late menopause was associated with an increased risk of breast cancer (Gottschalk & others, 2020)
- Updated coverage of hormone replacement therapy and rewriting of section for greater clarity
- Description of a recent analysis of research that concluded mindfulness training is linked to improved psychological adjustment during the menopausal transition (Molefi-Youri, 2019)
- Revised conclusions about TRT and cardiovascular disease, noting that recent research is inconclusive about this association (Fode & others, 2019)
- Inclusion of a recent research review that concluded TRT is effective in improving sexual function but that its effects on other outcomes, such as cardiovascular disease, are inconclusive (Corona, Torres, & Maggi, 2020)
- New content on a number of factors that are linked to erectile function, such as smoking, hypertension, high cholesterol levels, obesity, depression, and lack of exercise (Azab & others, 2020)
- New discussion of the recently developed technique of low-intensity shockwave therapy for treating erectile dysfunction (ED) (Kalyvianakis & others, 2020)
- Coverage of a recent research review of low-intensity shockwave therapy for ED that shows benefits after 6 months and lesser effects at 1 year (Brunckhorst & others, 2019)
- Description of a recent study in which a combination of low-intensity shockwave therapy and Cialis was more effective in reducing ED than Cialis alone (Verze & others, 2020)
- Inclusion of recent research on healthy middle-aged women indicating that interpersonal factors such as

emotional support and relationship satisfaction, as well as the personality traits of optimism and self-esteem, were key predictors of the quality of their sexual functioning (Memone, Fiacco, & Ehlert, 2019)

- New description of a recent study of individuals 50 years and older in which a past-year decline in sexual desire or frequency of sexual activities was associated with an increase in depressive symptoms and lower quality of life (Jackson & others, 2019)
- Coverage of a recent study in which fluid intelligence decreased in individuals 65 years and older but not in individuals 45 to 60 years of age (Cornelis & others, 2019)
- New description of a study of middle-aged and older adults that indicated having a higher level of education and engaging in frequent physical exercise were linked to less decline in episodic memory (Liu & Lachman, 2019)
- Inclusion of a recent study of middle-aged and older adults that revealed a 12-week resistance exercise training program improved their delayed verbal memory performance (Marston & others, 2019)
- Updated data on the percentage of U.S. 45- to 54- and 55- to 64-year-olds in the workforce, including comparisons of 2019 to 2015 and 2000 (Mislinski, 2019)
- New description of a recent analysis of the U.S. workforce indicating that more than 50 percent of workers 50 years of age and older are pushed out of longtime jobs before they have chosen to retire (Gosselin, 2019)
- New discussion of a recent study that found middle-aged and older adult women who engaged in a higher level of leisure-time physical activity were more likely to report experiencing positive emotions (Holahan & others, 2019)
- Inclusion of recent research on middle-aged Europeans indicating that those who engaged in more physical activity during their leisure time were less likely to be depressed (Marques & others, 2020)
- Description of recent research in which individuals who engaged in higher levels of leisure-time physical activity experienced less work-related stress than those who were less active (du Prel, Siegrist, & Borchart, 2019)

Chapter 14: Socioemotional Development in Middle Adulthood

- Inclusion of a recent study of middle-aged adults that revealed intrinsically rewarding work was associated with feelings of generativity (Chen & other, 2019)
- Description of recent research in which a 6-week generativity program with middle-aged and older adults produced positive outcomes involving an increase in perceived social support and a lower level of loneliness (Moieni & others, 2020)
- Coverage of a recent study in which openness to experience declined prior to death in older adults (Sharp & others, 2019)
- Inclusion of recent research indicating that adults high in conscientiousness are more satisfied with their marriage, while those high in neuroticism are less satisfied with their marriage (Sayehmiri & others, 2020)

- Discussion of a recent study that revealed older adults characterized by high conscientiousness were experiencing optimal aging (Melendez & others, 2019) and were less likely to develop dementia (Kaup, Hammell, & Yaffe, 2019)
- Description of recent research indicating that obese adults were characterized by low conscientiousness (Cheng & others, 2019)
- Discussion of research in which nursing professionals high in conscientiousness and low in neuroticism were characterized by lower work burnout rates (Perez-Fuentes & others, 2019)
- Coverage of a recent study that found older adults were more likely than younger adults to engage in proactive coping with minor hassles in their daily lives before these problems became more stressful (Neubauer, Smyth, & Sliwinski, 2019)
- Description of a recent study that found adults high in extraversion had a higher perceived level of well-being (Ortet & others, 2020)
- Inclusion of recent research indicating that individuals high in agreeableness were less likely to engage in physical activity (Hearon & Harrison, 2020)
- Discussion of recent research that revealed individuals characterized by high neuroticism avoided engaging in selfie-posting and selfie-editing, while those with high extraversion and agreeableness engaged in more selfie-posting and selfie-editing (Chaudhari & others, 2019)
- Coverage of a recent study that revealed regardless of growing up in disadvantaged circumstance as a child, being optimistic as an adult was linked to being a non-smoker, having a healthy diet, and having a healthy body mass index (Non & others, 2020)
- Inclusion of a longitudinal study of middle-aged married adults that found negative behavior in their marriage decreased and positive behavior increased across 13 years in middle age (Verstaen & others, 2020)
- Revision and updating of the coverage of marriage and divorce in middle age to account for the recently increasing percentage of middle-aged adults who are getting divorced
- Discussion of a recent study in which high levels of parental control and helicopter parenting were detrimental to emerging adults' vocational identity development and perceived competence in transitioning to adulthood (Lindell, Campione-Barr, & Killoren, 2017)
- Coverage of a recent study that revealed helicopter parenting was related to more negative emotional functioning, less competent decision making, and lower grades/poorer adjustment in college students (Luebbe & others, 2018)
- New content on "lawnmower parents," who "mow down" obstacles, stressors, and potential failure for children and adolescents rather than let them learn how to make decisions and develop coping strategies on their own
- Inclusion of a recent Korean study in which middle-aged individuals who were divorced were more likely to smoke, binge drink, get inadequate sleep, and be depressed than their married counterparts (Kim, Lee, & Park, 2018)
- Discussion of a recent study of the extent to which men and women repartner following a gray divorce (that is, when they are 50 years of age and older) (Brown & others, 2019).

In this study, 22 percent of women and 37 percent of men repartnered within ten years following a gray divorce.

- Description of a recent cross-cultural study in which U.S. grandparents were characterized by higher parental efficacy, more role satisfaction, better well-being, and more attachment than Chinese grandparents, who were characterized by more resilience and a higher level of authoritative parenting (Wang & others, 2019)
- Coverage of a recent study that found when children lived with their grandparents, the arrangement especially benefitted low-income and single parents, who in this circumstance spent more money on their children's education and activities, as well as saving on child care costs (Amorin, 2019)
- Discussion of a recent study that revealed middle-aged adults were happiest when they had harmonious relationships with their parents and their adult children (Kim & others, 2020)

