



FIFTH EDITION

ESSENTIALS

OF LIFE-SPAN DEVELOPMENT

JOHN W. SANTROCK



Essentials of Life-Span Development

FIFTH EDITION



John W. Santrock

University of Texas at Dallas



ESSENTIALS OF LIFE-SPAN DEVELOPMENT, FIFTH EDITION

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Brief Contents

- 1 Introduction 1
- 2 Biological Beginnings 35
- 3 Physical and Cognitive Development in Infancy 74
- 4 Socioemotional Development in Infancy 112
- 5 Physical and Cognitive Development in Early Childhood 137
- 6 Socioemotional Development in Early Childhood 165
- 7 Physical and Cognitive Development in Middle and Late Childhood 193
- 8 Socioemotional Development in Middle and Late Childhood 222
- 9 Physical and Cognitive Development in Adolescence 253
- 10 Socioemotional Development in Adolescence 277
- 11 Physical and Cognitive Development in Early Adulthood 299
- 12 Socioemotional Development in Early Adulthood 319
- 13 Physical and Cognitive Development in Middle Adulthood 336
- 14 Socioemotional Development in Middle Adulthood 354
- 15 Physical and Cognitive Development in Late Adulthood 369
- 16 Socioemotional Development in Late Adulthood 397
- 17 Death, Dying, and Grieving 413



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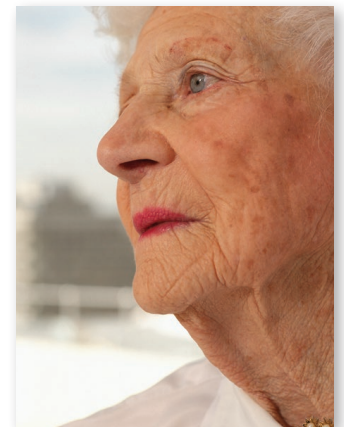
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Contents

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 3

Characteristics of the Life-Span Perspective 3

Contemporary Concerns in Life-Span Development 6

Luis Vargas, Child Clinical Psychologist 7

The Nature of Development 10

Biological, Cognitive, and Socioemotional Processes 10

Periods of Development 11

Conceptions of Age 12

Developmental Issues 14

Theories of Development 16

Psychoanalytic Theories 17

Cognitive Theories 19

Behavioral and Social Cognitive Theories 21

Ethological Theory 23

Ecological Theory 23

An Eclectic Theoretical Orientation 25

Research in Life-Span Development 26

Methods for Collecting Data 26

Research Designs 28

Time Span of Research 30

Conducting Ethical Research 32

Summary 33

Key Terms 34



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2 Biological Beginnings 35

Stories of Life-Span Development:

The Jim and Jim Twins 35

The Evolutionary Perspective 36

Natural Selection and Adaptive Behavior 36

Evolutionary Psychology 37

Genetic Foundations of Development 38

Genes and Chromosomes 40

Genetic Principles 42

Chromosome and Gene-Linked Abnormalities 42

Holly Ishmael, Genetic Counselor 45

The Interaction of Heredity and Environment:

The Nature-Nurture Debate 46

Behavior Genetics 46

Heredity-Environment Correlations 46

The Epigenetic View and Gene \times Environment (G \times E)
Interaction 47

Conclusions About Heredity-Environment Interaction 48

Prenatal Development 49

The Course of Prenatal Development 49

Prenatal Tests 53

Infertility and Reproductive Technology 55

Hazards to Prenatal Development 55

Prenatal Care 62

Birth and the Postpartum Period 63

The Birth Process 64

The Transition from Fetus to Newborn 67

Linda Pugh, Perinatal Nurse 67

Low Birth Weight and Preterm Infants 68

Bonding 70

The Postpartum Period 71

Summary 72

Key Terms 73

3 Physical and Cognitive Development in Infancy 74

Stories of Life-Span Development: Newborn Babies in

Ghana and Nigeria 74

Physical Growth and Development in Infancy 75

Patterns of Growth 75

Height and Weight 76

The Brain 76

Sleep 80

Nutrition 82

T. Berry Brazelton, Pediatrician 83

Motor Development 84

Dynamic Systems Theory 84

Reflexes 85

Gross Motor Skills 86

Fine Motor Skills 88

Sensory and Perceptual Development 89

Exploring Sensory and Perceptual Development 89

Visual Perception 91

Other Senses 92

Intermodal Perception 94

Nature, Nurture, and Perceptual Development 95

Perceptual Motor Coupling 96

Cognitive Development 96

Piaget's Theory 96

Learning, Remembering, and Conceptualizing 99

Language Development 103

Defining Language 104

How Language Develops 104

Biological and Environmental Influences 106

Summary 110

Key Terms 111

4 Socioemotional Development in Infancy 112

Stories of Life-Span Development:

Darius and His Father 112

Emotional and Personality Development 113

Emotional Development 113

Temperament 117

Personality Development 121

Social Orientation and Attachment 123

Social Orientation and Understanding 123

Attachment 124

Social Contexts 129

The Family 129

Child Care 132

Wanda Mitchell, Child-Care

Director 134

Summary 136

Key Terms 136



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5 Physical and Cognitive Development in Early Childhood 137

Stories of Life-Span Development:

Reggio Emilia's Children 137

Physical Changes 138

Body Growth and Change 138

The Brain 139

Motor Development 139

Nutrition and Exercise 140

Illness and Death 143

Cognitive Changes 144

Piaget's Preoperational Stage 144

Vygotsky's Theory 146

Information Processing 150

Helen Hadani, Developmental Psychologist, Toy Designer, and Associate Director of Research for the Center for Childhood Creativity 155

Language Development 157

Understanding Phonology and Morphology 157

Changes in Syntax and Semantics 158

Advances in Pragmatics 159

Young Children's Literacy 159

Early Childhood Education 160

Variations in Early Childhood Education 160

Education for Young Children Who Are Disadvantaged 161

Yolanda Garcia, Director of Children's Services, Head Start 162

Controversies in Early Childhood Education 163

Summary 164

Key Terms 164

6 Socioemotional Development in Early Childhood 165

Stories of Life-Span Development: Nurturing

Socioemotional Development 165

Emotional and Personality Development 166

The Self 166

Emotional Development 168

Moral Development 169

Gender 172

Families 174

Parenting 174

Darla Botkin, Marriage and Family Therapist 178

Child Maltreatment 179

Sibling Relationships and Birth Order 180

The Changing Family in a Changing Society 182

Peer Relations, Play, and Media/Screen Time 187

Peer Relations 187

Play 188

Media and Screen Time 190

Summary 192

Key Terms 192

7 Physical and Cognitive Development in Middle and Late Childhood 193

Stories of Life-Span Development: Angie and

Her Weight 193

Physical Changes and Health 194

Body Growth and Change 194

The Brain 194

Motor Development 195

Exercise 195

Health, Illness, and Disease 196

Sharon McLeod, Child Life Specialist 197

Children with Disabilities 198

The Scope of Disabilities 198

Educational Issues 201

Cognitive Changes 202

Piaget's Cognitive Developmental Theory 202

Information Processing 204

Intelligence 209

Language Development 217

Vocabulary, Grammar, and Metalinguistic Awareness 217

Reading 218

Second-Language Learning and Bilingualism 219

Summary 221

Key Terms 221

8 Socioemotional Development in Middle and Late Childhood 222

Stories of Life-Span Development: Learning in

Troubled Schools 222

Emotional and Personality Development 223

The Self 223

Emotional Development 226

Moral Development 228

Gender 233

Families 237

Developmental Changes in Parent-Child Relationships 237

Parents as Managers 238

Attachment 238

Stepfamilies 238

Peers 239

Developmental Changes 240

Peer Status 240

Social Cognition 241

Bullying 241

Friends 243

Schools 243

Contemporary Approaches to Student Learning 244

Every Student Succeeds Act (ESSA) 245

Socioeconomic Status, Ethnicity, and Culture 246

James Comer, Child Psychiatrist 248

Summary 251

Key Terms 252

9 Physical and Cognitive Development in Adolescence 253

Stories of Life-Span Development: Annie, Arnie, and

Katie 253

The Nature of Adolescence 254

Physical Changes 255

Puberty 255

The Brain 257

Adolescent Sexuality 259

Lynn Blankinship, Family and Consumer

Science Educator 263

Adolescent Health 264

Nutrition and Exercise 264

Sleep Patterns 265

Leading Causes of Death in

Adolescence 266

Substance Use and Abuse 266

Eating Disorders 268

Adolescent Cognition 269

Piaget's Theory 269

Adolescent Egocentrism 271

Information Processing 271

Schools 273

The Transition to Middle or Junior High School 273

Effective Schools for Young Adolescents 273

High School 274

Service Learning 275

Summary 276

Key Terms 276



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10 Socioemotional Development in Adolescence 277

