

SIXTH EDITION

# ESSENTIALS

## OF LIFE-SPAN DEVELOPMENT

JOHN W. SANTROCK



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# Essentials of Life-Span Development

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SIXTH EDITION



**John W. Santrock**

University of Texas at Dallas

**Mc  
Graw  
Hill**  
Education





## ESSENTIALS OF LIFE-SPAN DEVELOPMENT, SIXTH EDITION

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# Brief Contents

- 1 Introduction 1
- 2 Biological Beginnings 36
- 3 Physical and Cognitive Development in Infancy 76
- 4 Socioemotional Development in Infancy 114
- 5 Physical and Cognitive Development in Early Childhood 140
- 6 Socioemotional Development in Early Childhood 168
- 7 Physical and Cognitive Development in Middle and Late Childhood 197
- 8 Socioemotional Development in Middle and Late Childhood 226
- 9 Physical and Cognitive Development in Adolescence 255
- 10 Socioemotional Development in Adolescence 282
- 11 Physical and Cognitive Development in Early Adulthood 305
- 12 Socioemotional Development in Early Adulthood 325
- 13 Physical and Cognitive Development in Middle Adulthood 345
- 14 Socioemotional Development in Middle Adulthood 363
- 15 Physical and Cognitive Development in Late Adulthood 378
- 16 Socioemotional Development in Late Adulthood 408
- 17 Death, Dying, and Grieving 423



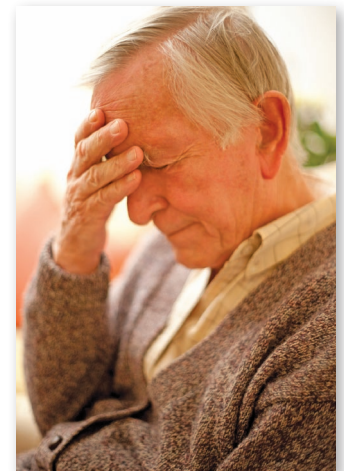
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# Contents

## 1 Introduction 1

*Stories of Life-Span Development: How Did Ted Kaczynski Become Ted Kaczynski and Alice Walker Become Alice Walker?* 1

### The Life-Span Perspective 2

The Importance of Studying Life-Span Development 2

Characteristics of the Life-Span Perspective 3

Contemporary Concerns in Life-Span Development 6

**Gustavo Medrano, Clinical Psychologist** 7

### The Nature of Development 11

Biological, Cognitive, and Socioemotional Processes 11

Periods of Development 12

Conceptions of Age 13

Developmental Issues 15

### Theories of Development 17

Psychoanalytic Theories 17

Cognitive Theories 19

Behavioral and Social Cognitive Theories 23

Ethological Theory 24

Ecological Theory 25

An Eclectic Theoretical Orientation 26

### Research in Life-Span Development 27

Methods for Collecting Data 27

Research Designs 30

Time Span of Research 32

Conducting Ethical Research 34

**Summary** 35

**Key Terms** 35



Behavior Genetics 47

Heredity-Environment Correlations 48

The Epigenetic View and Gene  $\times$  Environment (G  $\times$  E) Interaction 48

Conclusions About Heredity-Environment Interaction 50

### Prenatal Development 51

The Course of Prenatal Development 51

Prenatal Tests 55

Infertility and Reproductive Technology 56

Hazards to Prenatal Development 57

Prenatal Care 64

Normal Prenatal Development 65

### Birth and the Postpartum Period 65

The Birth Process 65

The Transition from Fetus to Newborn 69

Low Birth Weight and Preterm Infants 69

**Linda Pugh, Perinatal Nurse** 70

Bonding 72

The Postpartum Period 73

**Summary** 74

**Key Terms** 75

## 3 Physical and Cognitive Development in Infancy 76

*Stories of Life-Span Development: Newborn Babies in Ghana and Nigeria* 76

### Physical Growth and Development in Infancy 77

Patterns of Growth 77

Height and Weight 78

The Brain 78

Sleep 82

Nutrition 83

**Faize Mustafa-Infante, Pediatric Specialist Focusing on Childhood Obesity** 85

### Motor Development 86

Dynamic Systems Theory 86

Reflexes 87

Gross Motor Skills 88

Fine Motor Skills 90

### Sensory and Perceptual Development 91

Exploring Sensory and Perceptual Development 91

Visual Perception 93

Other Senses 95

Intermodal Perception 96

## 2 Biological Beginnings 36

*Stories of Life-Span Development:*

*The Jim and Jim Twins* 36

### The Evolutionary Perspective 37

Natural Selection and Adaptive Behavior 37

Evolutionary Psychology 38

### Genetic Foundations of Development 40

Genes and Chromosomes 41

Genetic Principles 43

Chromosome and Gene-Linked Abnormalities 44

**Jennifer Leonhard, Genetic Counselor** 47

### The Interaction of Heredity and Environment:

*The Nature-Nurture Debate* 47

Nature, Nurture, and Perceptual Development	97
Perceptual Motor Coupling	98
<b>Cognitive Development</b>	98
Piaget's Theory	98
Learning, Remembering, and Conceptualizing	102
<b>Language Development</b>	105
Defining Language	106
How Language Develops	106
Biological and Environmental Influences	109
An Interactionist View	112
<b>Summary</b>	112
<b>Key Terms</b>	113

## 4 Socioemotional Development in Infancy 114

*Stories of Life-Span Development: Darius and His Father* 114

**Emotional and Personality Development** 115

Emotional Development 115

Temperament 119

Personality Development 123

**Social Orientation and Attachment** 125

Social Orientation and Understanding 125

Attachment 127

**Social Contexts** 131

The Family 131

Child Care 135

**Wanda Mitchell, Child-Care Director** 137

**Summary** 139

**Key Terms** 139

## 5 Physical and Cognitive Development in Early Childhood 140

*Stories of Life-Span Development: Reggio Emilia's Children* 140

**Physical Changes** 141

Body Growth and Change 141

The Brain 142

Motor Development 142

Nutrition and Exercise 143

Illness and Death 146

**Cognitive Changes** 147

Piaget's Preoperational Stage 147

Vygotsky's Theory 150

Information Processing 153

**Helen Hadani, Developmental Psychologist, Toy Designer, and Associate Director of Research for the Center for Childhood Creativity** 157

**Language Development** 159

Understanding Phonology and Morphology 159

Changes in Syntax and Semantics 160

Advances in Pragmatics 161

Young Children's Literacy 162

**Early Childhood Education** 162

Variations in Early Childhood Education 162

Education for Young Children Who Are Disadvantaged 164

**Yolanda Garcia, Director of Children's Services, Head Start** 165

Controversies in Early Childhood Education 165

**Summary** 166

**Key Terms** 167

## 6 Socioemotional Development in Early Childhood 168

*Stories of Life-Span Development: Nurturing*

*Socioemotional Development* 168

**Emotional and Personality Development** 169

The Self 169

Emotional Development 171

Moral Development 172

Gender 174

**Families** 177

Parenting 177

**Darla Botkin, Marriage and Family Therapist** 182

Child Maltreatment 182

Sibling Relationships and Birth Order 184

The Changing Family in a Changing Society 185

**Peer Relations, Play, and Media/Screen Time** 191

Peer Relations 191

Play 192

Media and Screen Time 194

**Summary** 195

**Key Terms** 196

## 7 Physical and Cognitive Development in Middle and Late Childhood 197

*Stories of Life-Span Development: Angie and Her Weight* 197

**Physical Changes and Health** 198

Body Growth and Change 198

The Brain 198

Motor Development 199

Exercise 199

Health, Illness, and Disease 200

**Sharon McLeod, Child Life Specialist** 201

**Children with Disabilities** 201

The Scope of Disabilities 202

Educational Issues 206

**Cognitive Changes** 206



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Piaget's Cognitive Developmental Theory 207  
 Information Processing 208  
 Intelligence 213  
**Language Development** 221  
 Vocabulary, Grammar, and Metalinguistic Awareness 221  
 Reading 222  
 Second-Language Learning and Bilingual Education 223  
**Summary** 225  
**Key Terms** 225

## 8 Socioemotional Development in Middle and Late Childhood 226

**Stories of Life-Span Development: Learning in Troubled Schools** 226  
**Emotional and Personality Development** 227  
 The Self 227  
 Emotional Development 230  
 Moral Development 232  
**Melissa Jackson, Child Psychiatrist** 233  
 Gender 236  
**Families** 239  
 Developmental Changes in Parent-Child Relationships 239  
 Parents as Managers 240  
 Attachment 240  
 Stepfamilies 240  
**Peers** 241  
 Developmental Changes 242  
 Peer Status 242  
 Social Cognition 243  
 Bullying 243  
 Friends 245  
**Schools** 246  
 Contemporary Approaches to Student Learning 246  
 Socioeconomic Status, Ethnicity, and Culture 248  
**Ahou Vaziri, Teach for America Instructor** 249  
**Summary** 254  
**Key Terms** 254

## 9 Physical and Cognitive Development in Adolescence 255

**Stories of Life-Span Development: Annie, Arnie, and Katie** 255  
**The Nature of Adolescence** 256  
**Physical Changes** 257  
 Puberty 257  
 The Brain 260  
 Adolescent Sexuality 262  
**Lynn Blankinship, Family and Consumer Science Educator** 266



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**Adolescent Health** 267  
**Bonnie Halpern-Felsher, University Professor in Pediatrics and Director of Community Efforts to Improve Adolescents' Health** 268  
 Nutrition and Exercise 268  
 Sleep Patterns 269  
 Leading Causes of Death in Adolescence 271  
 Substance Use and Abuse 271  
 Eating Disorders 272  
**Adolescent Cognition** 274  
 Piaget's Theory 274  
 Adolescent Egocentrism 275  
 Information Processing 276  
**Schools** 277  
 The Transition to Middle or Junior High School 278  
 Effective Schools for Young Adolescents 278  
 High School 279  
 Service Learning 280  
**Summary** 280  
**Key Terms** 281

## 10 Socioemotional Development in Adolescence 282

**Stories of Life-Span Development: Jewel Cash, Teen Dynamo** 282  
**Identity** 283  
 What Is Identity? 283  
 Erikson's View 284  
 Developmental Changes 284  
 Ethnic Identity 286  
**Families** 287  
 Parental Management and Monitoring 287  
 Autonomy and Attachment 288  
 Parent-Adolescent Conflict 289  
**Peers** 290  
 Friendships 290  
 Peer Groups 291  
 Dating and Romantic Relationships 292  
**Culture and Adolescent Development** 294  
 Cross-Cultural Comparisons 294  
 Socioeconomic Status and Poverty 296  
 Ethnicity 296  
 Media and Screen Time 298  
**Adolescent Problems** 299  
 Juvenile Delinquency 299  
 Depression and Suicide 300  
**Rodney Hammond, Health Psychologist** 301  
 The Interrelation of Problems and Successful Prevention/Intervention Programs 303



Summary 304  
Key Terms 304

## 11 Physical and Cognitive Development in Early Adulthood 305

*Stories of Life-Span Development: Dave Eggers,*

*Pursuing a Career in the Face of Stress* 305

The Transition from Adolescence  
to Adulthood 306

Becoming an Adult 306

The Transition from High School to College 308

Grace Leaf, College/Career Counselor and  
College Administrator 309

Physical Development 309

Physical Performance and Development 309

Health 310

Sexuality 313

Sexual Activity in Emerging Adulthood 313

Sexual Orientation and Behavior 313

Sexually Transmitted Infections 316

Cognitive Development 317

Cognitive Stages 318

Creativity 319

Careers and Work 320

Careers 320

Work 321

Summary 324

Key Terms 324



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## 12 Socioemotional Development in Early Adulthood 325

*Stories of Life-Span Development: Gwenna's Pursuit  
and Greg's Lack of Commitment* 325

Stability and Change from Childhood  
to Adulthood 326

Love and Close Relationships 328

Intimacy 328

Friendship 329

Romantic and Affectionate Love 329

Consummate Love 331

Cross-Cultural Variations in Romantic Relationships 331

Adult Lifestyles 332

Single Adults 332

Cohabiting Adults 333

Married Adults 334

Divorced Adults 336

Remarried Adults 337

Gay and Lesbian Adults 337

Challenges in Marriage, Parenting,  
and Divorce 338

Making Marriage Work 338

Becoming a Parent 339

Janis Keyser, Parent Educator 340

Dealing with Divorce 341

Gender and Communication Styles,  
Relationships, and Classification 341

Gender and Communication Styles 342

Gender and Relationships 342

Gender Classification 343

Summary 344

Key Terms 344

## 13 Physical and Cognitive Development in Middle Adulthood 345

*Stories of Life-Span Development: Changing*

*Perceptions of Time* 345

The Nature of Middle Adulthood 346

Changing Midlife 346

Defining Middle Adulthood 347

Physical Development 348

Physical Changes 348

Health and Disease 351

Mortality Rates 351

Sexuality 352

Cognitive Development 354

Intelligence 354

Information Processing 357

Careers, Work, and Leisure 357

Work in Midlife 358

Career Challenges and Changes 358

Leisure 359

Religion and Meaning in Life 360

Religion and Adult Lives 360

Religion and Health 360

Gabriel Dy-Liacco, University Professor and Pastoral  
Counselor 361

Meaning in Life 361

Summary 362

Key Terms 362

## 14 Socioemotional Development in Middle Adulthood 363

*Stories of Life-Span Development: Sarah and Wanda,  
Middle-Age Variations* 363

Personality Theories and Development 364

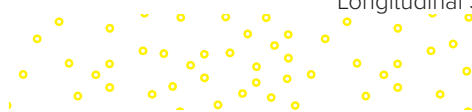
Adult Stage Theories 364

The Life-Events Approach 366

Stress and Personal Control in Midlife 367

Stability and Change 368

Longitudinal Studies 368



Conclusions 371  
**Close Relationships** 371  
Love and Marriage at Midlife 372  
The Empty Nest and Its Refilling 373  
Sibling Relationships and Friendships 374  
Grandparenting 374  
Intergenerational Relationships 376  
**Summary** 377  
**Key Terms** 377

## 15 Physical and Cognitive Development in Late Adulthood 378

*Stories of Life-Span Development: Learning to Age Successfully* 378

**Longevity, Biological Aging, and Physical Development** 379

Longevity 379  
Biological Theories of Aging 381  
The Aging Brain 384  
Physical Development 386  
Sexuality 389

**Health** 390  
Health Problems 390  
Exercise, Nutrition, and Weight 391  
Health Treatment 393

**Sarah Kagan, Geriatric Nurse** 394

**Cognitive Functioning** 394  
Multidimensionality and Multidirectionality 394

Use It or Lose It 398  
Training Cognitive Skills 399  
Cognitive Neuroscience and Aging 400

**Work and Retirement** 401

Work 402  
Adjustment to Retirement 402

**Mental Health** 403  
Dementia and Alzheimer Disease 403  
Parkinson Disease 406

**Summary** 407  
**Key Terms** 407



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## 16 Socioemotional Development in Late Adulthood 408

*Stories of Life-Span Development: Bob Cousy, Adapting to Life as an Older Adult* 408

**Theories of Socioemotional Development** 409

Erikson's Theory 409  
Activity Theory 410  
Socioemotional Selectivity Theory 410  
Selective Optimization with Compensation Theory 412

**Personality and Society** 413

Personality 413  
Older Adults in Society 413  
**Families and Social Relationships** 415  
Lifestyle Diversity 415  
Attachment 417  
Older Adult Parents and Their Adult Children 417  
Friendship 418  
Social Support and Social Integration 418  
Altruism and Volunteerism 419  
**Ethnicity, Gender, and Culture** 419  
Ethnicity 419

**Norma Thomas, Social Work Professor and Administrator** 420

Gender 420  
Culture 420  
**Successful Aging** 421  
**Summary** 422  
**Key Terms** 422

## 17 Death, Dying, and Grieving 423

*Stories of Life-Span Development: Paige Farley-Hackel and Ruth McCourt, 9/11/2001* 423

**Defining Death and Life/Death Issues** 424

Determining Death 424  
Decisions Regarding Life, Death, and Health Care 424  
**Kathy McLaughlin, Home Hospice Nurse** 427

**Death and Sociohistorical, Cultural Contexts** 428

Changing Historical Circumstances 428  
Death in Different Cultures 428

**Facing One's Own Death** 429

Kübler-Ross' Stages of Dying 429  
Perceived Control and Denial 430

**Coping with the Death of Someone Else** 430

Communicating with a Dying Person 430  
Grieving 431

Making Sense of the World 433

Losing a Life Partner 433

Forms of Mourning 434

**Summary** 435

**Key Terms** 435

**Glossary** G-1

**References** R-1

**Name Index** N-1

**Subject Index** S-1

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**Psychology's APA Documentation Style Guide**

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# How Would You?