Chapter 15: Physical and Cognitive Development in Late Adulthood

- Updated data on life expectancy in the United States (Xu & others, 2020)
- Updated data on life expectancy in different countries in 2018, with Monaco having the highest (89.6 years), the United States in 53rd place (78.6 years), and South Africa the lowest (50.6 years) (Central Intelligence Agency, 2018)
- Inclusion of recent data on the number (82,000) of centenarians alive in the world (Statista.com) and a recent (2020) list of the world's oldest living people, on which there were no males among the oldest 50 individuals
- Update as of June 2020 of the oldest person in the world (Kana Tanaka of Japan, age 117) and in the United States (Hester Ford, age 114)
- Updated data on gender and ethnic differences in life expectancy in the United States (Murphy & others, 2018; Xu & others, 2020)
- New discussion of the "Latino Health Paradox," which refers to Latinos living 5.7 years longer than non-Latino whites despite having lower income and less education, including explanations for why this may occur (Brill, 2019)
- Coverage of a recent study that supported the "Latino Health Paradox," with older Latino adults reporting better health than their non-Latino white counterparts (Olsen, Basu Roy, & Tseng, 2019)
- Updated data on life expectancy for individuals 65 years of age (including gender differences) and for individuals 100 years old (Murphy & others, 2018)
- Coverage of a recent research review that concluded lifestyle interventions involving exercise and diet are linked to a slowing of telomere shortening (Qiao & others, 2020)
- Inclusion of a recent study of older adults in which a healthy body weight was linked to reduced oxidative stress (Anusruti & others, 2020)
- Updated and expanded coverage of the diseases that are linked to mitochondrial dysfunction to include cardiovascular disease (Roushandedeh, Kuwahara, &

- Roudkenar, 2019), Alzheimer disease (Li & others, 2020), Parkinson disease (Zhi & others, 2019), diabetic kidney disease (Forbes & Thorburn, 2018), and impaired liver functioning (Stevanovic & others, 2020)
- Updated and expanded discussion of links between sir-tuins and diabetes, Alzheimer disease, and Parkinson disease (Liu & others, 2020; Shieh, Huang, & Lin, 2020)
 - Update on the leading causes of death in older adults, with recent data indicating that beginning in the 65- to 74-year age range, cancer has replaced cardiovascular disease as the leading cause of death in the United States (Centers for Disease Control and Prevention, 2019)
 - New Figure 2, “Generating New Nerve Cells in Adult Mice”
 - Coverage of a recent study that found declines in memory functioning were linked to lower gray matter volume (the tissue that contains most of the brain’s neuronal cell bodies) in the temporal lobe and hippocampus (Schneider & others, 2019)
 - New discussion of research involving the Nun Study in which an analysis of essays written when the nuns were 18 to 32 years old revealed that those whose essays reflected a higher level of self-reflection and parents’ giving them more independence to make their own decisions lived longer (Weinstein & others, 2019)
 - New research content on middle-aged and older adults in which those who had limited mobility had lower cognitive functioning (Demnitz & others, 2018)
 - New description of a recent study of older adults in which an increase of 554 steps per day in mobility reduced physical limitations by 5.9 percent and improved their quality of life by 3.2 percent (Kabiri & others, 2019)
 - Inclusion of a recent study of older adult women that revealed a slowing of walking speed occurred on average at about 71 years of age (Noce Kirkwood & others, 2018)
 - Discussion of a recent study that found older adults who walk slowly are at risk for developing mild cognitive impairment (Rajtar-Zembaty & others, 2019)
 - Coverage of a longitudinal study of individuals 60 years and older in which visual and hearing difficulties predicted cognitive difficulties 8 years later, with the greatest cognitive decline occurring in individuals who had both a visual and a hearing problem (de la Fuente & others, 2019)
 - Description of a recent study that found declines in visual acuity, contrast sensitivity, and depth perception were associated with cognitive decline in older adults (Swenor & others, 2019)
 - Inclusion of a recent study in which hearing impairment was associated with accelerated cognitive decline in older adults (Alattar & others, 2019)
 - Discussion of a recent study of older adults in which implementation of hearing aid use was linked to stable or improved executive function (Sarant & others, 2020)
 - Coverage of a recent study in which older adults with a dual sensory impairment involving vision and hearing had more depressive symptoms (Han & others, 2019)
 - Inclusion of a recent study of older adults in which high levels of pain were associated with memory impairment (van der Leeuw & others, 2018)
 - New content indicating that the National Sleep Foundation (2020) recommends that older adults get 7 to 8 hours of sleep a night
 - New discussion of the factors that are likely to help older adults sleep better (Vanderlinden, Boen, and van Uffelen, 2020)
 - Coverage of recent research in which older adults who engaged in sexual activity reported greater enjoyment in life (Smith & others, 2019)
 - Description of a recent study in which older adults were asked about their motivations for having sex (Gewirtz-Meydan & Ayalon, 2019). In this study, five main reasons for having sex were (1) to maintain overall functioning, (2) to feel young again, (3) to feel attractive and desirable, (4) to go from lust to love, and (5) to change from “getting sex” to “giving sex.”
 - Inclusion of a recent Swiss study in which post-menopausal women consumed high amounts of vegetables but insufficient calcium and dairy products (Lanyan & others, 2020)
 - Discussion of a recent study that confirmed older adults who engage in regular exercise have a higher level of life satisfaction (Cho & Kim, 2020)
 - Description of a recent meta-analysis concluding that physically active older adults have a greater likelihood of living longer (Cunningham & others, 2020)
 - Coverage of a recent large-scale study that found middle-aged and older adults, even those with cardiovascular disease and cancer, can gain considerable longevity benefits by engaging in a minimum of 150 minutes a week of moderate-intensity exercise (Mok & others, 2019)
 - Inclusion of a study of middle-aged adults indicating that their estimated age based on exercise stress testing was a better predictor of how long they would live than their chronological age (Harb & others, 2020)
 - Discussion of a recent meta-analysis that concluded moderate to vigorous physical exercise reduces depressive symptoms in adults with an average age of 82 years (Klii-Drori & others, 2020)
 - New content on the lack of exercise by many older adults, with about one in three men and one in two women engaging in no regular physical exercise at age 75 (Centers for Disease Control and Prevention, 2020)
 - New commentary on the very high percentage of COVID-19 deaths in 2020 among residents of nursing homes and assisted living facilities (43 percent as of July 1, 2020)
 - Inclusion of a recent study in which executive attention training improved the selective attention of older adults (Yang & others, 2019)
 - New content indicating that reductions in attention and processing speed likely contribute to declines in working memory in older adults (Jarjat, Portrat, & Hot, 2019)
 - New description of a recent study in which age-related decline in episodic memory impaired access to specific

autobiographical events and the details involved (Peters, Fan, & Sheldon, 2019)

- New discussion of the “reminiscence bump” in autobiographical memories in which older adults often remember more than would be expected from the second and third decades of life (Allen & others, 2018)
- Coverage of a recent study of 60- to 88-year-olds that revealed the first-time experience of a memory, how important the memory was, and the memory’s emotional salience were associated with the reminiscence bump (Wolf & Zimprich, 2020)
- Inclusion of a recent study that revealed Latino older adults who were more acculturated in the United States had better working memory than their less acculturated counterparts (Mendoza & others, 2020)
- Coverage of a recent study in which a cognitive training program that increased frontal and parietal lobe brain activity improved older adults’ working memory (Gajewski & Falkenstein, 2018)
- Inclusion of a recent study that found when older adults engaged in higher levels of physical activity their memory improved (de Lima & others, 2019)
- Discussion of a recent study in which highly educated older adults had better executive function than their less educated counterparts, which was associated with slower age-related reduction in executive function (Chen & others, 2019)
- Coverage of a recent study in which aerobic exercise improved older adults’ executive function (McSween & others, 2019)
- Discussion of a recent study that revealed a combination of a Nordic Walking training program and vitamin D supplementation improved the processing speed, attention, and executive function of elderly women (Lipowski & others, 2019)
- Inclusion of a recent research review of 20 executive function training studies that concluded they promote cognitive and neural plasticity in older adults (Nguyen, Murphy, & Andrews, 2019)
- Coverage of a recent study in which executive function in older adults increased their sense of control over obstacles that interfered with their ability to attain goals, which in turn was associated with higher life satisfaction (Toh, Yang, & Hartanto, 2020)
- Description of recent research indicating that a higher level of education has a strong effect on older adults’ working memory in the United States (Saito & others, 2020)
- Inclusion of a recent study of Puerto Rican older adults that revealed a higher level of cognitive complexity in work was associated with a lower risk of cognitive impairment (Andel & others, 2019)
- Coverage of a recent study of older Latinos that found cardiovascular risk factors were linked to lower cognitive functioning (Tarraf & others, 2020)
- Discussion of a recent study of older adults that found depression was linked to lower executive attention, memory, and language performance (MacAulay & others, 2020)
- Inclusion of a recent study that found the personality trait of openness to experience in early adulthood

predicted wisdom 60 years later (Ardelt, Gerlach, & Vaillant, 2018). Also in this study, wisdom in later adulthood could be traced to experiences and characteristics at different points in development: a supportive childhood, adolescent competence, emotional stability in young adulthood, and generativity in middle adulthood.