Stories of Life-Span Development: Jewel Cash, Teen

Dynamo 277

Identity 278

What Is Identity? 278

Erikson's View 279

Developmental Changes 279

Ethnic Identity 281

Families 282

Parental Management and Monitoring 282

Autonomy and Attachment 282

Parent-Adolescent Conflict 284

Peers 285

Friendships 285

Peer Groups 286

Dating and Romantic Relationships 287

Culture and Adolescent Development 288

Cross-Cultural Comparisons 289

Ethnicity 290

The Media 292

Adolescent Problems 293

Juvenile Delinquency 293

Rodney Hammond, Health Psychologist 295

Depression and Suicide 295

The Interrelation of Problems and Successful Prevention/
Intervention Programs 297

Summary 298

Key Terms 298

11 Physical and Cognitive Development in Early Adulthood 299

Stories of Life-Span Development: Dave Eggers,

Pursuing a Career in the Face of Stress 299

The Transition from Adolescence to Adulthood 300

Becoming an Adult 300

The Transition from High School to College 301

Grace Leaf, College/Career Counselor and College Administrator 302

Physical Development 302

Physical Performance and Development 302

Health 303

Sexuality 307

Sexual Activity in Emerging Adulthood 307

Sexual Orientation and Behavior 307

Sexually Transmitted Infections 310

Cognitive Development 311

Cognitive Stages 311

Creativity 312

Careers and Work 313

Careers 314

Work 315

Summary 318

Key Terms 318

12 Socioemotional Development in Early Adulthood 319

Stories of Life-Span Development: Gwenna's Pursuit and

Greg's Lack of Commitment 319

Stability and Change from Childhood to Adulthood 320

Love and Close Relationships 322

Intimacy 322

Friendship 323

Romantic and Affectionate

Love 323

Consummate Love 324

Adult Lifestyles 325

Single Adults 325

Cohabiting Adults 325

Married Adults 326

Divorced Adults 329

Remarried Adults 330

Gay and Lesbian Adults 330

Challenges in Marriage, Parenting, and Divorce 331

Making Marriage Work 331

Becoming a Parent 332



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Janis Keyser, Parent Educator 333

Dealing with Divorce 334

Summary 335

Key Terms 335

13 Physical and Cognitive Development in Middle Adulthood 336

Stories of Life-Span Development:

Changing Perceptions of Time 336

The Nature of Middle Adulthood 337

Changing Midlife 337

Defining Middle Adulthood 338

Physical Development 338

Physical Changes 338

Health and Disease 341

Mortality Rates 342

Sexuality 342

Cognitive Development 345

Intelligence 345

Information Processing 347

Careers, Work, and Leisure 348

Work in Midlife 348

Career Challenges and Changes 349

Leisure 350

Religion and Meaning in Life 350

Religion and Adult Lives 351

Religion and Health 351

Gabriel Dy-Liacco, University Professor and Pastoral Counselor 352

Meaning in Life 352

Summary 353

Key Terms 353

14 Socioemotional Development in Middle Adulthood 354

Stories of Life-Span Development: Sarah and Wanda,

Middle-Age Variations 354

Personality Theories and Development 355

Adult Stage Theories 355

The Life-Events Approach 357

Stress and Personal Control in Midlife 358

Stability and Change 359

Longitudinal Studies 359

Conclusions 362

Close Relationships 362

Love and Marriage at Midlife 363

The Empty Nest and Its Refilling 364

Sibling Relationships and Friendships 365

Grandparenting 365
Intergenerational Relationships 366
Summary 368
Key Terms 368

15 Physical and Cognitive Development in Late Adulthood 369

Stories of Life-Span Development: Learning to Age Successfully 369

Longevity, Biological Aging, and Physical Development 370

Longevity 370

Biological Theories of Aging 372

The Aging Brain 375

Physical Development 377

Sexuality 379

Health 380

Health Problems 380

Exercise, Nutrition, and Weight 381

Health Treatment 383

Sarah Kagan, Geriatric Nurse 384

Cognitive Functioning 384

Multidimensionality and Multidirectionality 384

Use It or Lose It 388

Training Cognitive Skills 388

Cognitive Neuroscience and Aging 390

Work and Retirement 391

Work 391

Adjustment to Retirement 392

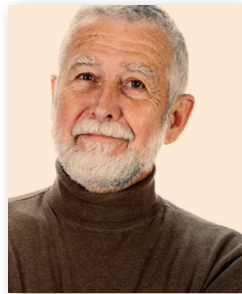
Mental Health 392

Dementia and Alzheimer Disease 393

Parkinson Disease 395

Summary 396

Key Terms 396



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16 Socioemotional Development in Late Adulthood 397

Stories of Life-Span Development: Bob Cousy, Adapting to Life as an Older Adult 397

Theories of Socioemotional Development 398

Erikson's Theory 398

Activity Theory 399

Socioemotional Selectivity Theory 400

Selective Optimization with Compensation Theory 401

Personality and Society 402

Personality 402

Older Adults in Society 402

Families and Social Relationships 404

Lifestyle Diversity 404

Attachment 406

Older Adult Parents and Their Adult Children 406

Friendship 407

Social Support and Social Integration 407

Altruism and Volunteerism 408

Ethnicity, Gender, and Culture 409

Ethnicity 409

Norma Thomas, Social Work Professor and Administrator 409

Gender 410

Culture 410

Successful Aging 410

Summary 412

Key Terms 412

17 Death, Dying, and Grieving 413

Stories of Life-Span Development: Paige Farley-Hackel and Ruth McCourt, 9/11/2001 413

Defining Death and Life/Death Issues 414

Determining Death 414

Decisions Regarding Life, Death, and Health Care 414

Kathy McLaughlin, Home Hospice Nurse 417

Death and Sociohistorical, Cultural Contexts 417

Changing Historical Circumstances 417

Death in Different Cultures 418

Facing One's Own Death 418

Kübler-Ross' Stages of Dying 418

Perceived Control and Denial 419

Coping with the Death of Someone Else 420

Communicating with a Dying Person 420

Grieving 421

Making Sense of the World 422

Losing a Life Partner 422

Forms of Mourning 423

Summary 424

Key Terms 424

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Psychology's APA Documentation Style Guide

Glossary G-1

References R-1

Name Index NI-1

Subject Index SI-1

How Would You?



Psychology Professions

Sociocultural factors in research, pg. 8
Risk of birth defects, pg. 53
Attachment in toddlers, pg. 123
Type of caregiving and infant development, pg. 132
Curriculum balance in early childhood education, pg. 158
Parenting styles and young children, pg. 172
Piaget's contributions, pg. 199
Improving children's creative thinking, pg. 202
Applying Gardner's theory of multiple intelligences, pg. 207
Child's sense of self, pg. 219
Gender and developing academic and social skills, pg. 231
Aggressive children, pg. 236
Adolescent mood swings, pg. 251
Gender differences in timing of first sexual experience, pg. 255
Applying Marcia's theory of identity formation, pg. 275
Dating in early adolescence, pg. 283
Suicide prevention in adolescents, pg. 292
Markers of adulthood, pg. 297
Cohabitation before marriage, pg. 321
Sex in middle adulthood, pg. 339
Leisure and stress reduction in middle age, pg. 345
Young adults and their parents living together, pg. 360
Nursing home quality, pg. 377
Cognitive skills in older adults, pg. 383
Adjustment to retirement, pg. 387
Benefits of a life review in late adulthood, pg. 394
Divorce in late adulthood, pg. 400
Euthanasia, pg. 410
Stages of dying, pg. 413



Education Professions

Bronfenbrenner's ecological theory, pg. 23
Domain-specific mechanisms and exceptional students, pg. 36