## Psychology Professions

Sociocultural factors in research, pg. 8  
Risk of birth defects, pg. 57  
Attachment in toddlers, pg. 129  
Type of caregiving and infant development, pg. 138  
Curriculum balance in early childhood education, pg. 166  
Parenting styles and young children, pg. 179  
Piaget's contributions, pg. 208  
Improving children's creative thinking, pg. 211  
Applying Gardner's theory of multiple intelligences, pg. 215  
Child's sense of self, pg. 227  
Gender and developing academic and social skills, pg. 238  
Aggressive children, pg. 243  
Adolescent mood swings, pg. 258  
Applying Marcia's theory of identity formation, pg. 285  
Dating in early adolescence, pg. 294  
Suicide prevention in adolescents, pg. 303  
Markers of adulthood, pg. 307  
Cohabitation before marriage, pg. 334  
Sex in middle adulthood, pg. 354  
Leisure and stress reduction in middle age, pg. 359  
Young adults and their parents living together, pg. 373  
Nursing home quality, pg. 393  
Cognitive skills in older adults, pg. 400  
Adjustment to retirement, pg. 403  
Benefits of a life review in late adulthood, pg. 410  
Divorce in late adulthood, pg. 416  
Euthanasia, pg. 426  
Stages of dying, pg. 429



## Education Professions

Bronfenbrenner's ecological theory, pg. 26  
Domain-specific mechanisms and exceptional students, pg. 38  
Concept development in infants, pg. 105  
Games and scaffolding, pg. 133  
Child-care programs for infants, pg. 137



## Social Work Professions

Application of Vygotsky's theory, pg. 150  
Developmentally appropriate education, pg. 163  
Gender development in early childhood, pg. 177  
Home maltreatment and school performance, pg. 184  
Learning through play, pg. 193  
Physical activity in elementary school, pg. 200  
Learning disabilities in elementary school, pg. 202  
Improving children's megacognitive skills, pg. 212  
Programs for gifted children, pg. 220  
Self-concept and academic ability, pg. 229  
Self-efficacy, pg. 230  
Reducing bullying in school, pg. 245  
Applying the jigsaw strategy, pg. 250  
Mindset, pg. 253  
Sex education for adolescents, pg. 267  
Sleep needs vs. early classes in high school, pg. 271  
Adolescent decision-making exercises, pg. 277  
Transition to middle school, pg. 278  
Service learning, pg. 280  
High school graduation, pg. 295  
Transition to college, pg. 308  
Intellectual development in early adulthood, pg. 318  
Cultivating creativity, pg. 319  
Work during college, pg. 322  
Intelligence changes in middle adulthood, pg. 355  
Generativity in middle age, pg. 364  
Changes in learning as people age, pg. 383  
Older adult students in the classroom, pg. 388  
Volunteerism in late adulthood, pg. 419



Infant temperament, pg. 122  
 Obesity risk factors, pg. 201  
 Coping with a traumatic event, pg. 232  
 Peer relationships, pg. 242  
 Conflict in families with adolescents, pg. 289  
 Juvenile delinquency, pg. 300  
 Transition to adulthood, pg. 306  
 Alcohol use on college campuses, pg. 312  
 Healthy lifestyles for middle-aged adults, pg. 350  
 Careers in middle adulthood, pg. 359  
 Divorce in middle age, pg. 372  
 Importance of a living will, pg. 425  
 Bereavement, pg. 432  
 Grief support groups, pg. 434



### Health Care Professions

Cross-cultural research in health and wellness, pg. 8  
 Natural selection and medicine, pg. 38  
 Genetic abnormalities, pg. 46  
 Stress during pregnancy, pg. 63  
 Delivery options for pregnant women, pg. 68  
 Care for preterm infants, pg. 72  
 SIDS prevention, pg. 83  
 Attachment/caregiving style and at-risk infants, pg. 131  
 Nutrition for young children, pg. 144  
 Sports leagues for preschool children, pg. 145  
 Second-hand smoke and young children, pg. 146  
 Health services for Head Start program, pg. 164  
 Moral reasoning in young children, pg. 173  
 Maltreatment prevention with parents, pg. 183  
 Attention deficit hyperactivity disorder, pg. 203  
 Health risks to bullying victims, pg. 244  
 Effects of poor nutrition on achievement tests, pg. 248  
 Development norms in puberty, pg. 260  
 Physical fitness in adolescence, pg. 269  
 Signs of eating disorders, pg. 273  
 Culturally sensitive guidelines for adolescent health coverage, pg. 294  
 Exercise in young adulthood, pg. 312  
 Prevention of sexually transmitted infections, pg. 317  
 Romance and sexual functioning, pg. 330  
 Stress reduction for middle-aged workers, pg. 368  
 Long-term effects of alcohol abuse and smoking in middle age, pg. 371

Challenges in middle age of caring for a chronically ill parent, pg. 376  
 Vision changes in late adulthood, pg. 387  
 Chronic diseases in late adulthood, pg. 390  
 Quality of medical care for older adults, pg. 393  
 Memory declines in late adulthood, pg. 405  
 Limited social contact in older adults, pg. 411  
 Treatment of chronic illness in older adults, pg. 414  
 Explaining brain death, pg. 424



### Human Development and Family Studies Professions

Epigenetic view and alcoholism, pg. 49  
 Risks during prenatal development, pg. 53  
 Postpartum adjustment, pg. 74  
 Gross motor milestones, pg. 90  
 Attention in infants, pg. 103  
 Language development, pg. 112  
 Stranger anxiety, pg. 117  
 Autonomy in toddlers, pg. 125  
 Concept of conservation and young children, pg. 148  
 Children's ideas about gender roles, pg. 176  
 Parenting styles, pg. 179  
 Children's TV viewing, pg. 195  
 Treatment for ADHD, pg. 204  
 Advantages of bilingualism, pg. 224  
 Children's adjustment to parent's remarriage after divorce, pg. 241  
 Body image in adolescent girls, pg. 259  
 Parental prevention of teen substance abuse, pg. 272  
 Bicultural identity formation in teens, pg. 287  
 Sexuality in young adulthood, pg. 314  
 Attachment and relationship style in adulthood, pg. 327  
 Making marriage work, pg. 339  
 Deciding when to have children, pg. 341  
 Media and the physical changes of middle age, pg. 348  
 Hormone replacement therapy, pg. 352  
 Leaving a legacy for the next generation, pg. 365  
 Benefits of having grandparents in children's lives, pg. 375  
 Ageism, pg. 414  
 Friendship in late adulthood, pg. 418  
 Hospice, pg. 427  
 Perceived control over end of life, pg. 430

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# About the Author

## John W. Santrock

**John Santrock** received his Ph.D. from the University of Minnesota in 1973. He taught at the University of Charleston and the University of Georgia before joining the Program in Psychology and Human Development at the University of Texas at Dallas, where he currently teaches a number of undergraduate courses and has 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.

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

John also has authored these exceptional McGraw-Hill texts: *Children* (14th edition), *Adolescence* (17th edition), *Life-Span Development* (17th edition), *A Topical Approach to Life-Span Development* (9th edition), and *Educational Psychology* (6th edition).

For many years, John was involved in tennis as a player, teaching professional, and coach of professional tennis players. At the University of Miami (FL), the tennis team on which he played still holds the NCAA Division I record for most consecutive wins (137) in any sport. His wife, Mary Jo, has a master's degree in special education and has worked as a teacher and a Realtor. He has two daughters—Tracy, who 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. Tracy has run the Boston and New York marathons. Jennifer is a former professional tennis player and NCAA tennis player of the year. John has one granddaughter, Jordan, age 26, who works at Ernst & Young accounting firm, and two grandsons, Alex, age 13, and Luke, age 12. In the last two decades, John also has spent time painting 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.*

# Connecting *research* and *results*

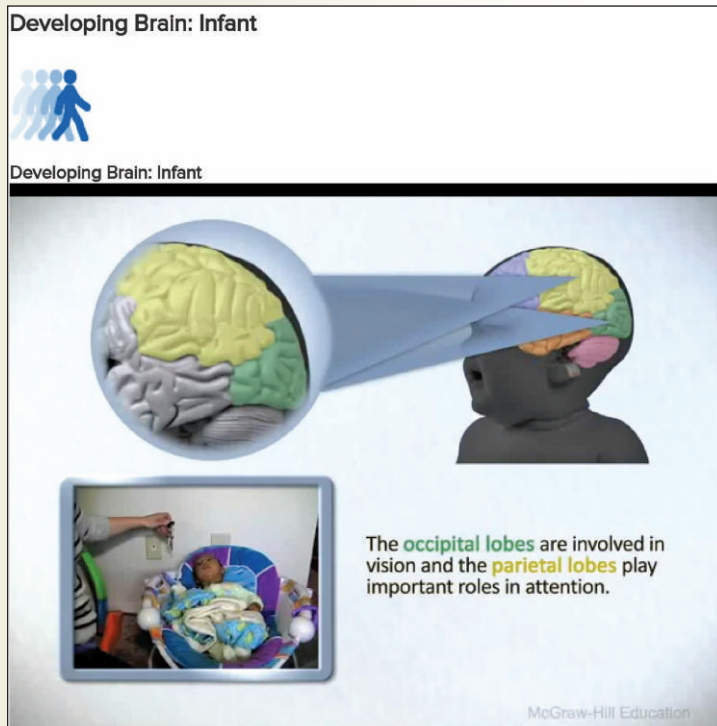
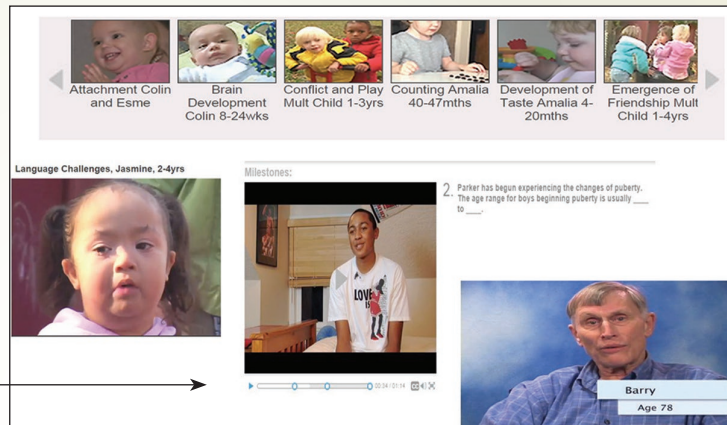
As a master teacher, John Santrock connects current research and real-world applications. Through an integrated, personalized digital learning program, students gain the insight they need to study smarter and improve performance.

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



## 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 for Life-Span Development, Milestones also includes interviews with adolescents and adults to reflect development throughout the entire life span.



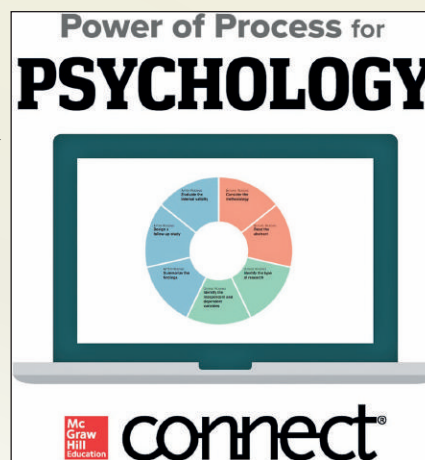
## Inform and Engage on Psychological Concepts

At the lower end of Bloom's taxonomy, students are introduced to Concept Clips—the dynamic, colorful graphics and stimulating animations that break down some of psychology's most difficult concepts in a step-by-step manner, engaging students and aiding in retention. They are assignable and assessable in Connect or can be used as a jumping-off point in class. Accompanied by audio narration, Concept Clips cover topics such as object permanence and conservation, as well as theories and theorists like Bandura's social cognitive theory, Vygotsky's sociocultural theory, Buss's evolutionary theory, and Kuhl's language development theory.



## 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

Students helped inform the revision strategy of *Essentials of Life-Span Development*. McGraw-Hill Education's SmartBook® is the first and only adaptive reading and learning experience! SmartBook helps students distinguish the concepts they know from the concepts they don't, while pinpointing the concepts they are about to forget. SmartBook continuously adapts to create a truly personalized learning path. 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.

Content revisions are informed by data collected anonymously through McGraw-Hill Education's SmartBook.

**STEP 1.** Over the course of three years, data points showing concepts that caused students the most difficulty were anonymously collected from Connect for Life-Span Development's SmartBook.

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

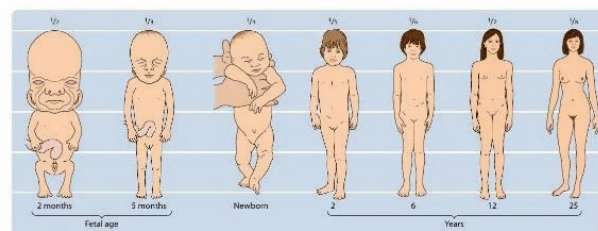
**STEP 3.** The author used the *Heat Map* data to refine the content and reinforce student comprehension in the new edition. Additional quiz questions and assignable activities were created for use in Connect to further support student success.

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

New to this edition, SmartBook is now optimized for mobile and tablet and is accessible for students with disabilities.

Content-wise, it has been enhanced with improved learning objectives that are measurable and observable to 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.

McGraw Hill Education SMARTBOOK™



**FIGURE 3.1**  
**CHANGES IN PROPORTIONS OF THE HUMAN BODY DURING GROWTH.** As individuals develop from infancy through adulthood, one of the most noticeable physical changes is that the head becomes smaller in relation to the rest of the body. The fractions listed refer to head size as a proportion of total body length at different ages.

- Infancy** The average North American newborn is 20 inches long and weighs 7½ pounds. Ninety-five percent of full-term newborns are 18 to 22 inches long and weigh between 5½ and 10 pounds.
  - In the first several days of life, most newborns lose 5 to 7 percent of their body weight. Once infants adjust to sucking, swallowing, and digesting, they grow rapidly, gaining an average of 5 to 6 ounces per week during the first month. Typically they have doubled their birth weight by the age of 4 months and have nearly tripled it by their first birthday. Infants grow about ½ inch per month during the first year, increasing their birth length by about 40 percent by their first birthday.
  - Infants' rate of growth slows considerably in the second year of life (Barnes & others, 2013). By 2 years of age, infants weigh approximately 26 to 32 pounds, having gained a quarter to half a pound per month during the second year; at age 2 they have reached about one-fifth of their adult weight. The average 2-year-old is 32 to 35 inches tall, which is nearly one-half of adult height.
- Early Childhood** As the preschool child grows older, the percentage of increase in height and weight decreases with each additional year (Lerner, 2011). Girls are only slightly smaller and lighter than boys during these years. Both boys and girls slim down as the trunks of their bodies lengthen. Although their heads are still somewhat large for their bodies, by the end of the preschool years most children have lost their top-heavy look. Body fat also shows a slow, steady decline during the preschool years. Girls have more fatty tissue than boys; boys have more muscle tissue (McMahon & Strydom, 2012).
  - Growth patterns vary individually (Wilson & Hockenberry, 2012). Think back to your preschool years. This was probably the first time you noticed that some children were taller than you, some shorter; some were fatter, some thinner; some were stronger, some weaker.
  - Much of the variation is due to heredity, but environmental experiences are also involved. A review of the height and weight of children around the world concludes that two important contributors to height differences are ethnic origin and nutrition (Meredith, 1978).
  - Why are some children unusually short? Short stature can, in some cases, be a genetic problem, a prenatal problem, growth hormone deficiency, a physical problem that develops in childhood, maternal smoking during pregnancy, or an emotional difficulty (Wit, Kless, & Mullis, 2011).
- Middle and Late Childhood** The period of middle and late childhood involves slow, consistent growth. This is a period of calm before the rapid growth spurt of adolescence.

SECTION 2 Biological Processes, Physical Development, and Health

93

## Powerful Reporting



connect<sup>INSIGHT</sup>

Whether a class is face-to-face, hybrid, or entirely online, Connect for Life-Span Development provides tools and analytics to reduce the amount of time instructors need to administer their courses. Easy-to-use course management tools allow instructors to spend less time administering and more time teaching, while easy-to-use reporting features allow students to monitor their progress and optimize their study time.

- The At-Risk Student Report provides instructors with one-click access to a dashboard that identifies students who are at risk of dropping out of the course due to low engagement levels.
- The Category Analysis Report details student performance relative to specific learning objectives and goals, including APA outcomes and levels of Bloom's taxonomy.
- Connect Insight is a one-of-a-kind visual analytics dashboard—now available for both instructors and students—that provides at-a-glance information regarding student performance.
- The LearnSmart Reports allow instructors and students to easily monitor progress and pinpoint areas of weakness, giving each student a personalized study plan to achieve success.



## Online Instructor Resources

The resources listed here accompany *Essentials of Life-Span Development*, Sixth 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 Computerized Test Bank** This comprehensive Test Bank includes more than 1,500 multiple-choice and approximately 75 essay questions. Organized by chapter, the questions are designed to test factual, applied, and conceptual understanding. All test questions are available within TestGen™ software.

**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.

# 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 sixth 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 for Life-Span Development**, which incorporates this text, and the captivating **Milestones** video modules. Together, these resources give students and instructors the essential coverage, applications, and course tools they need to tailor the life-span course to meet their specific needs.

## The Essential Teaching and Learning Environment

Research shows that students today learn in multiple modalities. Not only do their work preferences tend to be more visual and more interactive, but 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* was determining what comprises the core content of the course. With the help of consultants and instructors who have responded to surveys and reviewed the content at different stages of development, I am able to present all of the core

topics, key ideas, and most important research in life-span development that students need to know in a brief format that stands on its own merits.

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

## Essential Applications

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

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

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

## Essential Resources

The following resources accompany *Essentials of Life-Span Development*, 6th 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 xiv).

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



# Content Revisions

As an indication of the up-to-date nature of this new edition, the text has more than 1,500 citations from 2017, 2018, and 2019. Also, a special effort was made to increase the coverage of the following topics in this new edition: diversity and culture; genetics and epigenetics; neuroscience and the brain; identity issues, especially gender and transgender; health; technology; and successful aging. Following are many of the chapter-by-chapter changes that were made in this new edition of *Essentials of Life-Span Development*.