- Coverage of a recent study that indicated wisdom peaked in midlife, with education especially linked to a higher level of wisdom (Ardelt, Pridgen, & Nutter-Pridgen, 2018)
- Discussion of research results in which a higher level of cognitive activity was linked to better cognitive functioning in older adults (Casaletto & others, 2020)
- Discussion of the Mayo Clinic Study of Aging (Krell-Roesch & others, 2019) in which engaging in a higher number of mentally stimulating activities (reading books, using a computer, participating in social activities, playing games, and doing craft activities) was associated with a decreased risk of mild cognitive impairment
- Inclusion of a recent research review that concluded low levels of social isolation characterized by high engagement in social activity and large social networks were linked to better cognition (memory and executive function, for example) in older adults (Evans & others, 2019)
- New commentary that cognitive gains based on cognitive training games are typically constrained to the specific task being assessed and do not generalize to broader cognitive function
- Description of a recent meta-analysis that indicated video games can have a small positive effect on older adults’ memory but have no effect on other cognitive functions (Mansor, Chow, & Halaki, 2020)
- Coverage of a recent study of older adults in which moderate to intense physical activity modified the depression-cognition connection and preserved cognitive function (Hu & others, 2019)
- Discussion of a recent study of older adults in which moderate to intense physical activity modified the depression-cognition connection and preserved cognitive function (Hu & others, 2019)
- Inclusion of a recent meta-analysis that concluded meditation, tai chi, and yoga interventions are effective in improving older adults’ cognitive functioning (Chan & others, 2019)
- Coverage of a recent study of older adults that indicated an in-home exergame training program improved their executive function (Adcock & others, 2020)
- Updated data on the percentage of U.S. individuals who expect to work after age 65, which increased from 16 percent in 1991 to 48 percent in 2018 (Employee Benefit Research Center, 2018)
- Discussion of a recent analysis that concluded healthier, higher-income, and better-educated older adults can work longer, while lower-income older adults usually work in more physically demanding jobs that make it more difficult for them to continue working as they age (United Income, 2019)
- Inclusion of recent findings that indicate older workers are more satisfied at work, take fewer sick days, and demonstrate stronger problem-solving skills than

younger workers (Milken Institute and Stanford Center of Longevity, 2019)

- Description of a recent study that found all retirement pathways were associated with cognitive decline for workers in low-complexity jobs but were not linked to accelerated cognitive decline for those in high-complexity jobs (Carr & others, 2020). Also, after retiring and subsequently returning to work, a modest improvement in cognitive function occurred.
- Inclusion of a recent study that revealed retirement satisfaction was linked to realizing retirement plans, resilience, social integration, adopting new roles, and especially quality of family relationships (Principi & others, 2020)
- New facts about the cost of dementias to the United States (Alzheimer's Association, 2020)
- Coverage of a recent Chinese study in which medium to high levels of physical activity were linked to a lower incidence of dementia in 60- to 65-year-olds (Wu & others, 2020)
- Updated data on the percentage of older adults with Alzheimer disease and expanded facts about Alzheimer disease in 2020, including new data on ethnic variations (Alzheimer's Association, 2020)
- New coverage of the role of mitochondrial dysfunction as an early event in Alzheimer disease (Yang & others, 2020a)
- Updated estimate of the percentage of individuals 65 years of age and over in the United States who have mild cognitive impairment (Alzheimer's Association, 2019)
- Discussion of a recent research review that concluded cognitive and physical interventions can improve the cognitive and physical function of individuals with mild cognitive impairment (Yang & others, 2020b)
- New commentary that in the United States, 50 percent of the help provided by caregivers for older adults is given to individuals with Alzheimer disease (Alzheimer's Association, 2019)
- Inclusion of a recent research review that concluded deep brain stimulation (DBS) improves motor function in Parkinson patients for up to 10 years, but improvement tends to decline over time (Limousin & Foltynie, 2019)

Chapter 16: Socioemotional Development in Late Adulthood

- Inclusion of a number of changes based on feedback and editing by leading expert Laura Carstensen
- Coverage of a recent research review in which reminiscence therapy was linked to a reduction in depressive and anxiety symptoms, improved life satisfaction, and an increase in social engagement (Shropshire, 2020)
- Revised description of social selectivity theory
- Discussion of a recent research review of older adults' health that concluded ageism led to worse health outcomes, especially in less developed countries and among those who were less educated (Chang & others, 2020)
- Coverage of a recent study in which older adults with higher neuroticism and lower conscientiousness had more difficulty in their cognitive control of processes

needed to engage in goal-directed behavior (Bell, Hill, & Stavrinou, 2020)

- Inclusion of a recent study of the Big Five personality factors that found conscientiousness was the strongest predictor of living longer (Chapman & others, 2020). In this study, the activity dimension of extraversion was a better predictor of longevity than other dimensions.
- Coverage of a recent study in which openness to experience declined in advance of death in older adults (Sharp & others, 2019)
- Discussion of a recent study that revealed older adults characterized by high conscientiousness were experiencing optimal aging (Melendez & others, 2019) and were less likely to develop dementia (Kaup, Hammell, & Yaffe, 2019)
- Reorganization and shortening of the "Older Adults and Society" section
- Updated statistics on the percentage of older adults living in poverty, including gender and ethnic differences (U.S. Census Bureau, 2018). Especially noteworthy is the recent decrease in the percentage of Latino older adults living in poverty (17.4 percent in 2016, down from 20 percent in 2013).
- Updated data on the percentage of older adults who use the Internet, which increased to 90 percent in 2019 (Anderson & others, 2019)
- Inclusion of a recent national U.S. study that indicated a dramatic increase in the percentage of older adults who are using health information technology (Hung, Lyons, & Wu, 2020)
- New data on the percentage of 65-and-older U.S. men (70 percent) and women (46 percent) who were married in 2017 (U.S. Census Bureau, 2018)
- Updated data on the percentage of individuals 65 years and older who are divorced, which increased to 15 percent in 2017 (U.S. Census Bureau, 2018)
- Inclusion of a recent study of older adults in Great Britain that revealed those who were divorced were more likely to die earlier and have lower life satisfaction than their married counterparts (Bourassa, Ruiz, & Sbarra, 2019)
- Description of a recent study that indicated today's older adults are more accepting of divorce than their counterparts from two decades ago (Brown & Wright, 2019)
- Discussion of a recent study of middle-aged and older adults in which 22 percent of women and 37 percent of men repartnered within 10 years following the divorce (Brown & others, 2019). Repartnering more often involved cohabitation than remarriage, especially for men.
- Updating and rewriting of the section on attachment in late adulthood for greater clarification
- Inclusion of a longitudinal study of individuals from 13 to 72 years of age in which avoidant attachment declined across the lifespan and being in a relationship predicted lower levels of anxious and avoidant attachment across adulthood (Chopik, Edelstein, & Grimm, 2019)
- Coverage of a recent study of older adult women that found avoidant attachment was linked to higher levels of social isolation (Spence, Jacobs, & Bifulco, 2020)