Concept development in infants, pg. 100
Child-care programs for infants, pg. 130
Application of Vygotsky's theory, pg. 144
Developmentally appropriate education, pg. 156
Gender development in early childhood, pg. 169
Home maltreatment and school performance, pg. 175
Learning through play, pg. 185
Physical activity in elementary school, pg. 191
Learning disabilities in elementary school, pg. 194
Improving children's megacognitive skills, pg. 203
Programs for gifted children, pg. 212
Self-concept and academic ability, pg. 221
Self-efficacy, pg. 222
Reducing bullying in school, pg. 237
Applying the jigsaw strategy, pg. 242
Sex education for adolescents, pg. 257
Sleep needs vs. early classes in high school, pg. 260
Adolescent decision-making exercises, pg. 267
Transition to middle school, pg. 268
Service learning, pg. 270
High school graduation, pg. 286
Transition to college, pg. 298
Intellectual development in early adulthood, pg. 308
Cultivating creativity, pg. 309
Work during college, pg. 312
Intelligence changes in middle adulthood, pg. 340
Generativity in middle age, pg. 350
Changes in learning as people age, pg. 370
Older adult students in the classroom, pg. 372
Volunteerism in late adulthood, pg. 403



Social Work Professions

Nonnormative life events, pg. 5
Down syndrome, pg. 42
Drug abuse during pregnancy, pg. 56
Environmental deprivation in childhood, pg. 105
Infant temperament, pg. 117
Obesity risk factors, pg. 192
Coping with a traumatic event, pg. 224

Peer relationships, pg. 236
Conflict in families with adolescents, pg. 279
Juvenile delinquency, pg. 289
Transition to adulthood, pg. 297
Alcohol use on college campuses, pg. 302
Role of gender in communication and relationships, pg. 330
Healthy lifestyles for middle-aged adults, pg. 335
Careers in middle adulthood, pg. 344
Divorce in middle age, pg. 358
Importance of a living will, pg. 409
Bereavement, pg. 415
Grief support groups, pg. 417



Health Care Professions

Cross-cultural research in health and wellness, pg. 7
Natural selection and medicine, pg. 35
Genetic abnormalities, pg. 44
Stress during pregnancy, pg. 58
Delivery options for pregnant women, pg. 62
Care for preterm infants, pg. 67
SIDS prevention, pg. 78
Attachment/caregiving style and at-risk infants, pg. 125
Nutrition for young children, pg. 137
Sports leagues for preschool children, pg. 139
Second-hand smoke and young children, pg. 139
Health services for Head Start program, pg. 157
Moral reasoning in young children, pg. 166
Maltreatment prevention with parents, pg. 175
Attention deficit hyperactivity disorder, pg. 195
Health risks to bullying victims, pg. 236
Effects of poor nutrition on achievement tests, pg. 241
Development norms in puberty, pg. 252
Physical fitness in adolescence, pg. 259
Signs of eating disorders, pg. 263
Culturally sensitive guidelines for adolescent health coverage, pg. 284
Body image of young women, pg. 300
Exercise in young adulthood, pg. 301
Prevention of sexually transmitted infections, pg. 307
Romance and sexual functioning, pg. 319
Stress reduction for middle-aged workers, pg. 353
Long-term effects of alcohol abuse and smoking in middle age, pg. 356

Challenges in middle age of caring for a chronically ill parent, pg. 362
Vision changes in late adulthood, pg. 372
Chronic diseases in late adulthood, pg. 375
Quality of medical care for older adults, pg. 377
Memory declines in late adulthood, pg. 389
Limited social contact in older adults, pg. 395
Treatment of chronic illness in older adults, pg. 398
Explaining brain death, pg. 408



Family Studies Professions

Epigenetic view and alcoholism, pg. 46
Risks during prenatal development, pg. 49
Postpartum adjustment, pg. 69
Gross motor milestones, pg. 85
Attention in infants, pg. 98
Language development, pg. 106
Stranger anxiety, pg. 112
Autonomy in toddlers, pg. 119
Concept of conservation and young children, pg. 143
Children's ideas about gender roles, pg. 168
Parenting styles, pg. 172
Children's TV viewing, pg. 186
Treatment for ADHD, pg. 196
Advantages of bilingualism, pg. 215
Children's adjustment to parent's remarriage after divorce, pg. 234
Body image in adolescent girls, pg. 252
Parental prevention of teen substance abuse, pg. 262
Bicultural identity formation in teens, pg. 276
Sexuality in young adulthood, pg. 304
Attachment and relationship style in adulthood, pg. 317
Making marriage work, pg. 327
Deciding when to have children, pg. 328
Media and the physical changes of middle age, pg. 334
Hormone replacement therapy, pg. 338
Leaving a legacy for the next generation, pg. 351
Benefits of having grandparents in children's lives, pg. 361
Ageism, pg. 397
Friendship in late adulthood, pg. 401
Hospice, pg. 410
Perceived control over end of life, pg. 413