## Chapter 1: Introduction

- Update on life expectancy in the United States (U.S. Census Bureau, 2017)
- 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, 2015)
- New career profile on Gustavo Medrano, clinical psychologist, who works at the Family Institute at Northwestern University
- 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 (Jiang, Granja, & Koball, 2017)
- In the discussion of gender, new content on transgender (Budge & Orovecz, 2018; Budge & others, 2018; Savin-Williams, 2017)
- In the section on contemporary topics, a new topic—technology—was added and discussed, including an emphasis on how pervasive it has become in people's lives and how it might influence their development
- In the coverage of cross-cultural studies, a recent study of 26 countries indicating that individuals in Chile had the highest life satisfaction, those in Bulgaria and Spain the lowest (Jang & others, 2017)
- New description of the positive outcomes when individuals have pride in their ethnic group, including recent research (Douglass & Umana-Taylor, 2017; Umana-Taylor & others, 2018)
- New description of emerging adulthood and the dramatic increase in studies on this transitional period between adolescence and adulthood (Arnett, 2016a,b)
- Inclusion of a study involving 17-year survival rates of 20- to 93-year-old Korean adults found that when biological age became greater than chronological age, individuals were less likely to have died (Yoo & others, 2017)
- New content involving how the information processing approach often uses a computer analogy to help explain the connection between cognition and the brain, and how humans process information
- New discussion of artificial intelligence and the new emerging field of developmental robotics that examines various developmental topics and issues using robots, including a new photograph of a “human-like” baby robot (Morse & Cangelosi, 2017)

- Updated and expanded coverage of research methods, including the increased use of eye-tracking to assess infants' perception (van Renswoude & others, 2018), attention (Meng, Uto, & Hashiva, 2017), face processing (Chhaya & others, 2018), autism (Falck-Ytter & others, 2018), and preterm birth effects on language development (Loi & others, 2017)

## Chapter 2: Biological Beginnings

- Editing and updating of chapter based on comments by leading expert on prenatal development and birth, Janet DiPietro
- Updated and expanded discussion of genome-wide association studies, including research on autism (Ramswami & Geschwind, 2018), attention deficit hyperactivity disorder (Sanchez-Reige & others, 2018), cancer (Sucheston-Campbell & others, 2018), obesity (Amare & others, 2017), and Alzheimer disease (Liu & others, 2018)
- Updated and expanded research on how exercise, nutrition, and respiration can modify the expression of genes (Kader & others, 2018; Poulsen & others, 2018)
- New coverage of the process of methylation, in which tiny atoms attach themselves to the outside of a gene. Researchers have found that exercise, diet, and tobacco use can change whether a gene is expressed or not through the methylation process (Castellano-Castillo & others, 2018; Martin & Fry, 2018).
- Inclusion of recent research indicating that methylation may be involved in depression (Crawford & others, 2018), breast cancer (Maier & others, 2018), and attention deficit hyperactivity disorder (Kim & others, 2018)
- Updated and expanded research on gene-gene interaction to include alcoholism (Chen & others, 2017), obesity (Bordoni & others, 2017), type 2 diabetes (Saxena, Srivastaya, & Banergee, 2018), cardiovascular disease (De & others, 2017), and Alzheimer disease (Yin & others, 2018)
- Inclusion of recent research in which a higher level maternal responsivity to children with fragile X syndrome's adaptive behavior improved the children's communication skills (Warren & others, 2017)
- 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)

- Updated description of how research now supports the use of hydroxyurea therapy for infants with sickle cell anemia beginning at 9 months of age (Nevitt, Jones, & Howard, 2017)
- New career profile on Jennifer Leonhard, genetic counselor
- New content on fertility drugs being more likely to produce multiple births than in vitro fertilization (March of Dimes, 2017)
- New coverage of a recent national study in which low birthweight and preterm birth were significantly higher in assisted-reproduction technology conceived infants (Sunderam & others, 2017)
- Updated data on the average length and weight of the fetus at different points in prenatal development, including revisions involving these data in Figure 8
- New commentary about neurogenesis being largely complete by about the end of the fifth month of prenatal development (Keunen, Counsell, & Benders, 2017)
- Discussion of a recent meta-analysis of 15 studies that concluded smoking during pregnancy increases the risk of children having ADHD and that the risk is greater if their mother is a heavy smoker (Huang & others, 2018)
- New content about a recent large-scale U.S. study in which 11.5 percent of adolescent and 8.7 percent of adult pregnant women reported using alcohol in the previous month (Oh & others, 2017)
- Description of recent research in which daughters whose mothers smoked during their pregnancy were more likely to subsequently smoke during their own pregnancy (Ncube & Mueller, 2017)
- Coverage of a recent study that found despite the plethora of negative outcomes for maternal smoking during pregnancy, 23 percent of pregnant adolescents and 15 percent of adult pregnant women reported using tobacco in the previous month (Oh & others, 2017)
- Inclusion of recent research in which cocaine use during pregnancy was associated with impaired connectivity of the thalamus and prefrontal cortex in newborns (Salzwedel & others, 2017)
- Discussion of recent research indicating that cocaine use by pregnant women is linked to self-regulation problems at age 12 (Minnes & others, 2016)
- New research indicating that pregnant women have increased their use of marijuana in recent years (Brown & others, 2016)
- Coverage of the recent concern that marijuana use by pregnant women may further increase given the increasing number of states that are legalizing marijuana (Chasnoff, 2017)
- 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 (Haycraft, 2018; National Institute of Drug Abuse, 2018)
- New description of recent research indicating that prenatal mercury exposure in fish is linked to reduced placental and fetal growth, as well as impaired neuropsychological development (Jeong & others, 2017; Llop & others, 2017; Murcia & others, 2016)
- Revised content on fish consumption by pregnant women, who are now being advised to increase their fish consumption, especially eating more low-mercury-content fish such as salmon, shrimp, tilapia, and cod (American Pregnancy Association, 2018)
- Inclusion of recent research that revealed maternal prenatal stress and anxiety were linked to lower levels of infants’ self-regulation (Korja & others, 2017)
- Discussion of a recent study that found when fetuses were exposed to serotonin-based antidepressants, they were more likely to be born preterm (Podrebarac & others, 2017)
- Description of a recent research review that concluded tobacco smoking is linked to impaired male fertility and increases in DNA damage, aneuploidy (abnormal number of chromosomes in a cell), and mutations in sperm (Beal, Yauk, & Marchetti, 2017)
- Discussion of a recent research review in which participation in CenteringPregnancy increased initiation of breast feeding by 53 percent overall and by 71 percent in African American women (Robinson, Garnier-Villarreal, & Hanson, 2018)
- Discussion of a recent study that revealed regular exercise by pregnant women was linked to more advanced development in the neonatal brain (Laborte-Lemoyne, Currier, & Ellenberg, 2017)
- Inclusion of recent research in which two weekly 70-minute yoga sessions reduced pregnant women’s stress and enhanced their immune system functioning (Chen & others, 2017)
- New main heading, “Normal Prenatal Development,” that includes a description of how most of the time prenatal development occurs in a normal manner
- Coverage of a recent Swedish study that found women who gave birth in water had fewer vaginal tears, shorter labor, needed fewer drugs for pain relief and interventions by medical personnel, and rated their birth experience more positive than women who had conventional spontaneous vaginal births (Ulfssdottir, Saltvedt, & Gerogesson, 2018)
- Inclusion of recent studies in which massage reduced women’s pain during labor (Gallo & others, 2018; Shahoei & others, 2018; Unalmis Erdogan, Yanikkerem, & Goker, 2018)
- Update on the percentage of U.S. births that take place in hospitals, at home, and in birthing centers and the percentage of babies born through cesarean delivery (Martin & others, 2017)
- Update on the percentage of births in the United States in which a midwife is involved (Martin & others, 2017)

- New description of global cesarean delivery rates with the Dominican Republic and Brazil having the highest rates (56 percent) and New Zealand and the Czech Republic the lowest (26 percent) (McCullough, 2016). The World Health Organization recommends a cesarean rate of 10 percent or less.
- Revised and updated content on cesarean delivery to include the two most common reasons of why it is carried out: failure to progress through labor and fetal distress
- 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 births in the United States that are preterm, low birth weight, and cesarean section (Martin & others, 2017)
- 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)
- Inclusion of recent research that revealed kangaroo care was effective in reducing neonatal pain (Mooney-Leber & Brummelte, 2017)
- Discussion of a longitudinal study in which the nurturing positive effects of kangaroo care with preterm and low birth weight infants at one year of age were still present 20 years later in a number of positive developmental outcomes (Charpak & others, 2018)
- Coverage of a recent study that revealed worsening or minimal improvement in sleep problems from 6 weeks to 7 months postpartum were associated with increased depressive symptoms (Lewis & others, 2018)
- Description of recent research that found women who had a history of depression were 20 times more likely to develop postpartum depression than women who had no history of depression (Silverman & others, 2017)
- Inclusion of recent research in which mothers' postpartum depression, but not generalized anxiety, was linked to their children's emotional negativity and behavior problems at two years of age (Prenoveau & others, 2017)
- Coverage of a recent meta-analysis that concluded that physical exercise during the postpartum period is a safe strategy for reducing postpartum depressive symptoms (Poyatos-Leon & others, 2017)
- Discussion of a recent study that found depressive symptoms in mothers and fathers were linked to impaired bonding with their infant in the postpartum period (Kerstis & others, 2016)
- Description of a recent study in which sleep sessions lasted approximately 3.5 hours during the first few months and increased to about 10.5 hours from 3 to 7 months (Mindell & others, 2016)
- New commentary about how many mothers today are providing their babies with "tummy time" to prevent a decline in prone skills that can occur because of the "back to sleep movement" to prevent SIDS
- Discussion of a recent research review that revealed a positive link between infant sleeping and cognitive functioning, including memory, language, and executive function (Tham, Schneider, & Broekman, 2017)
- Updated data on the continuing increase in breast feeding by U.S. mothers (Centers for Disease Control and Prevention, 2016)
- Updated support for the role of breastfeeding in reducing a number of disease risks for children and their mothers (Bartick & others, 2017)
- Inclusion of a recent research review indicating that breastfeeding is not associated with a reduced risk of allergies in young children (Heinrich, 2017)
- Description of recent research indicating a reduction in hospitalization for breastfed infants and breastfeeding mothers for a number of conditions (Bartick & others, 2018)
- Discussion of a recent study that found a small increase in intelligence for children who had been breastfed (Bernard & others, 2017)
- Description of recent research in which introduction of vegetables between 4 to 5 months of age was linked with a lower level of infant fussy eating at 4 years of age than when they were introduced after 6 months (de Barse & others, 2017)
- New career profile on Dr. Faize Mustafa-Infante, pediatrician, who especially is passionate about preventing obesity in children
- Discussion of a recent study that examined a number of predictors of motor milestones in the first year (Flensburg-Madsen & Mortensen, 2017)
- Revision of the nature/nurture section in the content on perceptual development to better reflect the Gibsons' view
- Expanded and updated criticism of the innate view of the emergence of infant morality with an emphasis on the importance of infants' early interaction with others and later transformation through language and reflective thought (Carpendale & Hammond, 2016)
- Coverage of a recent study in which hand-eye coordination involving connection of gaze with manual action on objects rather than gaze following alone predicted joint attention (Yu & Smith, 2017)
- New description of Andrew Meltzoff's (2017) view that infants' imitation informs us about their processing of social events and contributes to rapid social learning
- Inclusion of some revisions and updates based on feedback from leading experts Roberta Golinkoff and Virginia Marchman
- Revised definition of infinite generativity to include comprehension as well as production

## Chapter 3: Physical and Cognitive Development in Infancy

- Revisions based on feedback from leading children's nutrition expert, Maureen Black, and leading children's motor development expert, Karen Adolph
- New discussion of how infant growth is often not smooth and continuous but rather is episodic, occurring in spurts (Adolph, 2018; Lampl & Schoen, 2017)

- New opening commentary about the nature of language learning and how it involves comprehending a sound system (or sign system for individuals who are deaf), the world of objects, actions, and events, and how units such as words and grammar connect sound and world (Israel, 2019; Mithun, 2019)
- Revised definition of infinite generativity to include comprehension as well as production
- Expanded description of how statistical regularity of information is involved in infant word learning (Pace & others, 2016)
- Expanded discussion of statistical learning, including how infants soak up statistical regularities around them merely through exposure to them (Aslin, 2017)
- New research on babbling onset predicting when infants would say their first words (McGillion & others, 2017a)
- New commentary on why gestures such as pointing promote further advances in language development
- New content on the vocabulary spurt and how it involves the increase in the pace at which words are learned
- Expanded descriptions of the functions that child-directed speech serves, including providing infants with information about their native language and heightening differences with speech directed to adults (Golinkoff & others, 2015)
- Coverage of recent research in which child-directed speech in a one-to-one social context for 11- to 14-month-olds was related to productive vocabulary at 2 years of age for Spanish-English bilingual infants for both languages and each language independently (Ramirez-Esparza, Garcia-Sierra, & Kuhl, 2017)
- Inclusion of a recent study that revealed both full-term and preterm infants who heard more caregiver talk based on all-day recordings at 16 months of age had better language skills at 18 months of age (Adams & others, 2018)
- New discussion of recent research in several North American urban areas and the small island of Tanna in the South Pacific Ocean that found that fathers in both types of contexts engaged in child-directed speech with their infants (Broesch & Bryant, 2017)
- New emphasis on the importance of social cues in infant language learning (Ahun & others, 2018; McGillion & others, 2017b; Pace & others, 2016)
- Revised definitions of recasting, expanding, and labeling
- New content on the American Association of Pediatrics (2016) recent position statement on co-viewing of videos indicating that infants can benefit when parents watch videos with them and communicate with them about the videos
- Expanded coverage of how parents can facilitate infants' and toddlers' language development
- Expanded and updated coverage of the brain's role in infant emotional development (Bell & others, 2018; Johnson, 2018; Tottenham, 2017)
- New introductory comments about the important role that cognitive processes, in addition to biological and experiential influences, play in children's emotional development, both in the moment and across childhood (Bell, Diaz, & Liu, 2018)
- Discussion of a recent study in which maternal sensitivity was linked to lower levels of infant fear (Gartstein, Hancock, & Iverson, 2017)
- Description of a recent study that revealed excessive crying in 3-month-olds doubled the risk of behavioral, hyperactive, and mood problems at 5 to 6 years of age (Smarius & others, 2017)
- Inclusion of a recent study in which maternal sensitivity was linked to better emotional self-regulation in 10-month-old infants (Frick & others, 2018)
- Coverage of a recent study that found depressed mothers rocked and touched their crying infants less than non-depressed mothers did (Esposito & others, 2017a)
- New description of a study in which young infants with a negative temperament used fewer attention regulation strategies while maternal sensitivity to infants was linked to more adaptive emotion regulation (Thomas & others, 2017)
- Description of a recent study that revealed if parents had a childhood history of behavioral inhibition, their children who also had a high level of behavioral inhibition were at risk for developing anxiety disorders (Stumper & others, 2017)
- New research that found positive affectivity, surgency, and self-regulation capacity assessed at 4 months of age was linked to school readiness at 4 years of age (Gartstein, Putnam, & Kliewer, 2016)
- Discussion of recent studies indicating a lower level of effortful control and self-regulation capacity in early childhood were linked to a higher level of ADHD symptoms later in childhood (Willoughby, Gottfredson, & Stifter, 2017) and adolescence (Einziger & others, 2017)
- Expanded and updated content on the increasing belief that babies are socially smarter than used to be thought, including information about Amanda Woodward and her colleagues' (Krough-Jespersen & Woodward, 2016; Liberman, Woodward, & Kinzler, 2017) research on how quickly infants understand and respond to others' meaningful intentions
- Discussion of a recent study in which maternal sensitivity and a better home environment in infancy predicted high self-regulation at 4 years of age (Birmingham, Bub, & Vaughn, 2017)
- Inclusion of recent research in Zambia, where siblings were substantially involved in caregiving activities, that revealed infants showed strong attachments to both their mothers and their sibling caregivers with secure attachment being the most frequent attachment classification for both mother-infant and sibling-infant relationships (Mooja, Sichimba, & Bakersman-Kranenburg, 2017)

## Chapter 4: Socioemotional Development in Infancy

- Edits made to chapter based on feedback from leading expert Joan Grusec



- Description of a recent study that did not find support for the view that genes influence mother-infant attachment (Leerkes & others, 2017)
- Description of recent research that revealed providing parents who engage in inadequate or problematic caregiving with practice and feedback focused on interacting sensitively enhances parent-infant attachment security (Coyne & others, 2018; Dozier & Bernard, 2017, 2018; Woodhouse, 2018; Woodhouse & others, 2017)
- Discussion of a recent study that found when adults used scaffolding, infants were twice as likely to engage in helping behavior (Dahl & others, 2017)
- Coverage of a recent study of disadvantaged families in which an intervention involving improving early maternal scaffolding was linked to improvement in cognitive skills at 4 years of age (Obradovic & others, 2017)
- New content about mothers playing 3 times more often with children than fathers do (Cabrera & Rossman, 2017)
- Inclusion of recent research with low-income families indicating that fathers' playfulness at 2 years of age was associated with more advanced vocabulary skills at 4 years of age while mothers' playfulness at 2 years of age was linked to a higher level of emotion regulation at 4 years of age (Cabrera & others, 2017)
- Discussion of a recent study that found negative outcomes on cognitive development in infancy when fathers were more withdrawn and depressed and positive outcomes on cognitive development when they were more engaged and sensitive, as well as less controlling (Sethna & others, 2018)

## Chapter 5: Physical and Cognitive Development in Early Childhood

- Discussion of a recent study of 4-year-old girls that found a nine-week motor skill intervention improved the girls' ball skills (Veldman & others, 2017)
- Description of recent research indicating that higher motor skill proficiency in preschool was linked to engaging in a higher level of physical activity in adolescence (Venetsanou & Kambas, 2017)
- Inclusion of recent research that found children with a low level of motor competence had a lower motivation for sports participation and lower global self-worth than their counterparts who had a high level of motor competence (Bardid & others, 2018)
- Discussion of a recent study that revealed 2 ½-year-old children's liking for fruits and vegetables was related to their eating more fruits and vegetables at 7 years of age (Fletcher & others, 2018)
- Updated data on the percentage of U.S. 2- to 5-year-old children who are obese, which has recently decreased (Centers for Disease Control and Prevention, 2017)
- New description of the recently devised 5-2-1-0 obesity prevention guidelines for young children: 5 or more servings of fruits and vegetables, no more than 2 hours of screen time, minimum of 1 hour of physical activity, and 0 sugar-sweetened beverages daily (Khalsa & others, 2017)
- New discussion of a longitudinal study that revealed when young children were exposed to environmental tobacco smoke, they were more likely to engage in anti-social behavior at 12 years of age (Pagani & others, 2017)
- Updates and revisions based on feedback from leading expert Megan McClelland
- Updating of recent research on young children's executive function (Blair, 2017; Muller & others, 2017), including a recent study in which young children who showed delayed executive function development had a lower level of school readiness (Willoughby & others, 2017)
- Inclusion of recent research showing the effectiveness of the Tools of the Mind approach in improving a number of cognitive processes and academic skills in young children (Blair & Raver, 2014)
- New research indicating that parental engagement in mind-mindedness advanced preschool children's theory of mind (Hughes, Devine, & Wang, 2017)
- Updated and expanded theory of mind content involving various aspects of social interaction, including secure attachment and mental state talk, parental engagement, peer relations, and living in a higher socioeconomic status family (Hughes, Devine, & Wang, 2018)
- Inclusion of a recent study of 3- to 5-year-old children that revealed earlier development of executive function predicted theory of mind performance, especially for false-belief tasks (Doenya, Yavuz, & Selcuk, 2017)
- Coverage of a recent study in which theory of mind predicted the severity of autism in children (Hoogenhout & Malcolm-Smith, 2017)
- Revisions to the discussion of young children's language development based on feedback from leading experts Roberta Golinkoff and Virginia Marchman
- Coverage of a recent multigenerational study that found when both Head Start children and their mothers had participated in Head Start, positive cognitive and socioemotional outcomes occurred for the children (Chor, 2018)
- Update on the increase in publicly funded preschool programs that now occurs in 42 states plus the District of Columbia (National Institute for Early Education Research, 2016)
- Description of two recent studies that confirmed the importance of improved parenting engagement and skills in the success of Head Start programs (Ansari & Gershoff, 2016; Roggman & others, 2016)

## Chapter 6: Socioemotional Development in Early Childhood

- New emphasis on the importance of how extensively young children can learn by observing the behavior of others, including a recent study in which young children who observed a peer being rewarded for confessing to cheating were more likely to be honest in the future themselves (Ma & others, 2018)