- Description of a recent study of older adults that revealed those with secure attachment were competent in their daily life, which in turn was related to psychological adjustment (Martin, Horn, & Allemand, 2020)
- Coverage of a recent study of older adults in which having a larger friend-confidant network or closer connections with friend-confidants was linked to better marital quality for wives and husbands 5 years later (Zhaoyang & Martire, 2020)
- Inclusion of a recent study of older adults that revealed interactions with friends were more pleasant and were associated with fewer stressful discussions of experiences than interactions with partners or family members (Ng & others, 2020)
- Discussion of a recent study of older adults that revealed interactions involving a greater variety of social ties were linked to engaging in more physical activity and less sedentary behavior (Fingerman & others, 2020). Also in this study, greater involvement with diverse social ties was linked to being in a more positive mood.

Chapter 17: Death, Dying, and Grieving

- New commentary regarding awareness of death in different cultures and the fact that the extensive number of deaths due to the Coronavirus pandemic is making many Americans more aware of death than in recent decades
- Update on POLST (Provider Orders for Life-Sustaining Treatment), which in 2019 was available in 40 states
- Update on the number of states that allow assisted suicide, which recently increased to 10 states (Maine added in 2020, New Jersey added in 2019, and Hawaii added in 2018), plus Washington, DC
- Update on the countries that allow assisted suicide and also those that allow both assisted suicide and euthanasia
- New coverage of the shortage of trained individuals to work in hospices and as home health aides for dying individuals (Landes & Wang, 2019)
- Inclusion of a recent study of the death of a close friend in adulthood in which females experienced a greater decline in mental health and socioemotional functioning than males (Liu, Forbat, & Anderson, 2019)
- Description of a recent research review that revealed half of the studies involving heart failure patient interventions emphasizing meaning-making coping substantially improved the quality of life of the patients, compared with less than one-third of the interventions not focusing on meaning-making coping (self-care or medical adherence, for example) (Sacco, Leahey, & Park, 2019)
- Coverage of a recent study in which meaning was negatively associated with depression but positively linked to grief in suicide survivors (Scharer & Hibberd, 2020)
- Discussion of a recent study that found individuals with complicated grief had a higher level of the personality trait of neuroticism (Goetter & others, 2019)
- Description of a recent research review that concluded the death of an only child and violent killings were most likely to be associated with prolonged grief disorder (Djelantik & others, 2020)
- Coverage of a recent study indicating that in the first two years of bereavement for family caregivers of terminally ill cancer patients, prolonged grief disorder preceded the onset of major depressive disorder (Tsai & others, 2020)
- New content on how the death of individuals due to the Coronavirus pandemic and the social distancing policies put in place have produced disenfranchised grief, as only a small number of people can be present at death rituals and spiritual ceremonies, which can increase their inability to mourn the death adequately and lead to greater depression and stress (Yahya & Khawaja, 2020)
- Discussion of a recent research review that concluded the dual-process model provides an accurate representation of the bereavement experience and is effective in describing how individuals cope (Fiore, 2020)
- Inclusion of recent research using the dual-process model as a conceptual framework, including studies on parents' use of oscillating coping strategies following their infant's death (Currie & others, 2019) and the importance of restoration-oriented rather than loss-oriented coping both early and late in the bereavement process following a spouse's death (Lundorff & others, 2019)
- Updated data on the percentage of widowed women and men 65 years and older in the United States (Administration on Aging, 2018)
- Discussion of a recent analysis that indicated a spouse's death impacted women and men differently (Streeter, 2020). In this study, following spousal death, women's income deteriorated while men's emotional and mental health worsened while their financial status remained stable.
- Description of a recent meta-analysis of mental disorders in widows, with depressive disorders being the most prevalent, followed by anxiety disorders (Blanner Kristiansen & others, 2019)
- Coverage of a recent study of widows' and widowers' mental health coping strategies in which widows were more likely to use positive reframing, active distraction, help-seeking, and turning to God for strength, while widowers were more likely to use avoidant strategies and seek connection with their late spouse (Carr, 2020)
- Inclusion of a recent research review of widowed Latinos that found risk factors for diminished well-being were being a male, financial strain, cultural stressors, having an undocumented legal status, experiencing widowhood at a younger age, and having poor physical health (Garcini & others, 2020)
- New commentary on how being a widow is especially difficult and stressful for individuals who have been happily married for decades
- Updated data on cremation, with continuing increases in cremation in the United States and Canada (Cremation Association of North America, 2019)

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Essentials of Life-Span Development

1

Introduction

CHAPTER OUTLINE

THE LIFE-SPAN PERSPECTIVE

The Importance of Studying Life-Span Development
 Characteristics of the Life-Span Perspective
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 Conceptions of Age
 Developmental Issues

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Psychoanalytic Theories
 Cognitive Theories
 Behavioral and Social Cognitive Theories
 Ethological Theory

Ecological Theory
 An Eclectic Theoretical Orientation

RESEARCH IN LIFE-SPAN DEVELOPMENT

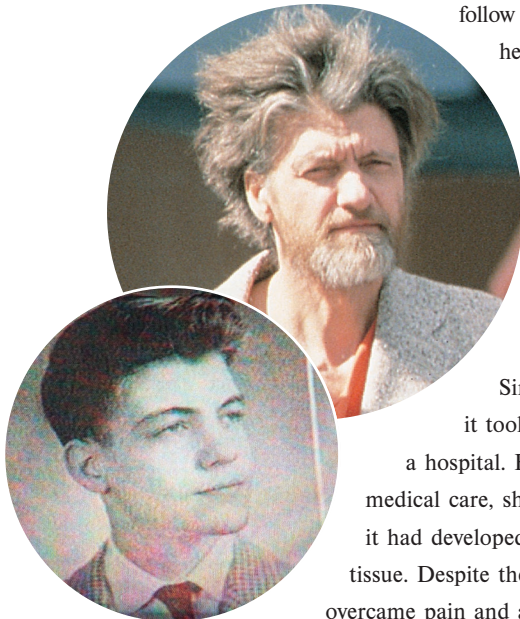
Methods for Collecting Data
 Research Designs
 Time Span of Research
 Conducting Ethical Research

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.

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



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.

(Top) Seanna O'Sullivan;
(bottom) WBBM-TV/AFP/
Getty Images

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.

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 edition.

Essentials of Life-Span Development 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 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. ■



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.

(Top) Monica Morgan/
WireImage/Getty Images
(bottom) Courtesy of
Alice Walker

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.

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

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

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 (Leipold, 2020). 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 (Antonucci & Webster, 2019; Parra-Rizo & Sanchis-Soler, 2020).

Life Expectancy

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). For individuals born in 2017 in the United States, their life expectancy is 78.6 years of age (Arias & Xu, 2019). Today, for most individuals in developed countries, childhood and adolescence represent only about one-fourth of their lives.

For the first time in U.S. history, in 2019 there were more people over 60 years of age than under 18 years of age. In less than a century, more years were added to human life expectancy than in all of the prior millennia.