About the Author

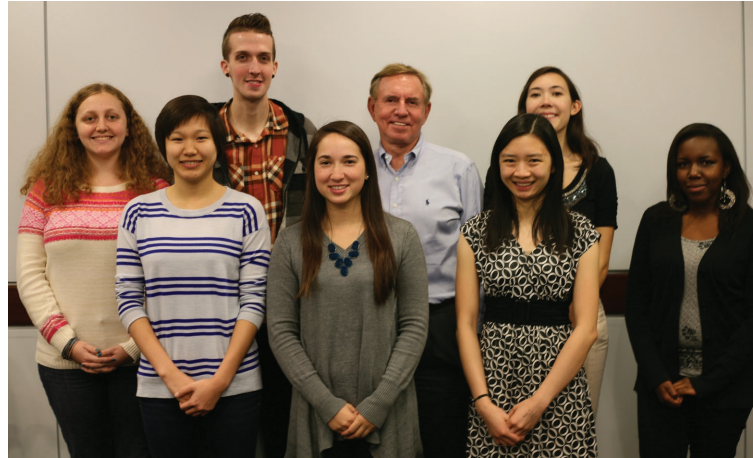
John W. Santrock

John Santrock received his Ph.D. from the University of Minnesota in 1973. He taught at the University of Charleston and the University of Georgia before joining the Program in Psychology and Human Development at the University of Texas at Dallas, where he currently teaches a number of undergraduate courses and recently was given the University's Effective Teaching Award. 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* (13th edition), *Adolescence* (16th edition), *Life-Span Development* (16th edition), *A Topical Approach to Life-Span Development* (8th 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 and Jennifer, who are both 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 25, who works at Ernst & Young accounting firm, and two grandsons, Alex, age 12, and Luke, age 10. 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.

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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 Psychology includes assignable and assessable videos, quizzes, exercises, and interactivities, all associated with learning objectives. Interactive assignments and videos allow students to experience and apply their understanding of psychology to the world with fun and stimulating activities.



Learn, Apply, Reflect

At the higher end of Bloom's taxonomy (analyze, evaluate, create), students can learn, apply, and reflect through McGraw-Hill Education's *Quest: Psychology* now available for lifespan development, which takes them on an engaging journey through the lifespan where they are in the center of the action. Using a game-like learning environment based on real-life situations and points of view, including those of guidance counselors, health-care professionals, and parents, students collect clues and make decisions to see how their choices affect outcomes. The purpose-driven approach not only helps students build their critical thinking skills using core concepts and related research, but also answers the age-old question of "why does this matter for me?" These modules are assignable and assessable within Connect Psychology, to track student performance.

Real People, Real World, Real Life

Also at the higher end of Bloom's taxonomy, 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 groundbreaking, longitudinal video series tracks the development of real children as they progress through the early stages of physical, social, and emotional development in their first few weeks, months, and years of life. Assignable and assessable within Connect Psychology, Milestones also includes interviews with adolescents and adults to reflect development throughout the entire lifespan.

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. Now with audio narration, the Fifth Edition also includes new Concept Clips on 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.

Better Data, Smarter Revision, Improved Results

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

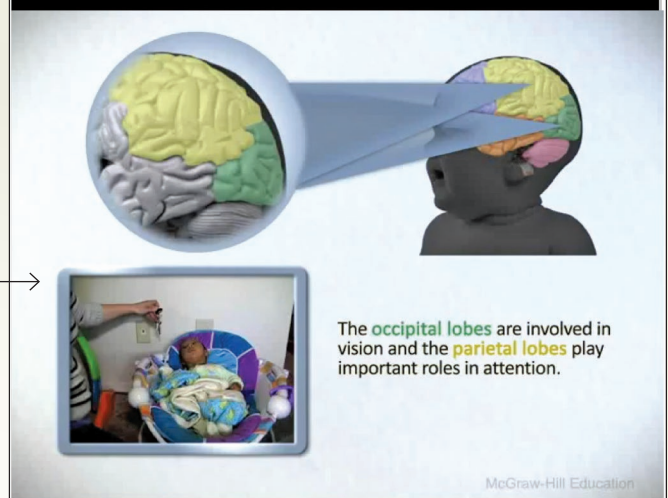
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the concepts they know from the concepts they don't, while pinpointing the concepts they are about to forget. SmartBook continuously adapts to create a truly personalized learning path. SmartBook's real-time reports help both students and instructors identify the concepts that require more attention, making study sessions and class time more efficient.