- Inclusion of recent research indicating the broad capacity for self-evaluative emotion was present in the pre-school years and was linked to young children's empathetic concern (Ross, 2017)
- Description of a recent study in which young children with higher emotion regulation were more popular with their peers (Nakamichi, 2019)
- New commentary about connections between different emotions and how they may influence development, including a recent study in which participants' guilt proneness combined with their empathy to predict an increase in prosocial behavior (Torstevelt, Sutterlin, & Lugo, 2016)
- Coverage of a recent study in Great Britain in which gender non-conforming boys were most at risk for peer rejection (Braun & Davidson, 2017)
- Inclusion of a recent research review of a large number of studies that found authoritarian parenting was associated with a higher level of externalizing problems (Pinquart, 2017)
- Coverage of a recent study in which an authoritarian style, as well as pressure to eat, were associated with a higher risk for being overweight or obese in young children (Melis Yavuz & Selkuk, 2018)
- Discussion of a recent study that revealed children of authoritative parents engaged in more prosocial behavior than their counterparts whose parents used the other parenting styles discussed in the section (Carlo & others, 2018)
- Description of a recent research review in which authoritative parenting was the most effective parenting style in predicting which children and adolescents would be less likely to be overweight or obese later in their development (Sokol, Qin, & Puti, 2017)
- New commentary about how in many traditional cultures, fathers use an authoritarian style; in such cultures, children benefit more when mothers use an authoritative parenting style
- New section, "Further Thoughts about Parenting Styles," including four factors that can influence how research on parenting styles can be interpreted
- Coverage of a recent review that concluded there is widespread approval of corporal punishment by U.S. parents (Ciocca, 2017)
- Inclusion of a recent research review of risk factors for engaging in child neglect that concluded that most risks involved parental factors, including a history of antisocial behavior/criminal offending, having mental/physical problems, and experiencing abuse in their own childhood (Mulder & others, 2018)
- Discussion of a longitudinal study that found harsh physical punishment in childhood was linked to a higher incidence of intimate partner violence in adulthood (Afifi & others, 2017b)
- Description of a recent Japanese study in which occasional spanking at 3 years of age was associated with a higher level of behavioral problems at 5 years of age (Okunzo & others, 2017)
- Discussion of a recent meta-analysis that found when physical punishment was not abusive, physical punishment was still linked to detrimental child outcomes (Gershoff & Grogan-Kaylor, 2016)
- Coverage of a recent study that found physical abuse was linked to lower levels of cognitive performance and school engagement in children (Font & Cage, 2018)
- Inclusion of a recent study that revealed exposure to either physical or sexual abuse in childhood and adolescence was linked to an increase in 13- to 18-year-olds' suicide ideation, plans, and attempts (Gomez & others, 2017)
- Description of a longitudinal study in which experiencing early abuse and neglect in the first five years of life were linked to having more interpersonal problems and lower academic achievement from childhood through their 30s (Raby & others, 2018)
- Coverage of a large-scale study that found a birth order effect for intelligence, with older siblings having slightly higher intelligence, but no birth order effects for life satisfaction, internal/external control, trust, risk taking, patience, and impulsivity (Rohrer, Egloff, & Schukle, 2017)
- Description of recent research indicating that mothers' and fathers' work-family conflict was linked to 4-year-olds' lower self-control (Ferreria & others, 2018)
- Discussion of a recent study in which experiencing parents' divorce, as well as child maltreatment, in childhood was linked to midlife suicide ideation (Stansfield & others, 2017)
- Inclusion of a recent meta-analysis that revealed when their parents had become divorced, as adults they were more likely to have depression (Sands, Thompson, & Gavsina, 2017)
- Coverage of a recent study that found interparental hostility was a stronger predictor of children's insecurity and externalizing problems than interparental disagreement and low levels of interparental cooperation (Davies & others, 2016)
- Updated data on the percentage of gay and lesbian parents who are raising children
- Inclusion of recent research that revealed no differences in the adjustment of school-aged children adopted in infancy by gay, lesbian, and heterosexual parents (Farr, 2017)
- Description of a recent study of lesbian and gay adoptive families indicated that 98 percent of the parents reported their children had adjusted well to school (Farr, Oakley, & Ollen, 2016)
- Coverage of a longitudinal study that found a multi-component (school-based educational enrichment and comprehensive family services) preschool-to-third-grade intervention with low-income minority children in Chicago was effective in increasing their high school graduation, as well as undergraduate and graduate school success (Reynolds, Ou, & Temple, 2018)
- Update on the most recent national survey of screen time indicating a dramatic shift to greater use of mobile devices in young children (Common Sense Media, 2013)

- Inclusion of recent research with 2- to 6-year-olds that indicated increased TV viewing on weekends was associated with a higher risk of being overweight or obese (Kondolot & others, 2017)
- Description of a recent meta-analysis that found children's exposure to prosocial media is linked to higher levels of prosocial behavior and empathetic concern (Coyne & others, 2018)

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

- New coverage of the increase in brain connectivity as children develop and a longitudinal study that found greater connectivity between the prefrontal and parietal regions in childhood was linked to better reasoning ability later in development (Wendelken & others, 2017)
- Discussion of a recent study of elementary school children that revealed 55 minutes or more of daily moderate-to-vigorous physical activity was associated with a lower incidence of obesity (Nemet, 2016)
- Description of a recent meta-analysis that participation in a sustained program of physical activity improved children's attention, executive function, and academic achievement (de Greeff & others, 2018)
- Coverage of a recent study with 7- to 13-year-olds in which a 6-week high-intensity exercise program resulted in improved cognitive control and working memory (Moreau, Kirk, & Waldie, 2018)
- Description of a recent meta-analysis that found children who engage in regular physical activity have better cognitive inhibitory control (Jackson & others, 2016)
- Inclusion of recent research with 8- to 12-year-olds indicating that screen time was associated with lower connectivity between brain regions, as well as lower language skills and cognitive control, while time spent reading was linked to higher levels in these areas (Horowitz-Kraus & Hutton, 2018)
- Updated data on the percentage of 6- to 11-year-old U.S. children who are obese (Ogden & others, 2016)
- Inclusion of a recent Japanese study that revealed the family pattern that was linked to the highest overweight/obesity in children was a combination of irregular meal-times and the most screen time for both parents (Watanabe & others, 2016)
- Discussion of a recent study in which children were less likely to be obese or overweight when they attended schools in states that had a strong policy emphasis on healthy food and beverage (Datar & Nicosia, 2017)
- Updated statistics on the percentage of U.S. children who have different types of disabilities and revised update of Figure 4 (National Center for Education Statistics, 2016)
- Description of a recent research review that found girls with ADHD had more problematic peer relations than typically developing girls in a number of areas (Kok & others, 2016)
- Coverage of a recent research review that concluded ADHD in childhood is linked to a number of long-term outcomes (Erksine & others, 2016)
- Discussion of a recent study that found childhood ADHD was associated with long-term underachievement in math and reading (Voigt & others, 2017)
- Description of a recent study in which individuals with ADHD were more likely to become parents at 12 to 16 years of age (Ostergaard & others, 2017)
- Coverage of a recent research review that concluded stimulation medications are effective in treating children with ADHD in the short term, but that long-term benefits of such medications are not clear (Rajeh & others, 2017)
- Discussion of a recent meta-analysis that found mindfulness training improved the attention of children with ADHD (Caincross & Miller, 2018)
- Inclusion of a recent meta-analysis that concluded physical exercise is effective in reducing cognitive symptoms of ADHD in individuals 3 to 25 years of age (Tan, Pooley, & Speelman, 2017)
- Coverage of a recent meta-analysis in which exercise was associated with better executive function in children with ADHD (Vysniauske & others, 2018)
- Description of a recent study in which an 8-week yoga program improved the sustained attention of children with ADHD (Chou & Huang, 2017)
- New commentary that despite the recent positive research findings using neurofeedback, mindfulness training, and exercise to improve the attention of children with ADHD, it remains to be determined if they are as effective as stimulant drugs and/or whether they benefit children as add-ons to stimulant drugs (Den Jeijer & others, 2017)
- Updated data on the increasing percentage of children being diagnosed as having autism spectrum disorder (Christensen & others, 2016)
- Inclusion of a recent study that revealed a lower level of working memory was the executive function most strongly associated with autism spectrum disorders (Ziermans & others, 2017)
- New coverage of two recent surveys in which only a minority of parents reported that their child's autism spectrum disorder was identified prior to three years of age and that one-third to one-half of the cases were identified after six years of age (Sheldrick, Maye, & Carter, 2017)
- Discussion of a recent study in which children's verbal working memory was linked to these aspects of both first and second language learners: morphology, syntax, and grammar (Verhagen & Leseman, 2016)
- Inclusion of recent research that found mindfulness-based intervention improved children's attention self-regulation (Felter & others, 2017)
- Description of the most recent revision of the Wechsler Intelligence Scale for Children—V, and its increase in the number of subtests and composite scores (Canivez, Watkins, & Dombrowski, 2017)

- Coverage of recent research that found a significant link between children's general intelligence and their self-control (Meldrum & others, 2017)
- Discussion of a recent two-year intervention study with families living in poverty in which maternal scaffolding and positive home stimulation improved young children's intellectual functioning (Obradovic & others, 2016)
- New content on stereotype threat in the section on cultural bias in intelligence tests (Grand, 2017; Lyons & others, 2018; Williams & others, 2018)
- Update on the percentage of U.S. students who are classified as gifted (National Association for Gifted Children, 2017)
- New commentary that vocabulary development plays an important role in reading comprehension (Vacca & others, 2018)
- Coverage of a recent study of 6- to 10-year-old children that found early bilingual exposure was a key factor in bilingual children outperforming monolingual children on phonological awareness and word learning (Jasinska & Petitto, 2018)
- Discussion of research that documented bilingual children were better at theory of mind tasks than were monolingual children (Rubio-Fernandez, 2017)
- Inclusion of a recent study that revealed females are better than males at facial emotion perception across the life span (Olderbak & others, 2018)
- New section, "Social-Emotional Education Programs," that describes two increasingly implemented programs: 1) Second Step (Committee for Children, 2018) and 2) Collaborative for Academic, Social, and Emotional Learning (CASEL (2018)
- New career profile on Dr. Melissa Jackson, child and adolescent psychiatrist
- Substantial revision of the discussion of Kohlberg's theory of moral development to make it more concise and clear
- New coverage of how we need to make better progress in dealing with an increasing array of temptations and possible wrongdoings in a human social world in which complexity is accumulating over time (Christen, Narvaez, & Gutzwiller, 2018)
- Deletion of the section on Gender Role Classification because of decreasing interest in the topic in recent years
- Discussion of a recent study with eighth grade students in 36 countries that revealed girls had more egalitarian attitudes about gender roles than did boys (Dotti Sani & Uaranta, 2015)
- Description of a recent meta-analysis of attachment in middle/late childhood and adolescence in which parents of children and adolescents who more securely attached were more responsive, more supportive of children's and adolescents' autonomy, used more behavioral control strategies, and engaged in less harsh control strategies (KoeHN & Kerns, 2018). Also in this meta-analysis, parents of children and adolescents who showed more avoidant attachment were less responsive and engaged in less behavioral control strategies. Regarding ambivalent attachment, no links to parenting were found.

## Chapter 8: Socioemotional Development in Middle and Late Childhood

- New description of recent research studies indicating that children and adolescents who do not have good perspective-taking skills are more likely to have difficulty in peer relations and engage in more aggressive and oppositional behavior (Morosan & others, 2017; Nilsen & Basco, 2017; O'Kearney & others, 2017)
- Inclusion of a longitudinal study that revealed the quality of children's home environment (which involved assessment of parenting quality, cognitive stimulation, and the physical home environment) was linked to their self-esteem in early adulthood (Orth, 2017)
- New discussion of the recent book *Challenging the Cult of Self-Esteem in Education* (Bergeron, 2018) that criticizes education for promising high self-esteem for students, especially those who are impoverished or marginalized
- Coverage of a longitudinal study that found a higher level of self-control in childhood was linked to a slower pace of aging at 26, 32, and 38 years of age (Belsky & others, 2017)
- New description of an app that is effective in improving children's self-control:  
[www.selfregulationstation.com/sr-ipad-app/](http://www.selfregulationstation.com/sr-ipad-app/)
- 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, 2017)
- Inclusion of recent research indicating that when children have a better parent-child affective relationship with their stepparent, the children have fewer internalizing and externalizing problems (Jensen & others, 2018)
- Coverage of a recent study of young adolescents in which peer rejection predicted increases in aggressive and rule-breaking behavior (Janssens & others, 2017)
- Description of a longitudinal study that revealed children who were bullied at 6 years of age were more likely to have excess weight gain when they were 12 to 13 years old (Sutin & others, 2016)
- Inclusion of a longitudinal study that revealed being a victim of bullying in childhood was linked to increased use of mental health services five decades later (Evans-Lacko & others, 2017)
- Description of recent longitudinal studies that indicated victims bullied in childhood and adolescence have higher rates of agoraphobia, depression, anxiety, panic disorder, and suicidality in the early to mid-twenties (Arseneault, 2017; Copeland & others, 2013)
- Coverage of recent research in which adolescents who were bullied in both a direct way and through



cyberbullying had more behavioral problems and lower self-esteem than their counterparts who were only bullied in one of two ways (Wolke, Lee, & Guy, 2017)

- Inclusion of a 2017/2018 update on the Every Student Succeeds Act (ESSA) with the Trump administration planning to go forward with ESSA but giving states much more flexibility in its implementation (Klein, 2017)
- Coverage of a recent intervention (City Connects program) with first-generation immigrant children attending high-poverty schools that was successful in improving the children's reading and math skills (Dearing & others, 2016)
- 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 a recent research review that concluded increases in family income for children in poverty was linked to increased achievement in middle school, as well as higher educational attainment in adolescence and emerging adulthood (Duncan, Magnuson, & Votruba-Drzil, 2017)
- New content on Teach for America and its efforts to place college graduates in teaching positions in schools located in low-income areas and a new career profile on Teach for America instructor Ahou Vaziri
- Update on comparisons of U.S. students with their counterparts around the globe in math and science achievement (Desilver, 2017; TIMMS, 2015)
- Coverage of recent research indicating that many parents and teachers with growth mindsets don't have children and adolescents with growth mindsets (Haimovitz & Dweck, 2017)
- New research that indicates the following are what parents and teachers need to do to create growth mindsets in children and adolescents: teach for understanding, provide feedback that improves understanding, give students opportunities to revise their work, communicate how effort and struggle are involved in learning, and function as partners with children and adolescents in the learning process (Hooper & others, 2016; Sun, 2015)
- Inclusion of recent research that found students from lower income families were less likely to have a growth mindset than were students from wealthier families but the achievement of students from lower income families was more likely to be protected if they had a growth mindset (Claro, Paunesku, & Dweck, 2016)
- Discussion of a recent study that revealed having a growth mindset protected women's and minorities' outlook when they chose to confront expressions of bias toward them in the workplace (Rattan & Dweck, 2018)

- Discussion of a recent study in China that found young adolescents with authoritative parents showed better adjustment than their counterparts with authoritarian parents (Zhang & others, 2017)

## Chapter 9: Physical and Cognitive Development in Adolescence

- Coverage of a recent study of non-Latino White and African American 12- to 20-year-olds in the United States that found they were characterized much more by positive than problematic development (Gutman & others, 2017). Their engagement in healthy behaviors, supportive relationships with parents and friends, and positive self-conceptions were much stronger than their angry and depressed feelings.
- New discussion of three recent studies in Korea and Japan (Cole & Mori, 2017), China (Song & others, 2017), and Saudi Arabia (Al Alwan & others, 2017), all of which found secular trends of earlier pubertal onset in recent years
- Coverage of a recent U.S. study that indicated puberty occurred earlier in girls with a higher body mass index (BMI) (Bratke & others, 2017) and a recent Chinese study revealed similar results (Deng & others, 2018)
- Description of a recent study that revealed child sexual abuse was linked to earlier pubertal onset (Noll & others, 2017)
- New research that revealed young adolescent boys had a more positive body image than their female counterparts (Morin & others, 2017)
- New content on the role of social media and the Internet in influencing adolescents' body images, including one study of U.S. 12- to 14-year-olds that found heavier social media use was associated with body dissatisfaction (Burnette, Kwitowski, & Mazzeo, 2017)
- Inclusion of research in which onset of menarche before 11 years of age was linked to a higher incidence of distress disorders, fear disorders, and externalizing disorders in females (Platt & others, 2017)
- Coverage of a recent study that found early-maturing girls had higher rates of depression and antisocial age as middle-aged adults mainly because their difficulties began in adolescence and did not lessen over time (Mendle & others, 2018)
- Inclusion of a recent study of U.S. college women that found more time on Facebook was related to more frequent body and weight concern comparison with other women, more attention to the physical appearance of others, and more negative feelings about their own bodies (Eckler, Kalyango, Paasch, 2017)
- New research indicating that early-maturing girls are at risk for physical and verbal abuse in dating (Chen, Rothman, & Jaffee, 2018)
- Updated data on the occurrence of various sexual activities engaged in by adolescents according to age, gender, and ethnicity, including updates (Kann & others, 2016a)

- New commentary that while the majority of sexual minority adolescents have competent and successful developmental paths through adolescence, a recent large-scale study revealed that sexual minority youth engage in a higher prevalence of health-risk factors compared to nonsexual minority youth (Kann & others, 2016b)
- Coverage of a recent national study of 7,000 15- to 24-year-olds' engagement in oral sex, including the low percentage of youth who use a condom when having oral sex (Holway & Hernandez, 2018)
- Updated data on the percentage of adolescent males and females who engage in oral sex (Child Trends, 2015)
- Description of a recent study that found that early sexual debut was associated with a number of problems, including sexual risk taking, substance use, violent victimization, and suicidal thoughts and attempts in both sexual minority and heterosexual adolescents (Lowry & others, 2017)
- Discussion of a recent study of Korean girls in which early menarche was associated with earlier initiation of sexual intercourse (Kim & others, 2017)
- Inclusion of recent research in which adolescents who in the eighth grade reported greater parental knowledge and more rules about dating were less likely to initiate sex between the eighth and tenth grade (Ethier & others, 2016)
- Description of a recent study of African American girls that revealed those for whom religion was very or extremely important were much more likely to have a later sexual debut (George Dalmida & others, 2018)
- Updated data on the percentage of adolescents who use contraceptives when they have sexual intercourse (Kann & others, 2016a)
- Updated data on the continued decline in adolescent pregnancy to an historic low in 2015 (Martin & others, 2017)
- Important new section on the increasing number of medical organizations and experts who have recently recommended that adolescents use long-acting reversible contraception (LARC), which consists of intrauterine devices (IUDs) and contraceptive implants (Allen & others, 2017; Deidrich, Klein, & Peipert, 2017; Society for Adolescent Medicine, 2017)
- New research on factors that are linked to repeated adolescent pregnancy (Dee & others, 2017; Maravilla & others, 2017)
- Coverage of recent surveys that find a large percentage of sexual health education programs do not cover birth control (Lindberg & others, 2016) and that sexual health information is more likely to be taught in high school than in middle school (Alan Guttmacher Institute, 2017)
- Inclusion of recent studies and research views that find comprehensive sex education programs and policies are far more effective in pregnancy prevention, reduction of sexually transmitted infections, and delay of sexual intercourse than are abstinence-only programs and policies (Denford & others, 2017; Jaramillo & others, 2017; Santilli & others, 2017)
- New content on the recent increase in abstinence-only-until-marriage (AOUM) policies and programs in the United States that don't seem to recognize that a large majority of adolescents and emerging adults will initiate sexual intercourse, especially given the recent increase in the age at which U.S. males and females get married
- New position of the Adolescent Society of Health and Medicine (2017) that states research clearly indicates that AOUM programs and policies are not effective but, in contrast, research documents that comprehensive sex education programs and policies are effective in delaying sexual intercourse and reducing other sexual risk behaviors
- Updated commentary on the recent concern about the increased government funding of abstinence-only programs (Donovan, 2017)
- New career profile on Dr. Bonnie Halpern-Felsher, University Professor in Pediatrics and Director of Community Efforts to Improve Adolescents' Health
- Updated data on the percentage of U.S. adolescents who are obese (Centers for Disease Control and Prevention, 2016)
- Updated national data on adolescents' exercise patterns, including gender and ethnic variations (Kann & others, 2016a)
- Discussion of a recent study that indicated aerobic exercise reduced the depressive symptoms of adolescents with MDD (Jaworksa & others, 2018)
- Inclusion of a recent large-scale study of Dutch adolescents that revealed physically active adolescents had fewer emotional and peer problems (Kuiper & others, 2018)
- Description of a recent research review that found that among a number of cognitive factors, memory was the factor that was most often improved by exercise in adolescence (Li & others, 2017)
- Coverage of a recent study of U.S. eighth, tenth, and twelfth graders from 1991 to 2016 that found psychological well-being abruptly decreased after 2012 (Twenge, Martin, & Campbell, 2018). In this study, adolescents who spent more on electronic communication and screens and less time on non-screen activities such as exercise had lower psychological well-being.
- Update on the low percentage of adolescents who get 8 hours of sleep or more per night (Kann & others, 2016a)
- Inclusion of a recent national study of more than 10,000 13- to 18-year-olds that revealed that a number of factors involving sleep timing and duration were associated with an increase in anxiety, mood, substance abuse, and behavioral disorders (Zhang & others, 2017)
- Description of a recent study of college students that revealed consistently low sleep duration was associated with less effective attention the next day (Whiting & Murdock, 2016)
- Discussion of a recent study of college students in which a higher level of text messaging activity during

the day and at night was related to a lower level of sleep quality (Murdock, Horissian, & Crichlow-Ball, 2017)