Laura Carstensen (2015, 2016, 2019) recently described the challenges and opportunities involved in this dramatic increase in life expectancy. In her view, the remarkable increase in the number of people living to old age has taken place so quickly that science, technology, and behavioral changes have not kept pace. She proposes that the challenge is to transform a world constructed mainly for young people into a world that is more compatible and supportive for the increasing number of people living to 100 and older.

In further commentary, Carstensen (2015, p. 70) remarked that making this transformation would be no small feat:

. . . parks, transportation systems, staircases, and even hospitals presume that the users have both strength and stamina; suburbs across the country are built for two parents and their young children, not single people, multiple

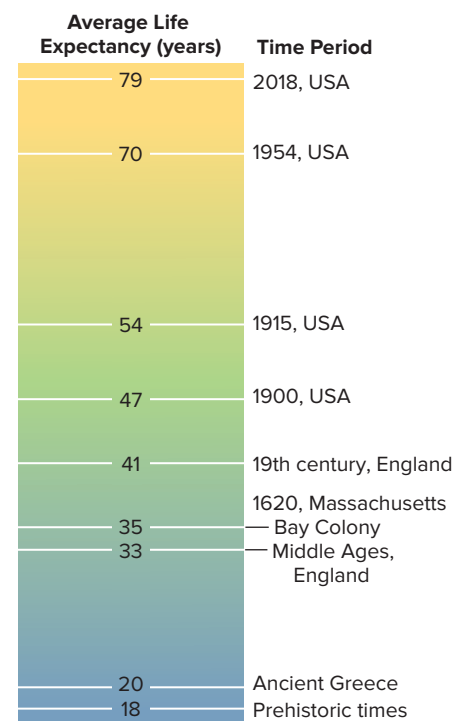


Figure 1 Human Life Expectancy at Birth from Prehistoric Time to Contemporary Times.

For the first time in U.S. history, in 2019, there were more people over 60 years of age than under 18 years of age. In less than a century, more years were added to human life expectancy than in all of the prior millennia.

generations or elderly people who are not able to drive. Our education system serves the needs of young children and young adults and offers little more than recreation for experienced people.

Indeed, the very conception of work as a full-time endeavor ending in the early sixties is ill suited for long lives. Arguably the most troubling aspect of our current perspective on aging is that we fret about ways that older people lack the qualities of younger people rather than exploit a growing new resource right before our eyes: citizens who have deep expertise, emotional balance, and the motivation to make a difference (Carstensen, 2019).

Certainly, recent progress has been made in improving the lives of older adults. In our discussion of late adulthood, you will read about researchers who are exploring ways to modify the activity of genes related to aging, methods for improving brain functioning in older people, medical discoveries for slowing or even reversing the effects of various chronic diseases, and ways to prepare for a better quality of life when we get old, including strategies for staying cognitively sharp, maintaining our physical fitness, and becoming more satisfied with our lives as older adults. But much more remains to be accomplished, as described by Laura Carstensen and others (Lin & others, 2020; Rowe & others, 2019).

Dimensions of the Life-Span Perspective

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, 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 (Bermudez, 2020). 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 beginning 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, events that occurred during her son's infancy warped the development of his mind and emotions.

Development Is Multidirectional Throughout life, some dimensions or components of a dimension expand and others shrink (Gazes & others, 2020). 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,

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.

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 (Kunzmann, 2019), but they perform more poorly on tasks that require speed in processing information (Salthouse, 2020).

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 (Cuestas Torres & Cardenas, 2020; Thomas & Ansari, 2020). 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 the development of better strategies (Dorrenbacher & others, 2020; Lee, Charles, & Almeida, 2020). However, possibly we possess less capacity for change when we become old (Salthouse, 2020). The exploration of plasticity and its constraints is a key element on the contemporary agenda for developmental research (Walker, 2019).

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 (Parke & Elder, 2020).

Contexts, like individuals, change (Levy & Wright, 2020; Marks, Woolverton, & Garcia Coll, 2020). 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) non-normative or highly individualized life events. Each of these types can have a biological or environmental impact on development.

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 (Elder & Cox, 2020). 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, the integration of computers and cell phones into everyday life during the 1990s, and time spent on social media in the twenty-first century (Pittinsky, 2020). 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 are unusual occurrences that have a major impact on the individual's life. These events do not happen to all people,

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.



Nonnormative life events, such as Hurricane Maria in Puerto Rico in 2017, are unusual circumstances that can have a major influence on a person's development.

Mario Tamal/Staff/Getty Images

individuals age into middle and late adulthood, the quest to maintain their capacities and to regulate loss 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 other chapters, 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 (De la Fuente, 2019). 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).

and when they do occur they can influence people in different ways (Masten, Motti-Stefanidi, & Rahl-Brigman, 2020). 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.

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

How Would You...?

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



Contemporary Concerns in Life-Span Development

Pick up a newspaper or magazine and you might see headlines like these: "Screen time linked to children's obesity," "Political Leanings May Be Written in the Genes," "Religious Group Protests Transgender Bathrooms," "FDA Warns About Side Effects of ADHD Drug," "COVID-19 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, sociocultural contexts, and technology play in life-span development, as well as how social policy is related to these issues, are a particular focus of this edition.

Health and Well-Being

Health professionals today recognize the power of lifestyles and psychological states in health and well-being (Graham, Holt/Hale, & Parker, 2020; Teague, Mackenzie, & Rosenthal, 2020). Clinical psychologists are among the health professionals who help people improve their well-being. Read about one clinical psychologist who helps adolescents and adults improve their developmental outcomes in the *Careers in Life-Span Development* profile.

Careers in life-span development

Gustavo Medrano, Clinical Psychologist

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

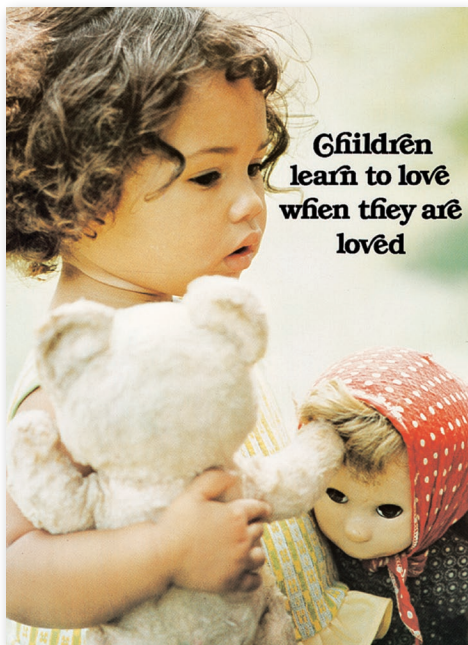
Dr. Medrano is a faculty member at the Family Institute at Northwestern University. He obtained his undergraduate degree in psychology at Northwestern and then became a teacher for Teach for America, which involves a minimum of two years spent teaching in a high-poverty area. He received his master's and doctoral degrees in clinical psychology at the University of Wisconsin–Milwaukee. As a faculty member at Northwestern, in addition to doing clinical therapy with clients, he also conducts research with a focus on how family experiences, especially parenting, influence children's and adolescents' coping and pain.



Gustavo Medrano, a clinical psychologist who often works with Spanish-speaking clients.
Avis Mandel Pictures

Parenting and Education

Can two gay men raise a healthy family? Do children suffer if they grow up in a divorced family? 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 (Ellis, Riggs, & Peel, 2020; Gonzalez-Mena, 2020). In later chapters, we analyze child care, the effects of divorce, parenting styles, intergenerational relationships, early childhood education, relationships between childhood poverty and education, children with disabilities, bilingual education, new educational efforts to improve lifelong learning, and many other issues related to parenting and education (Crosnoe, 2020; Diaz-Rico, 2020).