Informed by Students

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 *Essentials of Life-Span Development* SmartBook®.

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

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.

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 8 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 (Barns & 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 (Leifer, 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 & Strykowski, 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 concluded that two important contributors to height differences are ethnic origin and nutrition (Meredith, 1978).

Why are some children unusually short? The causes are **genetic** (e.g., achondroplasia), **genetic** (e.g., growth hormone deficiency), **a physical problem** (it develops in childhood, maternal smoking during pregnancy, or an emotional difficulty (Wit, Kiess, & 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.

The bodies of 5-year-olds and 2-year-olds are different from one another. The 5-year-old not only is taller and heavier, but also has a longer trunk and legs than the 2-year-old. What might be some other physical differences between 2- and 5-year-olds?

SMARTBOOK Dev Psych - A Topical Approach to LifeSpan Development - Santrock, 7e Physical Development And Biological Aging Iris Chaeyoung Kim back to Connect

PREVIEW READ PRACTICE RECHARGE

Type your answer in the box.

The specialization of function in one hemisphere of the cerebral cortex or the other is called _____

Do you know the answer?

I KNOW IT THINK SO UNSURE NO IDEA

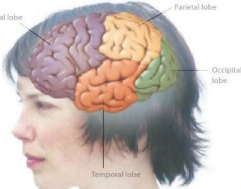


FIGURE 3.5 THE BRAIN'S FOUR LOBES

myelination The process of encasing axons with a myelin sheath, which helps increase the speed and efficiency of information processing.

lateralization Specialization of function in one hemisphere or the other of the cerebral cortex.

102 CHAPTER 3 Physical Development and Biological Aging

12 of 38

Deeper in the brain, beneath the cortex, lie other key structures. These include the hypothalamus and the pituitary gland as well as the amygdala, which plays an important role in emotions, and the hippocampus, which is especially important in memory and emotion.

Neurons As we discussed earlier, neurons process information. Figure 3.6 shows some important parts of the neuron, including the axon and dendrites. Basically, an axon sends electrical signals away from the central part of the neuron. At tiny gaps called synapses, the axon communicates with the dendrites of other neurons, which then pass the signals on. The communication in the synapse occurs through the release of chemical substances known as neurotransmitters (Ems & Grant, 2013).

As Figure 3.6 shows, most axons are covered by a myelin sheath, which is a layer of fat cells. Development of this sheath through a process called myelination helps impulses travel faster along the axon, increasing the speed and efficiency with which information travels from neurons to neurons (Buttermore, Thaxton, & Bhat, 2013; Markant & Thomas, 2013). Myelination also is involved in providing energy to neurons and in facilitating communication (Harris & Atwell, 2012).

To some extent, the type of information handled by neurons depends on whether they are in the left or the right hemisphere of the cortex (Griffiths & others, 2013). Speech and grammar, for example, depend on activity in the left hemisphere in most people; humor and the use of metaphors depend on activity in the right hemisphere (McGottigan & others, 2012). This specialization of function in one hemisphere of the cerebral cortex or the other is called **lateralization**. However, most neuroscientists agree that complex functions such as reading or performing music involve both hemispheres. Labeling people as "left-brained" because they are logical thinkers and "right-brained" because they are creative thinkers does not correspond to the way the brain's hemispheres work. For the most part, complex thinking is the outcome of communication between the hemispheres of the brain (Ibrahim & Eviatar, 2013).