- New content on the increase in adolescents who mix alcohol and energy drinks, which is linked to a higher rate of risky driving (Wilson & others, 2018)
- Updated coverage of the Monitoring the Future study's assessment of drug use by secondary school students with 2017 data on U.S. eighth, tenth, and twelfth graders, including recent increases in marijuana and nicotine vaping use (Johnston & others, 2018)
- Coverage of a recent meta-analysis of parenting factors involved in adolescents' alcohol use that indicated higher levels of parental monitoring, support, and involvement were associated with a lower risk of adolescent alcohol misuse (Yap & others, 2017)
- Discussion of a recent large scale national study in which friends' use was a stronger influence on adolescents' alcohol use than parental use (Deutsch, Wood, & Slutske, 2018)
- New research indicating that having an increase in Facebook friends across two years in adolescence was linked to an enhanced motivation to be thin (Tiggemann & Slater, 2017)
- Coverage of a recent study in which a greater use of social networking sites was linked to being more narcissistic (Gnambs & Appel, 2018)
- Coverage of a recent study in which teacher warmth was higher in the last 4 years of elementary school and then dropped in the middle school years (Hughes & Cao, 2018). The drop in teacher warmth was associated with lower student math scores.
- Inclusion of new information from the Bill and Melinda Gates Foundation's (2017, 2018) indicating that many adolescents graduate from high school without the necessary academic skills to succeed in college or to meet the demands of the modern workplace
- New research on the transition to high school, including the greatest difficulties and factors that provide for improved adaptation to the transition (Benner, Boyle, & Bakhtiari, 2017; Wigfield, Rosenzweig, & Eccles, 2017)

## Chapter 10: Socioemotional Development in Adolescence

- New commentary that too little research attention has been given to developmental changes in the specific domains of identity (Galliher, McLean, & Syed, 2017; Vosylis, Erentaite, & Crocetti, 2018)
- New content on the dual cycle identity model that separates out identity development into two processes: 1) A formation cycle and 2) a maintenance cycle (Luyckx & others, 2014, 2017)
- New discussion of parental (Crocetti & others, 2017) and peer/friend (Rivas-Drake & Imana-Taylor, 2018; Santos & others, 2017) influences on adolescent identity development

- Updated description of the positive outcomes when individuals have pride in their ethnic group, including recent research (Anglin & others, 2018; Douglass & Umana-Taylor, 2017; Umana-Taylor & others, 2017)
- New content on identity development and the digital environment that explores the widening audience adolescents and emerging adults have to express their identity and get feedback about it in their daily connections on social media such as Instagram, Snapchat, and Facebook (Davis & Weinstein, 2017; Yau & Reich, 2018)
- Coverage of a recent study of Mexican-origin adolescents that found a positive ethnic identity, social support, and anger suppression helped them cope more effectively with racial discrimination whereas anger expressions reduced their ability to cope with the racial discrimination (Park & others, 2018)
- Inclusion of recent research with fifth and eighth graders in which a higher level of parental monitoring was associated with students' having higher grades (Top, Liew, & Luo, 2017)
- Discussion of a recent study that found better parental monitoring was linked to lower marijuana use by adolescents (Haas & others, 2018) and another study that revealed lower parental monitoring was associated with earlier initiation of alcohol use, binge drinking, and marijuana use in 13- to 14-year-olds (Rusby & others, 2018)
- Inclusion of a recent study that indicated two types of parental media monitoring—active monitoring and connective co-use (engaging in media with the intent to connect with adolescents)—were linked to lower media use by adolescents (Padilla-Walker & others, 2018)
- Discussion of a recent study that revealed from 16 to 20 years of age, adolescents perceived that they had increasing independence and a better relationship with their parents (Hadiwiya & others, 2017)
- Discussion of a recent study of Latino families that revealed a higher level of secure attachment with mothers during adolescence was linked to a lower level of heavy drug use (Gattamorta & others, 2017)
- Coverage of a recent study that revealed when they had grown up in poverty, adolescents 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 recent study of Chinese American families that found parent-adolescent conflict increased in early adolescence, peaked at about 16 years of age, and then declined through late adolescence and emerging adulthood (Juang & others, 2018)
- New research with Latino families indicating that high parent-adolescent conflict was associated with higher adolescent rates of aggression (Smokowski & others, 2017)
- Inclusion of recent research on adolescent girls that found friends' dieting predicted whether adolescent

- girls would engage in dieting or extreme dieting (Balantekin, Birch, & Savage, 2017)
- Discussion of a recent study that indicated that friendship quality was linked to the quality of romantic relationships in adolescence (Kochendorfer & Kerns, 2017)
  - Coverage of a recent study that found long-term romantic relationships in adolescence were both supportive and turbulent, characterized by elevated levels of support, negative interactions, higher control, and more jealousy (Lantagne & Furman, 2017)
  - New main section, “Socioeconomic Status and Poverty”
  - Inclusion of a recent study that found of 13 risk factors, low SES was the most likely to be associated with smoking initiation in fifth graders (Wellman & others, 2017)
  - Discussion a recent Chinese study in which adolescents were more likely to have depressive symptoms in low SES families (Zhou, Fan, & Zin, 2017)
  - Coverage of a U.S. longitudinal study that revealed low SES in adolescence was linked to having a higher level of depressive symptoms at age 54 for females (Pino & others, 2018). In this study, low SES females who completed college were less likely to have depressive symptoms than low SES females who did not complete college.
  - Inclusion of a U.S. longitudinal study that found low SES in adolescence was a risk factor for cardiovascular disease 30 years later (Doom & others, 2017)
  - Coverage of a recent study of 12- to 19-year-olds indicating that their perceived well-being was lowest when they had lived in poverty from 0 to 2 years of age (compared to 3 to 5, 6 to 8, and 9 to 11 years of age) and also each additional year lived in poverty was associated with even lower perceived well-being in adolescence (Gariipy & others, 2017)
  - Description of a recent study that found these four psychological and social factors predicted higher achievement by adolescents living in poverty: 1) academic commitment, 2) emotional control, 3) family involvement, and 4) school climate (Li, Allen, & Casillas, 2017)
  - Description of a recent study comparing Asian, Latino, and non-Latino immigrant adolescents in which immigrant Asian adolescents had the highest level of depression, lowest self-esteem, and experienced the most discrimination (Lo & others, 2017)
  - Inclusion of a recent study of Mexican origin youth that revealed when adolescents reported a higher level of familism, they engaged in lower levels of risk taking (Wheeler & others, 2017)
  - Discussion of a recent study in which heavy media multitaskers were less likely to delay gratification and more likely to endorse intuitive, but wrong, answers on a cognitive reflection task (Schutten, Stokes, & Arnell, 2017)
  - Coverage of recent research that found less screen time was linked to adolescents’ better health-related quality of life (Yan & others, 2017) and that a higher level of social media use was associated with a higher level of heavy drinking by adolescents (Brunborg, Andreas, & Kvaavik, 2017)
  - Discussion of a recent study of 13- to 16-year-olds that found increased night-time mobile phone use was linked to increased externalizing problems and decreased self-esteem (Vernon, Modecki, & Barber, 2018)
  - Updated data on the percentage of adolescents who use social networking sites and engage in text messaging daily (Lenhart, 2015; Lenhart & others, 2015)
  - Coverage of a recent national study of social media indicating how extensively 18- to 24-year-olds are using various sites such as Snapchat, Instagram, twitter, and YouTube (Smith & Anderson, 2018)
  - Updated statistics on the significant decline in juvenile court delinquency caseloads in the United States in recent years (Hockenberry & Puzzanchera, 2017)
  - Inclusion of a recent study of more than 10,000 children and adolescence revealing that a family environment characterized by poverty and child maltreatment was linked to entering the juvenile justice system in adolescence (Vidal & others, 2017)
  - Description of a recent study of middle school adolescents that found peer pressure for fighting and friends’ delinquent behavior were linked to adolescents’ aggression and delinquent behavior (Farrell, Thompson, & Mehari, 2017)
  - Discussion of a recent study that revealed an increase in the proportion of classmates who engage in delinquent behavior increased the likelihood that other classmates would become delinquents (Kim & Fletcher, 2018)
  - Inclusion of a recent study that indicated adolescent delinquents were high on affiliating with deviant peers and engaging in pseudomature behavior and low on peer popularity and school achievement (Gordon Simons & others, 2018)
  - Coverage of recent research in which having callous-unemotional traits predicts an increased risk of engaging in delinquency for adolescent males (Ray & others, 2017)
  - Description of a recent study of female adolescents in which an increase in their self-control was linked to decreased likelihood of police contact (Hipwell & others, 2018)
  - New content indicating that at 12 years of age, 5.2 percent of females compared to 2 percent of males had experienced first-onset depression (Breslau & others, 2017). Also in this study, the cumulative incidence of depression from 12 to 17 years of age was 36 percent for females and 14 percent for boys.
  - Recent research that found co-rumination with friends was linked to greater peer stress for adolescent girls (Rose & others, 2017)
  - Discussion of recent research indicating that family therapy can be effective in reducing adolescent depression (Poole & others, 2017)
  - Inclusion of a recent study that revealed adolescents who were isolated from their peers and whose caregivers emotionally neglected them were at significant risk for developing depression (Christ, Kwak, & Lu, 2017)



- Updated coverage of adolescent suicidal thoughts and behavior in the United States (Kann & others, 2016a)
- Discussion of recent research indicating that the most significant factor in a first suicide attempt during adolescence was a major depressive episode while for children it was child maltreatment (Peyre & others, 2017)
- Coverage of a recent study in which a sense of hopelessness predicted an increase in suicide ideation in depressed adolescents (Wolfe & others, 2018)
- Description of two recent studies that revealed child maltreatment during the childhood years was linked with suicide attempts in adulthood (Park, 2017; Turner & others, 2017)
- Inclusion of a recent study that confirmed childhood sexual abuse was a significant factor in suicide attempts (Ng & others, 2018)
- Discussion of a recent meta-analysis that revealed adolescents who were the victims of cyberbullying were 2½ 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

- New section, “The Changing Landscape of Emerging and Early Adulthood,” that describes how today’s emerging and young adults have very different profiles and experiences than their counterparts from earlier generations in education, work, and lifestyles (Vespa, 2017)
- Inclusion of a recent study with U.S. community college students that found they believe they know when they will be an adult when they can care for themselves and others (Katsiaficas, 2017)
- New coverage of recent trends in first-year college students’ increasing motivation to be well-off financially, as well as their increased feeling of being overwhelmed with what they have to do, are depressed, and feel anxious (Eagan & others, 2017)
- Discussion of a recent study in which a higher level of energy drink consumption was linked to more sleep problems in college students (Faris & others, 2017)
- Updated data on the incidence of obesity in U.S. adults (Flegal & others, 2016)
- Discussion of recent international comparisons of 33 countries in which the United States had the highest percentage of obese adults (38 percent) and Japan the lowest percentage (3.7); the average of the countries was 19.5 percent of the population being obese (OECD, 2017)
- Coverage of a recent research review in which moderate and vigorous aerobic exercise resulted in a lower incidence of major depressive disorder (Schuch & others, 2017)
- Inclusion of recent research that revealed a mortality risk reduction for individuals who replaced screen time

with an increase in daily activity levels (Wijndaele & others, 2017)

- Updated data on binge drinking in college and through early adulthood, including new Figure 3 (Schulenberg & others, 2017)
- Updated data on extreme binge drinking in college students, including data on not only 10 or more drinks at one time in the last two weeks, but also 15 or more in the same time frame (Schulenberg & others, 2017)
- Inclusion of a longitudinal study that revealed frequent binge drinking and marijuana use in the freshman year of college predicted delayed college graduation (White & others, 2018)
- Significant updating of the percentage of individuals 18 to 44 years of age in the United States who report they are heterosexual, gay, lesbian, or bisexual, as well as the percentages of these men and women who report about various feelings involving sexual orientation (Copen, Chandra, & Febo-Vazquez, 2016)
- Inclusion of recent research in which sexual activity in adults on day 1 was linked to greater well-being the next day (Kashdan & others, 2018). In this study, higher reported sexual pleasure and intimacy predicted more positive affect and less negative affect the next day.
- New research indicating that suicide ideation was associated with entrance into a friends-with-benefits (FWB) relationship as well as continuation of the FWB relationship (Dube & others, 2017)
- Updated data based on a national survey that found 3.8 percent of U.S. adults reported that they were gay, lesbian, bisexual, or transsexual (Gallup, 2015)
- New commentary that whether an individual is heterosexual, gay, lesbian, or bisexual, the person cannot be talked out of his or her sexual orientation (King, 2017, 2018)
- Updated statistics on HIV/AIDS in the United States (Centers for Disease Control and Prevention, 2018) and around the world (UNAIDS, 2017)
- New discussion of a study that found the search for and presence of meaning was linked to wisdom in emerging adults (Webster & others, 2018)
- Updated data on the percentage of full-time and part-time college students who work, which has slightly decreased in recent years (National Center for Education Statistics, 2017)
- Updated data on the average number of hours U.S. adults work per week (Saad, 2014)
- Updated data from a recent survey that revealed that employers say that 2017 is the best year for recent college graduates to be on the job market since 2007 (CareerBuilder, 2017)
- Inclusion of recent research in which an increase in job strain increased workers’ insomnia while a decrease in job strain reduced their insomnia (Halonon & others, 2018)
- Description of a recent study that found depression following job loss predicted increased risk of continued unemployment (Stolove & others, 2017)

- Coverage of a study that revealed heavy drinking from 16 to 30 was linked to higher unemployment in middle age (Berg & others, 2018)

## Chapter 12: Socioemotional Development in Early Adulthood

- Inclusion of a longitudinal study from 13 to 72 years of age in which avoidant attachment declined across the life span and being in a relationship predicted lower levels of anxious and avoidant attachment across adulthood (Chopik, Edelstein, & Grimm, 2018)
- Description of a research review that concluded attachment anxious individuals have higher levels of health anxiety (Maunder & others, 2017)
- Coverage of a recent research review that concluded insecure attachment was linked to a higher level of social anxiety in adults (Manning & others, 2017)
- Discussion of recent research that found insecure anxious and insecure avoidant individuals are more likely than securely attached individuals to engage in risky health behaviors, be more susceptible to physical illness, and have poorer disease outcomes (Pietromonaco & Beck, 2018)
- Updated data on the number of Americans who have tried Internet matchmaking and gender differences in the categories males and females lie about in Internet matchmaking (statisticbrain.com, 2017)
- Description of recent research on how romantic relationships change in emerging adulthood, including different characteristics of adolescent and emerging adult romantic relationships (Lantagne & Furman, 2017)
- New section, “Relationship Education for Adolescents and Emerging Adults,” that examines the increasing number of relationship education programs for adolescents and emerging adults, describes their main components, and evaluates their effectiveness (Hawkins, 2018; Simpson, Lenohardt, & Hawkins, 2018)
- Update on the increasing percentage of U.S. individuals 18 and older who are single (U.S. Census Bureau, 2017)
- Updated data on the continued increase in being older before getting married in the U.S. with the age for men now at 29.5 years and for women 27.4 years (Livingston, 2017)
- Movement of section on gender and friendships from the section on “Love” to the new section on “Gender and Relationships”
- New section, “Cross-Cultural Differences in Romantic Relationships”, that includes comparisons of collectivist and individualist cultures (Gao, 2016) as well as intriguing comparisons of romantic relationships in Japan, Argentina, France, and Qatar (Ansari, 2015)
- Inclusion of data from the recent Match.com 2017 Singles in America national poll that describes Millennials’ interest in having sex before a first date, interest in marrying but taking considerable time to get to know someone before committing to a serious relationship, and males interest in having females initiate the first kiss and asking a guy for his phone number
- Updated data on the percentage of U.S. adults who are cohabiting, which increased to 18 million people in 2016, an increase of 29 percent since 2007 (Stepler, 2017; U.S. Census Bureau, 2016)
- Inclusion of recent research indicating that women who cohabited within the first year of a sexual relationship were less likely to get married than women who waited more than one year before cohabiting (Sassler, Michelmore, & Qian, 2018)
- Coverage of a recent study in which cohabiting individuals were not as mentally healthy as their counterparts in committed marital relationships (Braithwaite & Holt-Lunstad, 2017)
- Description of a recent study of long-term cohabitation (more than 3 years) in emerging adulthood that found emotional distress was higher in long-term cohabitation than in time spent single, with men especially driving the effect (Menitz, 2018). However, heavy drinking was more common in time spent single than in long-term cohabitation.
- New discussion of the marriage paradox including research showing that emerging adults may not be abandoning marriage because they don’t like marriage or are disinterested in it, but are delaying marriage because they want to position themselves in the best possible way for developing a healthy marital relationship (Willoughby, Hall, & Goff, 2015; Willoughby & James, 2017)
- Coverage of a recent study of married, divorced, widowed, and single adults that revealed married individuals had the best cardiovascular profile, single men the worst (Manfredni & others, 2017)
- Inclusion of a recent study in Great Britain that found no differences in the causes of breakdowns in marriage and cohabitation (Gravnengen & others, 2017). In this study, “grew apart”, “arguments”, “unfaithfulness/adultery”, “lack of respect, appreciation”, and “domestic violence” were the most frequent reasons given for such breakdowns.
- Description of a study of individuals one to 16 years into their marriage that found an increasing trajectory of tension over the course of the marriage was consistently linked to an eventual divorce (Birditt & others, 2017)
- Updated statistics on divorce rates around the world with Russia continuing to have the highest rate (OECD, 2016)
- Coverage of a study that found individuals who were divorced had a higher risk of having alcohol use disorder (Kendler & others, 2017)
- New content indicating that while the divorce rate in first marriages has declined, the divorce rate of remarriages continues to increase (DeLongis & Zwicker, 2017)
- Updated data on the average age at which U.S. women give birth, which occurred more frequently in their 30s than 20s in 2016 for the first time ever, and the average age of a woman giving birth was 27 years of age in 2016 (Centers for Disease Control and Prevention, 2017)
- New research that found the frequency of sexual intercourse in the second to fourteenth years of a marriage

was important to marital satisfaction but that a satisfying sex life and a warm interpersonal relationship were more important (Schoenfeld & others, 2017)