Robert Maust/Photo Agora

Sociocultural Contexts and Diversity

Health, parenting, and education—like development itself—are all shaped by their sociocultural context (Marks, Woolverton, & Garcia-Coll, 2020; Walsh & Mortensen, 2020). 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 (Li, 2020). Culture results from the interaction of people over many years (Schoon & Bynner, 2020). 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.

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



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?*
Zuma Press Inc./Alamy Stock Photo

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 (Quashie & others, 2020). For example, in a recent study of 26 countries, individuals in Chile had the highest life satisfaction, those in Bulgaria and Spain the lowest (Jang & others, 2017).

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 (Levy & Wright, 2020). In 2017, 50.5 percent of children 17 years and younger were non-Latino white; by 2050, this figure is projected to decrease to 38.8 percent (ChildStats.gov, 2018). In 2017 in the United States, 25.2 percent of children were Latino, but in 2050 that figure is projected to increase to 31.9 percent. Asian Americans are expected to be the fastest-growing ethnic group of children percentage-wise: In 2017, 5.1 percent were Asian American, and that figure is expected to grow to 7.4 percent in 2050. The percentage of African American children is anticipated to decrease from 2017 to 2050 (13.6 to 13.1 percent). A special concern is the discrimination and prejudice experienced by ethnic minority children (Zeiders & others, 2020).

Socioeconomic status (SES) refers to a person’s position within society based on occupational, educational, and economic characteristics. Socioeconomic status implies certain inequalities (Cambron & others, 2020; Mortimer, 2020). Differences

in the ability to control resources and to participate in society’s rewards produce unequal opportunities (Roos, Wall-Wieler, & Lee, 2020).

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 (Helgeson, 2020). We discuss sociocultural contexts and diversity in each chapter.

Recently, considerable research interest has focused on a category of gender classification called *transgender*, a broad term that refers to individuals who adopt a gender identity that differs from the one assigned to them at birth (Ellis, Riggs, & Peel, 2020). A transgender identity of being born male but identifying with being a female is much more common than the reverse (Zucker, Lawrence, & Kreukels, 2016). We will have much more to say about gender and transgender later in the text.

The conditions in which many of the world’s women live are a serious concern (UNICEF, 2020). Inadequate educational opportunities, violence, and lack of political access are just some of the problems faced by many women.

In this section, you have read about such important aspects of individuals as their cultural and socioeconomic backgrounds, ethnicity, and



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 the women in Bangladesh marry 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, which has led to improved hygiene and health in the families. Also, her group has managed to stop several child marriages by meeting with parents and convincing them that it is not in their daughter’s best interests. They emphasize the importance of staying in school and how this will improve their daughter’s future. Doly says that the girls in her UNICEF group are far more aware of their rights than their mothers ever were. (UNICEF, 2007).

Naser Siddique/UNICEF Bangladesh



How Would You...?

As a **health-care professional**, what examples might you use to show that understanding culture, ethnicity, SES, and gender is essential in educating future health-care professionals?

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 the degree to which it is culture-specific.

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

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.

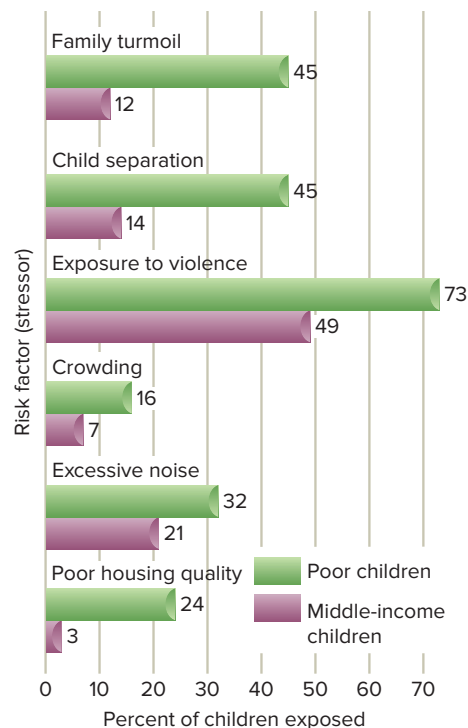


Figure 2 Exposure to Six Stressors Among Children in Poor and Middle-Income Families.

One study analyzed exposure to six stressors among children in poor and middle-income families (Evans & English, 2002). Poor children were much more likely to face each of these stressors.

gender. As people go through the human lifespan, these categories intersect and can create systems of power and privilege as well as oppression and discrimination. For example, higher-socioeconomic status non-Latino white males have experienced considerably greater privilege and less discrimination than African American females. At various points in this text, we will further explore these category connections.

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 (Font & others, 2020; Garbarino, Governale, & Kostelny, 2019).

Children who grow up in poverty represent a special concern (Dreyer, 2020). In 2018, 16.2 percent of U.S. children under 18 years of age were living in families with incomes below the poverty line (Children's Defense Fund, 2020). This is a decrease from a peak of 23 percent in 1993 and also down from 19.7 percent in 2015. However, the U.S. figure of 16.2 percent of children living in poverty is much higher than the rates in other developed countries. For example, Canada has a child poverty rate of 9 percent and Sweden has a rate of 2 percent (Fontenot, Semega, & Kollar, 2018).

Compared with non-Latino white children, ethnic minority children are more likely to experience persistent poverty over many years and to live in isolated poor neighborhoods where social supports are minimal and threats to positive development are abundant (Leventhal, Anastasio, & Dupere, 2020). In 2018, African American (30.1 percent, down from 36 percent in 2015) and Latino (23.7 percent, down from 30 percent in 2015) families with children had especially high rates of poverty (Children's Defense Fund, 2020).

What are some of the negative experiences that children in poverty encounter? As indicated in Figure 2, one study found that a 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 (Andrews & others, 2020; Armstrong, Hepworth, & Black, 2020). 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.

There is increasing interest in developing two-generation educational interventions to improve the academic success of children living in poverty (Chase-Lansdale & others, 2019; Reichlin Cruse & others, 2019). For example, a recent large-scale effort to help children escape from poverty is the Ascend two-generation educational intervention being conducted by the Aspen Institute (2019). The focus of the intervention emphasizes education (increasing postsecondary education for mothers and improving the quality of their children's early

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

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). In a recent report, the Ascend program emphasized the importance of parents' education, economic stability, and overall health for their children's well-being (Ascend, 2019).

Some children triumph over poverty or other adversities. They show *resilience*. Think back to the chapter-opening story about Alice Walker. In spite of racism, poverty, her low socioeconomic status, and a disfiguring eye injury, she went on to become a successful author and champion for equality.

Are there certain characteristics that 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, 2014, 2019; Masten, Motti-Stefanidi, & Rahl-Brigman, 2020) have concluded that a number of individual factors, such as good intellectual functioning, influence resiliency. In addition, family and extrafamilial contexts of resilient individuals tend to share certain features. For example, resilient children are likely to have a close relationship to a caring parent figure and bonds to caring adults outside the family.

At the other end of the life span, protecting the well-being of older adults also creates policy issues (Chen & Cao, 2020; Hest, Alarcon, & Blewett, 2020). Key concerns are escalating health care costs and the access of older adults to adequate health care (Gotanda & others, 2020).

Concerns about the well-being of older adults are heightened by two facts. First, the number of older adults in the United States is growing rapidly. Second, many of these older Americans are likely to need society's help.

Not only is the population of older adults growing in the United States, but also the world's population of people 60 years and older is projected to increase from 962 million in 2017 to 2.1 billion in 2050 (United Nations, 2017). The world's population 80 years of age and older is expected to triple or quadruple in this time frame. These significant increases in the world's older population have important implications for many sectors of society. As the percentage of a country's older population grows, governments must develop innovative policies and services that include improved housing, employment, health care, and transportation for older adults.



This mother and her daughter are participating in the Ascend program. *What characterizes the Ascend program?*

Studio 1One/Shutterstock



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

Dawn Villella Photography

Technology

A final focus in our exploration of contemporary topics is the recent dramatic, almost overwhelming increase in technology at all points in the life span (Greenfield, 2020). From the introduction of television in the mid-1950s to today's widespread access to personal computers, the Internet, smartphones, and social media, as well as the ever-expanding use of robots in medicine and industry, it is obvious that our way of life has been forever changed by technological advances.

We will explore many technology topics in this edition. Later in this chapter you will read about the emerging field of developmental robotics in our discussion of information processing as well as coverage of different generations, including the extensive connection with technology of the millennial generation and generation Z. At various points in the book, we explore such topics as whether babies should be allowed to watch television and videos, and especially how these activities might impair language development; how too much screen time takes away from children's exercise and increases their risk of obesity and cardiovascular disease; whether multitasking with electronic devices is helpful or harmful to academic success; as well as the extent to which older adults are adapting to the expanding role of technology in their daily lives.

How Would You...?

As a **social worker**, what scholarly information might you draw on to encourage social work majors in college to learn more about the needs of older adults?



The Nature of Development

In this section, we explore what is meant by developmental processes and periods, as well as variations in the way age is conceptualized. We examine some key developmental issues.

If you wanted to describe how and why Alice Walker or Ted Kaczynski developed during their lifetimes, how would you go about it? A chronicle of the events in any person's life can quickly become a confusing and tedious array of details. Two concepts help provide a framework for describing and understanding an individual's development: developmental processes and periods.

Biological, Cognitive, and Socioemotional Processes

At the beginning of this chapter, we defined development as the pattern of change that begins at conception and continues through the life span. The pattern is complex because it is the product of biological, cognitive, and socioemotional processes.

Biological Processes

Biological processes produce changes in an individual's physical nature. Genes inherited from parents, the development of the brain, height and weight gains, changes in motor skills, nutrition, exercise, the hormonal changes of puberty, and cardiovascular decline are all examples of biological processes that affect development.

Cognitive Processes

Cognitive processes refer to changes in an individual's thinking, intelligence, and language. Watching a colorful mobile swinging above the crib, putting together a two-word sentence, memorizing a poem, imagining what it would be like to be a movie star, and solving a crossword puzzle all involve cognitive processes.

biological processes Changes in an individual's physical nature.

cognitive processes Changes in an individual's thought, intelligence, and language.

Socioemotional Processes

Socioemotional processes involve changes in an individual's relationships with other people, in emotional regulation, and in personality. An infant's

socioemotional processes Changes in an individual's relationships with other people, emotions, and personality.

smile in response to a parent's touch, a toddler's aggressive attack on a playmate, a school-age child's development of assertiveness, an adolescent's joy at the senior prom, and the affection of an elderly couple all reflect the role of socioemotional processes in development.

Connecting Biological, Cognitive, and Socioemotional Processes

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

- *developmental cognitive neuroscience*, which explores links between cognitive processes, development, and the brain (Dumonthiel & Mareschal, 2020)
- *developmental social neuroscience*, which examines connections between socioemotional processes, development, and the brain (Hackman & Kraemer, 2020).

In many instances, biological, cognitive, and socioemotional processes are bidirectional. For example, biological processes can influence cognitive processes and vice versa. For the most part, we will study the different processes of development (biological, cognitive, and socioemotional) in separate chapters, but the human being is an integrated individual with a mind and body that are interdependent. Thus, in many places throughout the book we will call attention to the connections between these processes.

Periods of Development

The interplay of biological, cognitive, and socioemotional processes (see Figure 3) over time gives rise to the developmental periods of the human life span. A developmental period is a time frame in a person's life that is characterized by certain features. The most widely used classification of developmental periods involves an eight-period sequence. For the purposes of organization and understanding, this book is structured according to these developmental periods.

The *prenatal period* is the time from conception to birth. It involves tremendous growth—from a single cell to a complete organism with a brain and behavioral capabilities—and takes place in approximately a nine-month period.

Infancy is the developmental period from birth to 18 or 24 months when humans are extremely dependent on adults. During this period, many psychological activities—language, symbolic thought, sensorimotor coordination, and social learning, for example—are just beginning.

Early childhood is the developmental period from the end of infancy to age 5 or 6. This period is sometimes called the “preschool years.” During this time, young children learn to become more self-sufficient and to care for themselves. They also develop

school readiness skills, such as the ability to follow instructions and identify letters, and they spend many hours playing with peers. First grade typically marks the end of early childhood.

Middle and late childhood is the developmental period from about 6 to 11 years of age, approximately corresponding to the elementary school

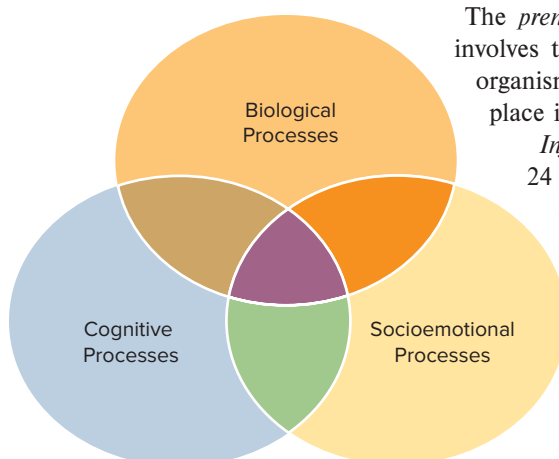


Figure 3 Processes Involved in Developmental Changes.

Biological, cognitive, and socioemotional processes interact as individuals develop.

years. During this period, children master the fundamental skills of reading, writing, and arithmetic. They are formally exposed to the world outside the family and to the prevailing culture. Achievement becomes a more central theme of the child's world, and self-control increases.

Adolescence encompasses the transition from childhood to early adulthood, entered at approximately 10 to 12 years of age and ending at 18 to 22 years of age. Adolescence begins with rapid physical changes—dramatic gains in height and weight, changes in body contour, and the development of sexual characteristics such as enlargement of the breasts, growth of pubic and facial hair, and deepening of the voice. At this point in development, the pursuit of independence and an identity are prominent themes. Thought is more logical, abstract, and idealistic. More time is spent outside the family.

Recently there has been increased interest in the transition between adolescence and adulthood, a transition that has been referred to as *emerging adulthood* (Arnett, 2016a, b). Emerging adulthood occurs approximately from 18 to 25 years of age and is a time of considerable exploration and experimentation, especially in the areas of identity, careers, and lifestyles (Arocho, 2020; Conley & others, 2020).

Early adulthood is the developmental period that begins in the late teens or early twenties and lasts through the thirties. For young adults, this is a time for establishing personal and economic independence, becoming proficient in a career, and for many, selecting a mate, learning to live with that person in an intimate way, starting a family, and rearing children.

Middle adulthood is the developmental period from approximately 40 years of age to about 60. It is a time of expanding personal and social involvement and responsibility; of assisting the next generation in becoming competent, mature individuals; and of achieving and maintaining satisfaction in a career.

Late adulthood is the developmental period that begins in the sixties or seventies and lasts until death. It is a time of life review, retirement from the workforce, and adjustment to new social roles involving decreasing strength and health.