- New main section “Gender Communication, Relationships, and Classification”
- Extensive new content on transgender (Budge & Orovecz, 2018; Budge & others, 2017)
- Discussion of a variety of terms used to describe transgender individuals
- New content indicating that it is much more common to have a transgender identity of being born male but identifying with being a female than the reverse (Zucker & Kreukels, 2016)
- Inclusion of a recent research review that concluded transgender youth have higher rates of depression, suicide attempts, and eating disorders than their non-transgender peers (Connolly & others, 2016)

## Chapter 13: Physical and Cognitive Development in Middle Adulthood

- Inclusion of a recent research review that found positive subjective time perceptions were linked to better health and well-being while negative subjective time perceptions were associated with lower levels of health and well-being (Gabrain, Dutt, & Wahl, 2017)
- Description of a recent study in which undergraduate students were shown a computer-generated graph of a person identified as a younger adult, middle-aged adult, or older adult (Kelley, Soborff & Lovaglia, 2017). When asked which person they would choose for a work-related task, they selected the middle-aged adult most often.
- Update on the percentage of adults 40 to 59 years of age classified as obese (40.2 percent) (Centers for Disease Control and Prevention, 2016)
- Coverage of recent research in which an increase in weight gain from early to middle adulthood was linked to an increased risk of major chronic diseases and unhealthy aging (Zheng & others, 2017)
- Inclusion of recent research that revealed greater intake of fruits and vegetables was linked to increased bone density in middle-aged and older adults (Qui & others, 2017)
- Discussion of a Chinese study that found men and women who gained an average of 22 pounds or more from 20 to 45-60 years of age had an increased risk of hypertension and cholesterol, as well as elevated triglyceride levels in middle age (Zhou & others, 2018)
- Description of a recent study that revealed a healthy diet in adolescence was linked to a lower risk of cardiovascular disease in middle-aged women (Dahm & others, 2018)
- New coverage of the American Heart Association’s Life’s Simple 7—the seven factors that people need to optimize to improve their cardiovascular health
- Description of a study in which optimal Life’s Simple 7 at middle age was linked to better cardiovascular

health recovery following a heart attack later in life (Mok & others, 2018)

- Inclusion of a longitudinal study in which increased respiratory fitness from early adulthood to middle adulthood was linked to less decline in lung health over time (Berick others, 2017)
- Discussion of a recent study of young and middle-aged adults that found females had more sleep problems than males (Rossler & others, 2017). However, the good news in this study is that a majority of individuals (72 percent) reported that they did not have any sleep disturbances.
- New research indicating that perceiving one’s self as feeling older predicted an increase in sleep difficulties in middle age over time (Stephan & others, 2017)
- New content on the important role of cortisol in stress and health (Leonard, 2018; Wichmann & others, 2017)
- Coverage of a recent study of men and women from 21 to 55 years of age in which married individuals had lower cortisol levels than either their never married or previously married counterparts (Chin & others, 2017)
- Coverage of a recent cross-cultural study in China that found that Mosuo women had fewer negative menopausal symptoms and higher self-esteem than Han Chinese women (Zhang & others, 2016)
- Inclusion of the recent position statement of the North American Menopause Society (2017) regarding the current status of research on various aspects of hormone replacement therapy (HRT)
- Inclusion of a consensus that there is a slight increase in breast cancer for women taking hormone replacement therapy (American Cancer Society, 2017; [www.breastcancer.org](http://www.breastcancer.org), 2017)
- Discussion of recent studies and research reviews that indicate testosterone replacement therapy does not increase the risk of prostate cancer (Debruyne & others, 2017; Yassin & others, 2017)
- Description of a recent study in which TRT-related benefits in quality of life and sexual function were maintained for 36 months after initial treatment (Rosen & others, 2017)
- Discussion of a recent study that found the more frequently middle-aged and older adults had sex, the better their overall cognitive functioning was, and especially so in working memory and executive function (Wright, Jenks, & Demeyere, 2018)
- Inclusion of recent research on 24- to 93-year-olds that found everyday problem solving performance increased from early to middle adulthood but began to show a decline at about 50 years of age (Chen, Hertzog, & Park, 2017). In this study, fluid intelligence predicted everyday problem solving performance in young adults, but with increasing age, crystallized intelligence became a better predictor.
- Coverage of a Danish study across 33 years of individuals 20 to 93 years of age that found that those who engaged in a light level of leisure time physical activity lived 2.8 years longer; those who engaged in a moderate

level of leisure time physical activity lived 4.5 years longer; and those who engaged in a high level of leisure time physical activity lived 5.5 years longer (Schnohr & others, 2017)

- Discussion of a recent study that found spiritual well-being predicted which heart failure patients would still be alive five years later (Park & others, 2016)
- New research that indicated adults who volunteered had lower resting pulse rates and their resting pulse rate improved when they were deeply committed to religion (Krause, Ironson, & Hill, 2017)

## Chapter 14: Socioemotional Development in Middle Adulthood

- Discussion of a recent study in which participating in an intergenerational civic engagement program enhanced older adults' self-perceptions of generativity (Grunewald & others, 2016)
- Inclusion of recent research that found a higher level of generativity in middle age was linked to greater wisdom in late adulthood (Ardelt, Gerlach, & Vaillant, 2018)
- Coverage of a recent study of gender differences in coping with stress that revealed women were more likely than men to seek psychotherapy, talk to friends about the stress, read a self-help book, take prescription medication, and engage in comfort eating (Liddon, Kingerlee, & Berry, 2017). In this study, when coping with stress, men were more likely than women to attend a support group meeting, have sex or use pornography, try to fix problems themselves, and not admit to having problems.
- Description of recent research that found individuals high in openness to experience have superior cognitive functioning across the life span, have better health and well-being (Strickhouser, Zell, & Krizan, 2017), and are more likely to eat fruits and vegetables (Conner & others, 2017)
- Inclusion of recent research that found conscientiousness was linked to better health and well-being (Strickhouser, Zell, & Krizan, 2017), being more academically successful in medical school (Sobowale & others, 2018), having a lower risk of Internet addiction (Zhou & others, 2017), not being as addicted to Instagram (Kircaburun & Griffiths, 2018), having a lower risk for alcohol addiction (Raketic & others, 2017), and having a lower risk of dementia (Terracciano & others, 2017)
- Coverage of recent research indicating that being optimistic is linked to having better psychological adjustment (Kolokotroni, Anagnostopoulos, & Hantzi, 2018)
- Inclusion of recent research in which more pessimistic college students had more anxious mood and stress symptoms (Lau & others, 2017)
- Discussion of a recent study of married couples that revealed the worst health outcomes occurred when both

spouses decreased their optimism across a four-year period (Chopik, Kim, & Smith, 2018)

- Description of a recent study in which lonely individuals who were optimistic had a lower suicide risk (Chang & others, 2018)
- Inclusion of a recent research review in which the personality trait that changed the most as a result of psychotherapy was emotional stability, followed by extraversion (Roberts & others, 2017). In this study, the personality traits of individuals with anxiety disorders changed the most, those with substance use disorders the least.
- New discussion of the increasing divorce rate in middle-aged adults and the reasons for the increase (Stepler, 2017), as well as the recent labeling of divorce in 50+ year-old adults as "gray divorce" (Crowley, 2018)
- Coverage of a recent study that found the greatest risks for getting divorce in middle adulthood were a shorter duration of marriage, lower marital quality, having financial problems, and not owning a home (Lin & others, 2018). Also in this study, onset of an empty nest, the wife's or husband's retirement, and the wife or husband having a chronic health condition were not related to risk for divorce in middle adulthood.
- Description of a recent Swiss study of middle-aged adults in which single divorcees were more lonely and less resilient than their married and remarried counterparts (Knopfli & others, 2017). Also in this study, single divorcees had the lowest self-reported health.
- New commentary that grandparents especially play important roles in grandchildren's lives when family crises such as divorce, death, illness, abandonment, or poverty occur (Dolbin-McNab & Yancura, 2018)
- New content on how grandparents facilitate women's participation in the labor force in many countries
- Coverage of a recent study of adult grandchildren in which grandparents provided more frequent emotional support to the grandchildren when parents were having life problems and more frequent financial support when parents were unemployed (Huo & others, 2018)

## Chapter 15: Physical and Cognitive Development in Late Adulthood

- Update on life expectancy in the United States, which is now at 79 years of age, including the narrowing gender difference (U.S. Census Bureau, 2018)
- Discussion of recent projections for life expectancy in 2030 for 35 developed countries, with the United States increasing in life expectancy but having one of the lowest projected increases of all countries in the study (Kontis & others, 2017). In this study, South Korea is expected to have the highest life expectancy of the 35 countries in 2030, with South Korean women the first group to break the 90-year barrier with a projected life expectancy of 90.8 in 2030.



- Coverage of a recent study of U.S. and Japanese centenarians that found in both countries, health resources (better cognitive function, fewer hearing problems, and positive daily living activities) were linked to a higher level of well-being (Nakagawa & others, 2018)
- Update on gender differences in the oldest people alive in the world today with no men in the oldest 25 individuals
- Description of recent research confirming that shorter telomere length is linked to Alzheimer disease (Scarabino & others, 2017)
- Updated and expanded coverage of the diseases that are linked to mitochondrial dysfunction to include cardiovascular disease (Anupama, Sindhu, & Raghu, 2018), Parkinson disease (Lason, Hanss, & Kruger, 2018), diabetic kidney disease (Forbes & Thorburn, 2018), and impaired liver functioning (Borrelli, 2018)
- Inclusion of recent research in which at-risk overweight and older adults lost significant weight and improved their mobility considerably by participating in a community-based weight reduction program (Rejeski & others, 2017)
- Updated information about some diseases that women are more likely to die from than men are (Ostan & others, 2016)
- Inclusion of a recent study of older adults that revealed walking a dog regularly was associated with better physical health (Curl, Bibbo, & Johnson, 2017)
- Description of a recent study that found a 10-week exercise program improved the physical (aerobic endurance, agility, and mobility) and cognitive (selective attention and planning) functioning of elderly nursing home residents (Pereira & others, 2017)
- Coverage of a recent study in which relative to low physical fitness individuals, those who increased from low to intermediate or high fitness were at a lower risk for all-cause mortality (Brawner & others, 2017)
- Description of a recent study of frail elderly adults in which a high-intensity walking intervention reduced their frailty, increased their walking speed, and improved their mobility (Danilovich, Conroy, & Hornby, 2017)
- Coverage of recent research on older adults that found poorer visual function was associated with cognitive decline (Monge & Madden, 2016; Roberts & Allen, 2016) and having fewer social contacts and engaging in less challenging social/leisure activities (Cimarolli & others, 2017)
- New discussion of a recent Japanese study of older adults (mean age: 76 years) in which having had cataract surgery reduced their risk of developing mild cognitive impairment (Miyata & others, 2018)
- In a recent study of 80- to 106-year-olds, there was a substantial increase in hearing loss in the ninth and then in the tenth decade of life (Wattamwar & others, 2017). In this study, although hearing loss was universal in the 80- to 106-year-olds, only 59 percent of them wore hearing aids.
- New discussion of a recent study of 65-to 85-year-olds that dual sensory loss in vision and hearing was linked to reduced social participation and less social support, as well as increased loneliness (Mick & others, 2018)
- Coverage of a recent study of elderly adults that found those who had a dual sensory impairment involving vision and hearing had functional limitations, experienced cognitive decline, were lonely, and had communication problems (Davidson & Gutherie, 2018)
- New study indicating that older adults with a dual sensory impairment involving vision and hearing had more depressive symptoms (Han & others, 2018)
- Discussion of a recent research review that concluded older adults have a lower pain sensitivity but only for lower pain intensities (Lautenbacher & others, 2017)
- New commentary that although decreased pain sensitivity can help older adults cope with disease and injury, it also can mask injuries and illnesses that need to be treated
- Coverage of a recent study in which a Mediterranean diet reduced the risk for cardiovascular disease in older adults (Nowson & others, 2018)
- Discussion of a recent study that revealed long sleep duration predicted all-cause mortality in individuals 65 years and older (Beydoun & others, 2017)
- Description of a recent Chinese study that found older adults who engaged in a higher level of overall physical activity, leisure-time exercise, and household activity were less likely to have sleep problems (Li & others, 2018)
- Description of a recent study that found older adults' lower level of selective attention was linked to their inferior driving performance (Venkatesan & others, 2018)
- Inclusion of a recent study that found slow processing speed predicted an increase in older adults' falls one year later (Davis & others, 2017)
- Inclusion of a recent study of older adults that found playing processing speed games for five sessions a week across four weeks improved their processing speed (Nouchi & others, 2017)
- Description of a recent experimental study that revealed yoga practice that included postures, breathing, and meditation improved the attention and information processing of older adults (Gothe, Kramer, & McAuley, 2017)
- Coverage of a recent study that found that when older adults regularly engaged in mindfulness meditation, their goal-directed attention improved (Malinowski & others, 2017)
- Description of a recent study that found a mindfulness training program improved older adults' explicit memory (Banducci & others, 2017)
- Coverage of a recent study that revealed imagery strategy training improved older adults' working memory (Borella & others, 2017)
- Inclusion of recent research in which aerobic endurance was linked to better working memory in older adults (Zettel-Watson & others, 2017)
- Discussion of recent research with young, middle-aged, and older adults that found all three age groups' working memory improved with working memory training but that older adults improved less than young adults with the training (Rhodes & Katz, 2017)

- Coverage of a recent study of older adults that found slower processing speed was associated with unsafe driving (Hotta & others, 2018)
- Discussion of a recent experimental study in which high-intensity aerobic training was more effective than moderate aerobic training or resistance training in improving older adults' processing speed (Coetsee & Terblanche, 2017)
- Description of a recent study in which self-reflective exploratory processing of difficult life circumstances was linked to a higher level of wisdom (Westrate & Gluck, 2017)
- Discussion of a recent study of older adults in 10 European countries that revealed improved memory between 2004 and 2013 with the changes more positive for those who had decreases in cardiovascular diseases and increases in exercise and educational achievement (Hessel & others, 2018)
- New coverage of a recent Australian study that found older adults who had retired from occupations that involved higher complexity maintained their cognitive advantage over their counterparts who worked in less complex occupations (Lane & others, 2017)
- New discussion of a recent study of older adults working in low complexity jobs who experienced novelty in their work (assessed through recurrent work-task changes) was linked to better processing speed and working memory (Oltmanns & others, 2017)
- Inclusion of recent research revealed that older adults with type 2 diabetes had greater cognitive impairment than their counterparts who did not have the disease (Bai & others, 2017)
- Inclusion of a recent study that revealed older adults who continued to work in paid jobs had better physical and cognitive functioning than retirees (Tan & others, 2017)
- Coverage of a recent study that found the following were among the most important motives and preconditions to continue working beyond retirement age: financial, health, knowledge, and purpose in life (Sewdas & others, 2017)
- Description of a recent research review in which engaging in low or moderate exercise was linked to improved cognitive functioning in older adults with chronic diseases (Cai & others, 2017)
- Description of recent research in which participating in physical activity in late adulthood was linked to less cognitive decline (Gow, Pattie, & Geary, 2017)
- Coverage of a recent study that found fish oil supplementation improved the working memory of older adults (Boespflug & others, 2016)
- New description of a study that revealed cognitive training using virtual reality-based games with stroke patients improved their attention and memory (Gamito & others, 2017)
- Updated statistics on the percentage of U.S. older adults in different age groups in the work force, including 2017 data (Misliniski, 2017)
- Inclusion of a recent study that revealed baby boomers expect to work longer than their predecessors from prior generations (Dong & others, 2017)
- Updated data (2017) on the percentage of American workers who are very confident that they will have a comfortable retirement (Greenwald, Copeland, & VanDerhei, 2017)
- Updated data on the number of people in the U.S. who currently have Alzheimer disease (5.7 million) (Alzheimer's Association, 2018)
- New content on women being more likely to have the APOE4 gene than men and commentary about the APOE4 gene being the strongest genetic predictor of late-onset (65 years and older) Alzheimer disease (Dubal & Rogine, 2017; Giri & others, 2017)
- New content on APP, PSEN1, and PSEN2 gene mutations being linked to the early onset of Alzheimer disease (Carmona, Hardy, & Guerreiro, 2018)
- Inclusion of new content on how epigenetic factors might influence Alzheimer disease including the role of DNA methylation (Kader & others, 2018; Marioni & others, 2018; Zaghlool & others, 2018)
- Update on drugs that have been approved by the U.S. Food and Drug Administration to treat Alzheimer disease, now totaling five drugs (Almeida, 2018)

## Chapter 16: Socioemotional Development in Late Adulthood

- Description of a recent study that supports the activity theory of aging: an activity-based lifestyle was associated with lower levels of depression in older adults (Juang & others, 2017)
- Coverage of a recent study that found a reminiscence intervention improved the coping skills of older adults (Satorres & others, 2018)
- New commentary by Laura Carstensen (2016) that when older adults focus on emotionally meaningful goals, they are more satisfied with their lives, feel better, and experience fewer negative emotions
- New recommendations on ways that older adults can become more socially engaged (Sightlines Project, 2016)
- Inclusion of a recent study of individuals 22 to 94 years of age that revealed on days that middle-aged and older adults, as well as individuals who were less healthy, used more selective optimization with compensation strategies, they reported having a higher level of happiness (Teshale & Lachman, 2016)
- Inclusion of a recent meta-analysis that concluded emotional experiences in older adults are more positive than for younger adults (Laureiro-Martinez, Trujillo, & Unda, 2017). Also, in this review, it was concluded that older adults focus less on negative events in the past than younger adults did.
- New description of a study that found older adults with a higher level of conscientiousness experienced less cognitive decline as they aged (Luchetti & others, 2016)