Late adulthood potentially lasts longer than any other period of development. Because the number of people in this age group has been increasing dramatically, life-span developmentalists have been paying more attention to differences within late adulthood (Leipold, 2020). According to Paul Baltes and Jacqui Smith (2003), a major change takes place in older adults' lives as they become the "oldest-old," at about 85 years of age. The "young-old" (classified as 65 through 84 years of age in this analysis) have substantial potential for physical and cognitive fitness, retain much of their cognitive capacity, and can develop strategies to cope with the gains and losses of aging. In contrast, the oldest-old (85 and older) show considerable loss in cognitive skills, experience increased rates of chronic stress, and are more frail (Baltes & Smith, 2003). Nonetheless, considerable variation exists in how much of their capabilities the oldest-old retain (Ribeiro & Araujo, 2019).

Conceptions of Age

In our description of developmental periods, we attached an approximate age range to each period. But we also have noted that there are variations in the capabilities of individuals of the same age, and we have seen how age-related changes can be exaggerated. How important is age when we try to understand an individual?

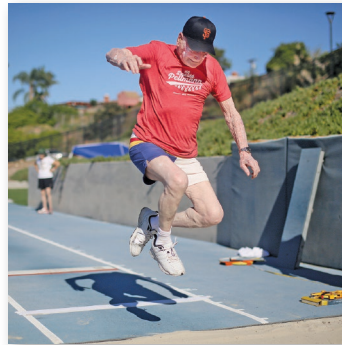
According to some life-span experts, chronological age is not very relevant to understanding a person's psychological development (Hoyer & Roodin, 2009). Chronological age is the number of years that have elapsed since birth. But time is a crude index of experience, and it does not cause development. Chronological age, moreover, is not the only way to measure age (Galkin & others, 2020). Just as there are different domains of development, there are different ways of thinking about age (Fernandez-Ballesteros, 2019).

Four Types of Age

Age has been conceptualized not just as chronological age but also as biological age, psychological age, and social age (Hoyer & Roodin, 2009). *Biological age* is a person's

(Left) Seventy-four year old Barbara Jordan participating in the long jump competition at a Senior Games in Maine; (right) a sedentary, overweight middle-aged man. Even though Pam McSwain's chronological age is older, might her biological age be younger than the middle-aged man's?

(Left): Sandy Huffaker/The New York Times/Redux; (Right): Firehorse/E+/Getty Images



age in terms of biological health. Determining biological age involves knowing the functional capacities of a person's vital organs. One person's vital capacities may be better or worse than those of others of comparable chronological age. The younger the person's biological age, the longer the person is expected to live, regardless of chronological age. A recent study involving 17-year survival rates of 20- to 93-year-old Korean adults found that death rates were higher among individuals whose biological age was greater than their chronological age (Yoo & others, 2017).

Psychological age is an individual's adaptive capacities compared with those of other individuals of the same chronological age. Thus, older adults who continue to learn, remain flexible, are motivated, think clearly, and have positive personality traits are engaging in more adaptive behaviors than their chronological age-mates who do not do these things (Wettstein, Wahl, & Siebert, 2020). And a recent study found that older adults who were more conscientious and emotionally stable were less cognitively vulnerable (Duchek & others, 2020).

Social age refers to connectedness with others and the social roles individuals adopt. Individuals who have better social relationships with others are happier and tend to live longer than individuals who are lonely (Freedman & Nicolle, 2020).

From a life-span perspective, an overall age profile of an individual involves not just chronological age but also biological age, psychological age, and social age. For example, a 70-year-old man (chronological age) might be in good physical health (biological age) but might be experiencing memory problems and having trouble coping

with the demands placed on him by his wife's recent hospitalization (psychological age) and dealing with a lack of social support (social age).



How Would You...?

As a human development and family studies professional, what examples might you use to show that an understanding of the four ages is important in evaluating older adults?

Three Developmental Patterns of Aging

K. Warner Schaie (2016) recently described three developmental patterns that provide a portrait of how aging can involve individual variations:

- *Normal aging* characterizes most individuals, for whom psychological functioning often peaks in early middle age, remains relatively stable until the late fifties to early sixties, and then shows a modest decline through the early eighties. However, marked decline can occur as individuals near death.
- *Pathological aging* characterizes individuals who show greater than average decline as they age through the adult years. In early old age, they may have mild cognitive impairment, develop Alzheimer disease later on, or have a chronic disease that impairs their daily functioning.
- *Successful aging* characterizes individuals whose positive physical, cognitive, and socioemotional development is maintained longer, declining later in old age than is the case for most people.

For too long, only the declines that occur in late adulthood were highlighted, but recently there has been increased interest in the concept of successful aging (Fernandez-Ballesteros & others, 2019; Filip & others, 2020).

Age and Happiness

Is there a best age to be? An increasing number of studies indicate that at least in the United States adults are happier as they age (Stone & others, 2010). Consider also a U.S. study of approximately 28,000 individuals from 18 to 88 that revealed happiness increased with age (Yang, 2008). For example, about 33 percent described themselves as very happy at 88 years of age compared with only about 24 percent in their late teens and early twenties. In a study of individuals from 22 to 93 years of age, older adults reported having more positive emotional experiences than did young adults (English & Carstensen, 2014).

Why might older people report being happier and more satisfied with their lives than younger people? Despite the increase in physical problems and losses older adults experience, they are more contented with their lives, have better relationships with the people who matter to them, are less pressured to achieve, have more time for leisurely pursuits, and have many years of experience that may help them adapt to their circumstances with greater wisdom than younger adults do (Carstensen, 2019).

Not all studies, though, have found an increase in life satisfaction with age (Steptoe, Deaton, & Stone, 2015). Some studies indicate that the lowest levels of life satisfaction are in middle age, especially from 45 to 54 years of age (OECD, 2014). Other studies have found that life satisfaction varies across some countries. For example, research participants in the former Soviet Union and Eastern Europe, as well as those from South American countries, report a decrease in life satisfaction with advancing age (Deaton, 2008). Also, a recent study across 150 countries found that health was a

better predictor of life satisfaction in individuals 58 years and older than in younger age groups (Joshanloo & Joyanovic, 2020).

Now that you have read about age variations in life satisfaction, think about how satisfied you are with your life. To help you answer this question, complete the items in Figure 4, which presents the most widely used measure in research on life satisfaction (Diener, 2020).

Below are five statements that you may agree or disagree with. Using the 1–7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

Response	Statement
_____	In most ways my life is close to my ideal.
_____	The conditions of my life are excellent.
_____	I am satisfied with my life.
_____	So far I have gotten the important things I want in life.
_____	If I could live my life over, I would change almost nothing.
_____	Total score

Scale
 7 Strongly agree
 6 Agree
 5 Slightly agree
 4 Neither agree nor disagree
 3 Slightly disagree
 2 Disagree
 1 Strongly disagree

Scoring
 31–35 Extremely satisfied
 26–30 Satisfied
 21–25 Slightly satisfied
 20 Neutral
 15–19 Slightly dissatisfied
 10–14 Dissatisfied
 5–9 Extremely dissatisfied

Figure 4 How Satisfied Am I with My Life?

Source: E. Diener, R. A. Emmons, R. J. Larson, & S. Griffin. "The Satisfaction with Life Scale." *Journal of Personality Assessment*, 48, 1985, 71–75.

Developmental Issues

Was Ted Kaczynski born a killer, or did the events in his life turn him into one? Kaczynski himself thought that his childhood was the root of his troubles. He said he grew up as a genius in a boy's body and never fit in with other children. Did his early experiences determine his later life? Is your own journey through life marked out ahead of time, or can your experiences change your path? Are the experiences you