- In older adults, higher levels of conscientiousness, openness to experience, agreeableness, and extraversion were linked to positive emotions, while neuroticism was associated with negative emotions (Kalbaugh & Huffman, 2017)
- New content indicating that individuals who are extraverted and low in neuroticism are more likely to live longer (Graham & others, 2017)
- Discussion of a recent study of 15- to 105-year-old individuals in 29 European countries that revealed younger individuals engaged in age discrimination more than did older individuals (Bratt & others, 2018)
- Updated data on the significant increase in Internet, smartphone, and social networking use by U.S. older adults (Anderson, 2017)
- Coverage of a recent Hong Kong study that found adults 75 years and older who used smart phones and the Internet to connect with family, friends, and neighbors had a higher level of psychological well-being than their counterparts who did not use this information and communicative technology (Fang & others, 2018)
- Discussion of a recent study in which partnered older adults were more likely to receive Social Security, enjoy relatively higher Social Security benefits, and less likely to live in poverty (Lin, Brown, & Hammersmith, 2017)
- Inclusion of a recent study indicating that the longer older adults had been married, the better their marital quality, owning a home, and being wealthier described older adults who were less likely to get divorced (Lin & others, 2018)
- New discussion of recent research focused on the health and well-being of older adult LGBT individuals, with a focus on comparisons of those who are married, unmarried partnered, and single (Goldsen & others, 2017)
- Updated data on the percentage of men and women 65 years and older who are divorced, which increased dramatically from 1980 to 2015 (U.S. Census Bureau, 2016)
- Updated data on the dramatic increase in older adult men and women who are now cohabiting (Brown & Wright, 2017)
- Coverage of a recent national study of older adults in which among men, cohabitators' psychological well-being fared similarly to married men, better than daters and the unpartnered (Wright & Brown, 2017). In contrast, there were few differences in psychological well-being by partnership status of the women.
- New discussion of research indicating that middle-aged adults feel more positive about providing support for their children than for their aging parents (Birditt & others, 2018)
- Description of a recent study that revealed older adults, compared to younger adults, reported fewer problems with friends, fewer negative friendship qualities, less frequent contact with friends, and more positive friendship qualities with a specific friend (Schlosnagle & Strough, 2017)
- Expanded discussion of socioemotional selectivity theory to include the role of a decreasing amount of time

- to live as an explanation of prioritizing meaningful relationships when people get old (Moss & Wilson, 2017)
- Updated data on the number of older adults living in poverty, including the continuing gender difference that a larger percentage of older adult women live in poverty (U.S. Census Bureau, 2018)
- Coverage of a recent 2016 Nielsen survey that found older adults watch a staggering amount of television—51 hours, 32 minutes per week, far more than any other age group (Recode, 2016)
- Description of a longitudinal study from 13 to 72 years of age in which attachment anxiety declined in middle aged and older adults (Chopik, Edelstein, & Grimm, 2018). Also in this study, attachment avoidance decreased in a linear fashion across the life span. Being in a relationship was linked with lower attachment anxiety and attachment avoidance. And men were higher in attachment avoidance throughout the life span.
- Inclusion of a recent study in which 18 percent of older adults stated that they were often or frequently lonely (Due, Sandholt, & Waldorff, 2017)
- Extensive revision and updating of the discussion of volunteering by older adults
- Updated data on the percentage of older adults who engage in volunteering (U.S. Bureau of Labor Statistics, 2016)
- Inclusion of recent research on links between volunteering by older adults and improved health (Burr & others, 2018; Carr, Kail, & Rowe, 2018), better cognitive functioning (Proulx & others, 2018), and less loneliness (Carr & others, 2018)
- Expanded and updating of why volunteering by older adults has positive outcomes for them (Carr, 2018)
- Inclusion of recent research indicating that the life-satisfaction of Latino older adults was higher than for African American and non-Latino older adults (Zhang, Braun, & Wu, 2017)
- Description of a recent study that revealed four factors emerged as best characterizing successful aging: proactive engagement, wellness resources, positive spirit, and valued relationships (Lee, Kahana, & Kahana, 2017)

## Chapter 17: Death, Dying, and Grieving

- Inclusion of a recent study in which completion of an advanced directive was associated with a lower probability of receiving life-sustaining treatment (Yen & others, 2017)
- Recent updates on countries that allow assisted suicide (Belgium, Canada, Finland, Luxembourg, the Netherlands, and Switzerland)
- Update on the increasing number of states that allow assisted suicide—California, Colorado, Montana, Oregon, Vermont, and Washington, as well as Washington, DC
- New definition of assisted suicide as a key term and clearer distinctions made between euthanasia, in which the patient self-administers the lethal medication and is

allowed to decide when and where to do this, and assisted suicide, in which the physician or a third party administers the lethal medication

- Inclusion of a recent Gallup poll in which 69 percent of U.S. adults said that euthanasia should be legal, 51 percent said that they would consider ending their own lives if faced with a terminal illness, and 50 percent reported that physician-assisted suicide is morally acceptable (Swift, 2016)
- New content on recent criticisms of the “good death” concept to move away from focusing on a single event in time to improving people’s last years and decades of life (Pollock & Seymour; Smith & Periyakoil, 2018)
- New research on the percentage of adult bereavement cases that involve prolonged grief disorder and ages at which this disorder is more likely to occur (Lundorff & others, 2017)
- Inclusion of a 7-year longitudinal study of older adults in which those experiencing prolonged grief had greater cognitive decline than those with normal grief (Perez & others, 2018)

- Discussion of a recent study that found individuals with complicated grief had a higher level of the personality trait neuroticism (Goetter & others, 2018)
- New research indicating that cognitive behavior therapy reduced prolonged grief symptoms (Bartl & others, 2018)
- Updated statistics on the percentage of widows in the United States (Administration on Aging, 2015)
- Description of a recent cross-cultural study indicating that depression peaked in the first year of widowhood for both men and women, but that depression continued to be present in widowed men for 6 to 10 years post-widowhood (Jadhav & Weir, 2018)
- In a recent study, volunteering reduced widowed older adults’ loneliness (Carr & others, 2018)
- Updated data on cremation with an increase to 51.6 deaths followed by cremation in the United States in 2017 with a projected increase to 57.5 percent in 2022 (Cremation Association of North America, 2018). In 2015 in Canada, cremation occurred following 70.5 percent of deaths with a projected increase to 75.1 percent in 2022.

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# 1 Introduction

## CHAPTER OUTLINE

### THE LIFE-SPAN PERSPECTIVE

The Importance of Studying Life-Span Development

Characteristics of the Life-Span Perspective

Contemporary Concerns in Life-Span Development

### THE NATURE OF DEVELOPMENT

Biological, Cognitive, and Socioemotional Processes

Periods of Development

Conceptions of Age

Developmental Issues

### THEORIES OF DEVELOPMENT

Psychoanalytic Theories

Cognitive Theories

Behavioral and Social Cognitive Theories

Ethological Theory

Ecological Theory

An Eclectic Theoretical Orientation

### RESEARCH IN LIFE-SPAN DEVELOPMENT

Methods for Collecting Data

Research Designs

Time Span of Research

Conducting Ethical Research

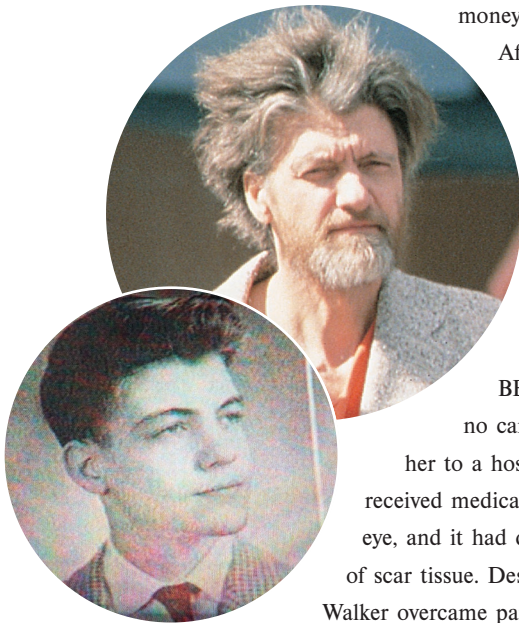
## Stories of Life-Span Development: How Did Ted Kaczynski Become Ted Kaczynski and Alice Walker Become Alice Walker?

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

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

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





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

money to follow her dream of moving to Senegal, Africa, she put herself into the heart and heat of the civil rights movement. Walker had grown up knowing the brutal effects of poverty and racism. Born in 1944, she was the eighth child of Georgia sharecroppers who earned \$300 a year. When Walker was 8, her brother accidentally shot her in the left eye with a BB gun. Since her parents had no car, it took them a week to get her to a hospital. By the time she received medical care, she was blind in that eye, and it had developed a disfiguring layer of scar tissue. Despite the counts against her, Walker overcame pain and anger and went on to win a



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) ©AP Images;  
(bottom) ©Alice Walker

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 book.

*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. ■

## 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

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

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

insight about your own history—as an infant, a child, an adolescent, or a young adult. Perhaps you want to know more about what your life will be like as you grow through the adult years—as a middle-aged adult, or as an adult in old age, for example. Or perhaps you just stumbled across this course, thinking that it sounded intriguing. Whatever your reasons, you will discover that the study of life-span development addresses some provocative questions about who we are, how we came to be this way, and where our future will take us.

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

## Characteristics of the Life-Span Perspective

Growth and development are dramatic during the first two decades of life, but development is not something that happens only to children and adolescents. The traditional approach to the study of development emphasizes extensive change from birth to adolescence (especially during infancy), little or no change in adulthood, and decline in old age. Yet a great deal of change does occur in the decades after adolescence. The life-span approach emphasizes developmental change throughout adulthood as well as childhood (Park & Festini, 2018; Schaie & Willis, 2016).

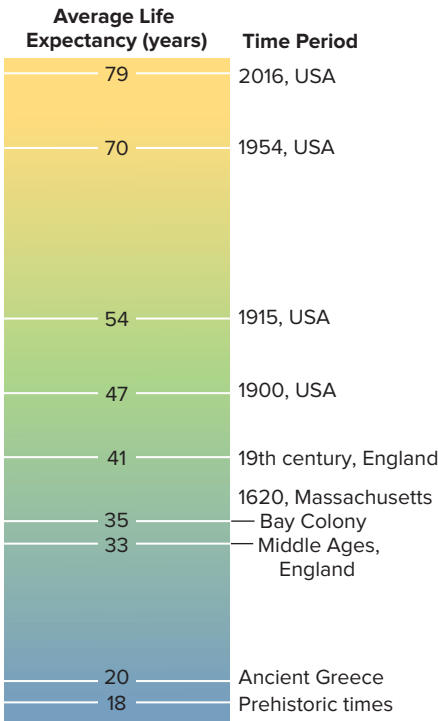
### Life Expectancy

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). In 2016, the life expectancy in the United States was 79 years of age (U.S. Census Bureau, 2017). Today, for most individuals in developed countries, childhood and adolescence represent only about one-fourth of their lives.

Laura Carstensen (2015, 2016) 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 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.



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

It took 5,000 years to extend human life expectancy from 18 to 41 years of age.



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.

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 earlier by Laura Carstensen (2015, 2016) and others (Adams, 2017; Couch & others, 2017).

## 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 (Dale & others, 2018; Moss & Wilson, 2018; Zammit & others, 2018). The cognitive dimension, for example, includes attention, memory, abstract thinking, speed of processing information, and social intelligence. At every age, changes occur in every dimension. Changes in one dimension also affect development in the other dimensions.

To get an idea of how interactions occur, consider the development of Ted Kaczynski, the so-called Unabomber discussed at the opening of the chapter. When he was 6 months old, he was hospitalized with a severe allergic reaction, and his parents were rarely allowed to visit him. According to his mother, the previously happy baby was never the same after his hospital stay. He became withdrawn and unresponsive. As Ted grew up, he had periodic “shutdowns” accompanied by rage. In his mother's view, 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 (Kuntzmann, 2019; Mejia & others, 2017; Sternberg & Hagen, 2018; Strandberg, 2019; Yoo & others, 2017). For example, when one language (such as English) is acquired early in development, the capacity for acquiring second and third languages (such as Spanish and Chinese) decreases later in development, especially after early childhood (Levelt, 1989). During adolescence, as individuals establish romantic relationships, their relationships

**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.

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 (Hayman, Kerse, & Consedine, 2017; Kuntzmann, 2019; Rakoczy & others, 2018; Thomas & others, 2018), but they perform more poorly on tasks that require speed in processing information (Salthouse, 2017).

**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 (Erickson & Oberlin, 2017; Kinugawa, 2019; Park & Festini, 2018). Plasticity means the capacity for change. For example, can you still improve your intellectual skills when you are in your seventies or eighties? Or might these intellectual skills be fixed by the time you are in your thirties so that further improvement is impossible? Researchers have found that the cognitive skills of older adults can be improved through training and developing better strategies (Calero, 2019; Willis & Belleville, 2016). However, possibly we possess less capacity for change when we become old (Salthouse, 2017; Shivarama Shetty & Sajikumar, 2017). The exploration of plasticity and its constraints is a key element on the contemporary agenda for developmental research (Kinugawa, 2019; Puts & others, 2017; Schaie, 2016; 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 (Anguiano, 2018; Lubetkin & Jia, 2017; Nair, Roche, & White, 2018).

Contexts, like individuals, change (Matsumoto & Juang, 2017; Taylor, Widaman, & Robins, 2018). Thus, individuals are changing beings in a changing world. As a result of these changes, contexts exert three types of influences (Baltes, 2003): (1) normative age-graded influences, (2) normative history-graded influences, and (3) nonnormative or highly individualized life events. Each of these types can have a biological or environmental impact on development.

**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 (Heo & others, 2018; Thorvaldsson & others, 2017). 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 (Schaie, 2016; Smith & Anderson, 2018). 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.

**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, such as Hurricane Maria in Puerto Rico in 2017, are unusual circumstances that can have a major influence on a person's development.  
©Mario Tama/Getty Images

**Nonnormative life events** are unusual occurrences that have a major impact on the individual's life. These events do not happen to all people, and when they do occur they can influence people in different ways (Fredriksen-Goldsen & others, 2017; Shah & others, 2018). 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 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 (Baltes, Reuter-Lorenz, & Rösler, 2006; 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).

### How Would You...?

As a **social worker**, how would you explain the importance of considering 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: "Technology Threatens Communication Skills," "Political Leanings May Be Written in the Genes," "Mother Accused of Tossing Children into Bay," "Religious Group Protests Transgender Bathrooms," "FDA Warns About Side Effects of ADHD Drug," "Heart Attack Deaths Higher in African American Patients," "Test May Predict Alzheimer Disease." Researchers using the life-span perspective explore these and many other topics of contemporary concern. The roles that health and well-being, parenting, education, 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 textbook.

### Health and Well-Being

Health professionals today recognize the power of lifestyles and psychological states in health and well-being (Blake, Munoz, & Volpe, 2019; Donatelle, 2019; Hales, 2018; Rolfes, Pinna, & Whitney, 2018). 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.

**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.



## 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.

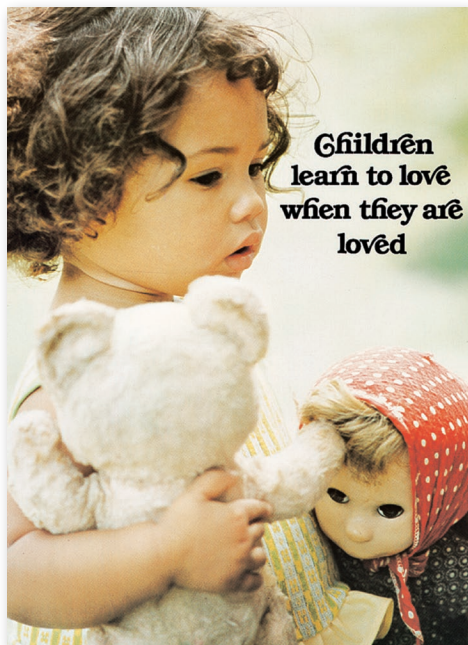


Gustavo Moreno, a clinical psychologist who often works with Spanish-speaking clients.

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## 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 (Bullard, 2017; Farr & Goldberg, 2018; Lockhart & others, 2017; Trejos-Castillo & Trevino-Schafer, 2018). 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 (Hallahan, Kauffman, & Pullen, 2019; Morrison, 2018; Powell, 2019; Sandler & others, 2017).



**Children learn to love when they are loved**

©Robert Maust/Photo Agora

## Sociocultural Contexts and Diversity

Health, parenting, and education—like development itself—are all shaped by their sociocultural context (Cummings & others, 2017; Duncan, Magnuson, & Votruba-Drzal, 2017; Lansford & Banati, 2018; Suárez-Orozco & Suárez-Orozco, 2018). To analyze this context, four concepts are especially useful: culture, ethnicity, socioeconomic status, and gender.

**Culture** encompasses the behavior patterns, beliefs, and all other products of a particular group of people that are passed on from generation to generation. Culture results from the interaction of people over many years (Goldman & others, 2018; Kim & others, 2018; Ragavan & others, 2018). 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 (Erez,

**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? How are their experiences in growing up likely similar to or different from yours?*

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2018; Matsumoto & Juang, 2017). **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 (Duell & others, 2018; Goldman & others, 2018; Shapka & others, 2018; Vignoles & others, 2017). 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 (Hou & Kim, 2018; Kim & others, 2018). In recent years, there has been a growing realization that research on children’s and adolescents’ development needs to include more children from diverse ethnic groups (Suárez-Orozco, 2018a, b, c). A special concern is the

discrimination and prejudice experienced by ethnic minority children (Nieto & Bode, 2018). Recent research indicates that pride in one’s ethnic identity group has positive outcomes (Douglass & Umana-Taylor, 2017; Umana-Taylor & others, 2018).

**Socioeconomic status (SES)** refers to a person’s position within society based on occupational, educational, and economic characteristics. Socioeconomic status implies certain inequalities. Differences in the ability to control resources and to participate in society’s rewards produce unequal opportunities (Allen & Goldman-Mellor, 2018; Dragoset & others, 2017; Singh & Mukherjee, 2018).

**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 (Dettori & Rao Gupta, 2018; Ellemers, 2018; Liben, 2017). We discuss sociocultural contexts and diversity in each chapter.

The conditions in which many of the world’s women live are a serious concern (UNICEF, 2018). Inadequate educational opportunities, violence, and lack of political access are just some of the problems faced by many women.

Recently, considerable interest has been generated about a category of gender classification, *transgender*, a broad term that refers to individuals who adopt a gender identity that differs from the one assigned to them at birth (Budge & Orovecz, 2018; Budge & others, 2018; Savin-Williams, 2017). For example, individuals may have a female body but identify more strongly with being masculine than being feminine, or have a male body but identify more strongly with being feminine than being masculine. We will have much more to say about gender and transgender later in the text.



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). Courtesy of Naser Siddique/UNICEF Bangladesh



### How Would You...?

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



### How Would You...?

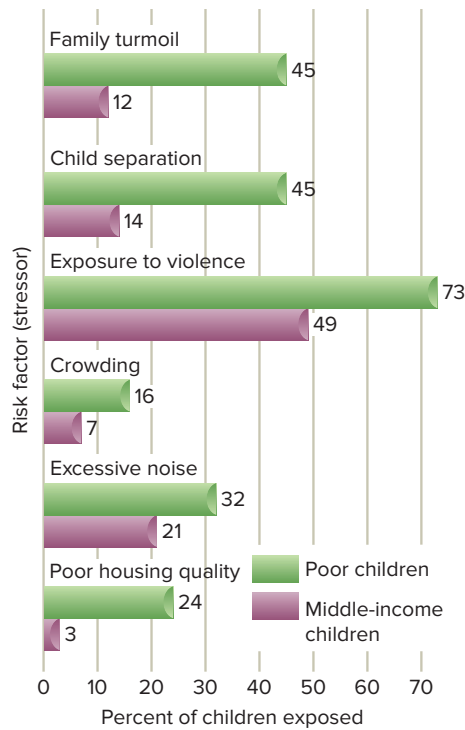
As a **psychologist**, how would you explain the importance of examining sociocultural factors in developmental research?

**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 the 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.

## 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 (Akinsola & Petersen, 2018; Aspen Institute, 2018; Lerner & others, 2018; Ruck, Peterson-Badali, & Freeman, 2017; Scales & Roehlkepartain, 2018).

Children who grow up in poverty represent a special concern (Duncan, Magnuson, & Votruba-Drzal, 2017; Koller, Santana, & Raffaelli, 2018; Suárez-Orozco, 2018a, b, c; Yoshikawa & others, 2017). In 2015, 19.7 percent of U.S. children under 18 years of age were living in families with incomes below the poverty line, with African American (36 percent) and Latino (30 percent) families with children having especially high rates of poverty (Jiang, Granja, & Koball, 2017). This is an increase from 2001 (16 percent) but slightly down from a peak of 23 percent in 1993. 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 (Lansford & Banati, 2018; McQueen, 2017; Motti-Stefanidi, 2018; Suárez-Orozco & Suárez-Orozco, 2018). For example, the Minnesota Family Investment Program (MFIP) was designed in the 1990s primarily to influence the behavior of adults—specifically, to move adults off welfare rolls and into paid employment. A key element of the program was its guarantee that adults participating in the program would receive more income if they worked than if they did not. How did

the increase in income affect their children? A study of the effects of MFIP found that higher incomes of working poor parents were linked with benefits for their children (Gennetian & Miller, 2002). The children's achievement in school improved, and their behavior problems decreased. A current MFIP study is examining the influence of specific services on low-income families at risk for child maltreatment and other negative outcomes for children (Minnesota Family Investment Program, 2009).

There is increasing interest in developing two-generation educational interventions to improve the academic success of children living in poverty (Gardner, Brooks-Gunn, & Chase-Lansdale, 2016). For example, a recent large-scale effort to help children escape from poverty is the Ascend two-generation educational intervention being conducted by the Aspen Institute (2013, 2018; King, Chase-Lansdale, & Small, 2015). The focus of the intervention emphasizes education (increasing postsecondary education for mothers and improving the quality of their children's early childhood education), economic support (housing, transportation, financial education, health insurance, and food assistance), and social capital (peer support including friends and neighbors; participation in community and faith-based organizations; school and work contacts).

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

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

(Masten, 2006, 2014, 2015, 2016a, b; 2017; Masten, Burt, & Coatsworth, 2006; Masten & Kalstabakken, 2018; Masten & Palmer, 2018; Motti-Stefanidi & Masten, 2017; Narayan & Masten, 2018; Narayan & others, 2017) 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 (Burns, Browning, and Kendig, 2017; Jennifer, 2018; Volkwein-Caplan & Tahmaseb-McConatha, 2018). Key concerns are escalating health care costs and the access of older adults to adequate health care (Cunningham, Green, & Braun, 2018; Kane, Saliba, & Hollmann, 2017).

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 (Andrew & Meeks, 2018; Conway & others, 2018; Shankar & others, 2017).

Not only is the population of older adults growing in the United States, but the world's population of people 60 years and older is projected to increase from 900 million in 2015 to 2.1 billion in 2050 (United Nations, 2015). The global population of individuals 80 years and older is expected to triple or quadruple during the same time frame.

## 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 (Lever-Duffy & McDonald, 2018; Vernon, Modecki, & Barber, 2018). When we consider the mid-1950s when television was introduced into people's lives, to the replacement of typewriters with computers that can do far more than just print words, later to the remarkable invention of the Internet and then smartphones, followed by the pervasiveness of social media and even the expanded use of robots that in some areas can do jobs better than humans can, it is obvious that our way of life has been forever changed through technological advances.

We will explore many technology topics in this book. 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 current generation of millennials and their extensive connection with technology. At various points in the book, we explore such topics as whether babies should be watching television and videos, especially how these activities might impair language development; how too much screen time takes away from children's exercise and increases their risk for obesity and cardiovascular disease; how many adolescents spend more time using various media than they do learning in school and whether multitasking with different technology devices is helpful or harmful to academic success; as well as how extensively older adults are adapting to the expanding role of technology in their daily lives, especially since they did not grow up using much technology.



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 Vilella Photography



# 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.

### Socioemotional Processes

**Socioemotional processes** involve changes in the individual's relationships with other people, changes in emotions, and changes in personality. An infant's 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:

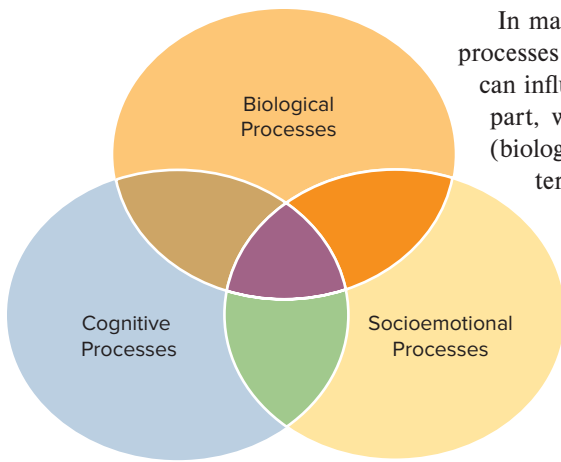
- *developmental cognitive neuroscience*, which explores links between cognitive processes, development, and the brain (Bell & others, 2018; Lee, Hollarek, & Krabbendam, 2018; Park & Festini, 2018; Reyna & others, 2018)
- *developmental social neuroscience*, which examines connections between socioemotional processes, development, and the brain (Dahl & others, 2018; Steinberg & others, 2018; Suleiman & others, 2017; Sullivan & Wilson, 2018)

**biological processes** Changes in an individual's physical nature.

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

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





**Figure 3 Processes Involved in Developmental Changes**  
Biological, cognitive, and socioemotional processes interact as individuals develop.

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 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.

*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 (Bangerter & others, 2018; Orkaby & others, 2018). 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 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 chronic stress, and are more frail (Baltes & Smith, 2003). Nonetheless, considerable variation exists in how much of their capabilities the oldest-old retain (Mejia & others, 2017; Park & Festini, 2018; Ribeiro & Araujo, 2019; Robine, 2019; Salthouse, 2017).

## 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 of measuring age (MacDonald & Stawski, 2016). 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 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).



(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 Barbara Jordan's chronological age is older, might her biological age be younger than the middle-aged man's?*

(Left) ©John Patriquin/Portland Press Herald/Getty Images; (right) ©Owaki-Kulla/Corbis/Getty Images

*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 (Bercovitz, Ngnoumen, & Langer, 2019; Fisher & others, 2017; Radoczy & others, 2018; Roberts & others, 2017; Thomas & others, 2018; Westrate & Gluck, 2017). And a recent study found that a higher level of conscientiousness was protective of cognitive functioning in older adults (Wilson & others, 2015).

*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 (Antonucci & Webster, 2019; Moss & Wilson, 2018).

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).

### 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 (Benetos, 2019; Fernandez-Ballesteros & others, 2019; Alonzo & Molina, 2019; Tanaka, 2017; Tesch-Romer & Wahl, 2017).

### 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 were very happy at 88 years of age compared with only about 24 percent in their late teens and early twenties. In a recent 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 content with what they have in 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, 2015, 2016; Westrate & Gluck, 2017).

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

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

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.

have found that life satisfaction varies across some countries. For example, research with respondents from 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). Further, older adults in poor health, such as those with cardiovascular disease, chronic lung disease, and depression, are less satisfied with their lives than are their healthier older adult counterparts (Wikman, Wardle, & Steptoe, 2011).

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, 2018).

## 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 have early in your journey more important than later ones? Is your journey more like taking an elevator up a skyscraper with distinct stops along the way or more like a cruise down a river with smoother ebbs and flows? These questions point to three issues about the nature of development: the roles played by nature and nurture, stability and change, and continuity and discontinuity.

### Nature and Nurture

The **nature-nurture issue** concerns the extent to which development is influenced by nature and by nurture. *Nature* refers to an organism's biological inheritance, *nurture* to its environmental experiences.

According to those who emphasize the role of nature, just as a sunflower grows in an orderly way—unless flattened by an unfriendly environment—so too a human grows in an orderly way. An evolution-

ary and genetic foundation produces commonalities in growth and development (Mader & Windelspecht, 2019; Starr, Evers, & Starr, 2018). We walk before we talk, speak one word before two words, grow rapidly in infancy and less so in early childhood, experience a rush of sex hormones in puberty, reach the peak

**nature-nurture issue** The debate about the extent to which development is influenced by nature and by nurture. Nature refers to an organism's biological inheritance, nurture to its environmental experiences.



What are some key developmental issues?

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of our physical strength in late adolescence and early adulthood, and then physically decline. Proponents of the importance of nature acknowledge that extreme environments—those that are psychologically barren or hostile—can depress development. However, they believe that basic growth tendencies are genetically programmed into humans (Hoefnagels, 2019; Johnson, 2017).

By contrast, other psychologists emphasize the importance of nurture, or environmental experiences, in development (Almy & Cicchetti, 2018; Chen, Lee, & Chen, 2018; Rubin & Barstead, 2018). Experiences run the gamut from the individual's biological environment (nutrition, exercise, medical care, drugs, and physical accidents) to the social environment (family, peers, schools, community, media, and culture) (Kansky, Ruzek, & Allen, 2018; Petersen & others, 2017).

## Stability and Change

Is the shy child who hides behind the sofa when visitors arrive destined to become a wallflower at college dances, or might the child become a sociable, talkative individual? Is the fun-loving, carefree adolescent bound to have difficulty holding down a 9-to-5 job as an adult? These questions reflect the **stability-change issue**, involving the degree to which early traits and characteristics persist or change over time.

The roles of early and later experience are an aspect of the stability-change issue that has long been hotly debated (Almy & Cicchetti, 2018; Chatterjee & others, 2018). Some argue that warm, nurturant caregiving during infancy and toddlerhood predicts optimal development later in life (Cassidy, 2016). The later-experience advocates see children as malleable throughout development and believe later sensitive caregiving is just as important as earlier sensitive caregiving (De la Fuente, 2019; Fingerman & others, 2017; Joling & others, 2018; Sawyer & Patton, 2018; Taylor & others, 2018).

Developmentalists who emphasize change take the more optimistic view that later experiences can produce change. Recall that in the life-span perspective, plasticity, the potential for change, exists throughout the life span (Antonucci & Webster, 2019; Blieszner, 2018; Lovden, Backman, & Lindenberger, 2017; Oltmanns & others, 2017; Park & Festini, 2018). Experts such as Paul Baltes (2003) argue that older adults often show less capacity for learning new things than younger adults do. However, many older adults continue to be good at applying what they have learned in earlier times.

## Continuity and Discontinuity

When developmental change occurs, is it gradual or abrupt? Think about your own development for a moment. Did you gradually become the person you are today? Or did you experience sudden, distinct changes in your growth? For the most part, developmentalists who emphasize nurture describe development as a gradual, continuous process. Those who emphasize nature often describe development as a series of distinct stages.

The **continuity-discontinuity issue** focuses on the degree to which development involves either gradual, cumulative change (continuity) or distinct stages (discontinuity). In terms of continuity, as the oak grows from a seedling to a giant tree, its development is continuous. Similarly, a child's first word, though seemingly an abrupt, discontinuous event, is actually the result of weeks and months of growth and practice. Puberty might seem abrupt, but it is a gradual process that occurs over several years.

In terms of discontinuity, as an insect grows from a caterpillar to a chrysalis to a butterfly, it passes through a sequence of stages in which change is qualitatively rather than quantitatively different. Similarly, at some point a child moves from not being able

to think abstractly about the world to being able to do so. This is a qualitative, discontinuous change in development rather than a quantitative, continuous change.

**stability-change issue** The debate about the degree to which early traits and characteristics persist through life or change.

**continuity-discontinuity issue** The debate about the extent to which development involves gradual, cumulative change (continuity) or distinct stages (discontinuity).

## Evaluating the Developmental Issues

Developmentalists generally acknowledge that development is not all nature or all nurture, not all stability or all change, and not all continuity or all discontinuity. Nature and nurture, stability and change, continuity

and discontinuity characterize development throughout the life span (Kinugawa, 2019; Lindahl-Jacobsen & Christensen, 2019).

Although most developmentalists do not take extreme positions on these three important issues, there is spirited debate regarding how strongly development is influenced by each of these factors (Almy & Cicchetti, 2018; Antonucci & Webster, 2019; Halldorsdottir & Binder, 2017; Kalat, 2019; Moore, 2017).

## Theories of Development

How can we answer questions about the roles of nature and nurture, stability and change, and continuity and discontinuity in development? How can we determine, for example, whether memory loss in older adults can be prevented or whether special care can repair the harm inflicted by child neglect? The scientific method is the best tool we have to answer such questions (Smith & Davis, 2016).

The scientific method is essentially a four-step process: (1) conceptualize a process or problem to be studied, (2) collect research information (data), (3) analyze data, and (4) draw conclusions.

In step 1, when researchers are formulating a problem to study, they often draw on theories and develop hypotheses. A **theory** is an interrelated, coherent set of ideas that helps to explain phenomena and make predictions. It may suggest **hypotheses**, which are specific assertions and predictions that can be tested. For example, a theory on mentoring might state that sustained support and guidance from an adult makes a difference in the lives of children from impoverished backgrounds because the mentor gives the children opportunities to observe and imitate the behavior and strategies of the mentor.

This section outlines five theoretical orientations to development: psychoanalytic, cognitive, behavioral and social cognitive, ethological, and ecological. These theories look at development from different perspectives, and they disagree about certain aspects of development. But many of their ideas are complementary, and each contributes an important piece to the life-span development puzzle. Although the theories disagree about certain aspects of development, many of their ideas are complementary rather than contradictory. Together they let us see the total landscape of life-span development in all its richness.

## Psychoanalytic Theories

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

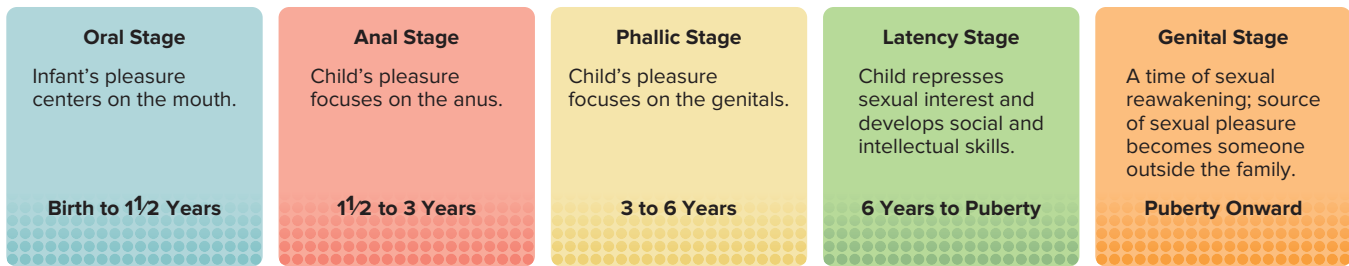
### Freud's Theory

Freud was a pioneer in the treatment of psychological problems. Based on his belief that patients who talked about their problems could be restored to psychological health, Freud developed a technique called psychoanalysis. As he listened to, probed, and analyzed his patients, he became convinced that their problems were the result of experiences early in life. He thought that as children grow up, their focus of pleasure and sexual impulses shifts from the mouth to the anus and eventually to the genitals. Consequently, he determined, we pass through five stages of psychosexual development: oral, anal, phallic, latency, and genital (see Figure 5). Our adult personality, Freud (1917) claimed, is determined by the way we resolve conflicts between sources of pleasure at each stage and the demands of reality.

**theory** A coherent set of ideas that helps to explain data and to make predictions.

**hypotheses** Assertions or predictions, often derived from theories, that can be tested.

**psychoanalytic theories** Theories holding that development depends primarily on the unconscious mind and is heavily couched in emotion, that behavior is merely a surface characteristic, that it is important to analyze the symbolic meanings of behavior, and that early experiences are important in development.



**Figure 5 Freudian Stages**

Because Freud emphasized sexual motivation, his stages of development are known as psychosexual stages. In his view, if the need for pleasure at any stage is either undergratified or overgratified, an individual may become fixated, or locked in, at that stage of development.

Freud's followers significantly revised his psychoanalytic theory. Many of today's psychoanalytic theorists believe that Freud overemphasized sexual instincts; they place more emphasis on cultural experiences as determinants of an individual's development. Unconscious thought remains a central theme, but conscious thought plays a greater role than Freud envisioned. Next, we will outline the ideas of an important revisionist of Freud's theory—Erik Erikson.

## Erikson's Psychosocial Theory

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



In **Erikson's theory**, eight stages of development unfold as we go through life (see Figure 6). At each stage, a unique developmental task confronts individuals with a crisis that must be resolved. According to Erikson, this crisis is not a catastrophe but a turning point marked by both increased vulnerability and enhanced potential. The more successfully an individual resolves these crises, the healthier his or her development will be.

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

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

*Initiative versus guilt*, Erikson's third stage of development, occurs during the preschool years. As preschool children encounter a widening social world, they face new challenges that require active, purposeful,

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

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**Erikson's theory** A psychoanalytic theory in which eight stages of psychosocial development unfold throughout the life span. Each stage consists of a unique developmental task that confronts individuals with a crisis that must be faced.