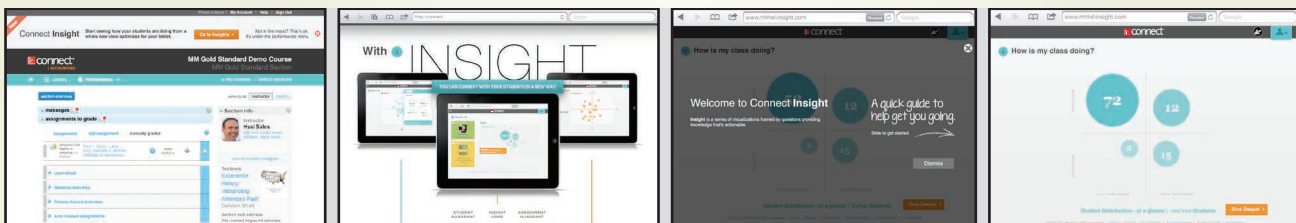
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The Essential Approach to Life-Span Development

In the view of many instructors who teach the lifespan 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 lifespan 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 fifth edition continues my commitment to provide a brief introduction to lifespan 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, the captivating **Milestones** video modules, and the brand new game-based learning assignment, **Quest: Psychology**. Together, these resources give students and instructors the essential coverage, applications, and course tools they need to tailor the lifespan 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 lifespan 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 lifespan, from the prenatal period through late adulthood and death. Providing a broad overview of lifespan 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 lifespan 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 lifespan.

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 lifespan 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 lifespan 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 lifespan development by describing an individual working in a career related to the chapter's focus. One example is Holly Ishmael, a genetic counselor. The feature describes Ms. Ishmael's education and work setting, includes a direct quote from Ms. Ishmael, discusses various employment options for genetic counselors, and provides resources for students who want to find out more about careers in genetic counseling.

Essential Resources

The following resources accompany *Essentials of Life-Span Development*, 5th 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
- Test Bank
- PowerPoint Slides

Content Revisions

As an indication of the up-to-date nature of this new edition, the text has more than 1,500 citations from 2014, 2015, and 2016. 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, 2015)
- Expanded coverage of the effects of the rapid and dramatic increase in life expectancy on society and on the quality of life for older adults, with commentary about how society has essentially been built for young people rather than older adults and what is needed to improve the lives of older people (Carstensen, 2015, 2016)
- Updated statistics 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 (DeNavas-Walt & Proctor, 2015)
- Description of recent research that found a higher level of conscientiousness was protective of older adults' cognitive functioning (Wilson & others, 2015)
- Inclusion of recent research on individuals from 22 to 93 years of age that found older adults reported having more positive emotional experiences than did young adults (English & Carstensen, 2014)
- Inclusion of recent information from studies on variations in age and well-being, including variations involving middle age and health (OECD, 2014; Steptoe, Deaton, & Stone, 2015)
- New section, "Three Developmental Patterns of Aging," that describes the pathways of normal aging, pathological aging, and successful aging (Schaie, 2016)
- New coverage of the distinction between the evaluative and hedonic aspects of well-being, and how these different aspects produce different life course trajectories (Lachman, Teshale, & Agrigoroaei, 2015)
- Expanded discussion of physiological measures to include cortisol and its use by researchers to assess stress (Jacoby & others, 2016)
- Coverage of a recent study in which older adults assessed in 2013–2014 engaged in a higher level of abstract reasoning than their counterparts who were assessed two decades earlier (Gerstorff & others, 2015)
- Inclusion of findings that cross-sectional studies indicate that 90 percent of cognitive aging decline is due to a slowing of processing speed while longitudinal studies reveal that 20 percent or less of cognitive aging decline is due to processing speed (MacDonald & Stawski, 2015, 2016)
- Updated and expanded discussion of genome-wide association studies, including research on suicide (Sokolowski, Wasserman, & Wasserman, 2016) and glaucoma (Bailey & others, 2016)
- New description of recent research on how exercise and nutrition can modify the behavior of genes (Lindholm & others, 2014; Ma & others, 2015)
- New content on how sleep deprivation can influence gene expression in negative ways such as increased inflammation, expression of stress-related genes, and impairment of protein functioning (Da Costa Souza & Ribeiro, 2015)
- Update on the percentage of individuals who have Klinefelter syndrome (1 in 1000 males)
- New content on fertility drugs being more likely to produce multiple births than in vitro fertilization (March of Dimes, 2016)
- Coverage of a recent large-scale study in Brazil in which flour that was fortified with folic acid produced a significant reduction in neural tube defects (Santos & others, 2016)
- Description of a recent research review that concluded many aspects of the developing prenatal brain can be detected in the first trimester using ultrasound, which also can help to identify spina bifida early (Engels & others, 2016)
- Inclusion of information from a recent review that concluded fetal MRI does not provide good results in the first trimester of pregnancy because of small fetal structures and movement artifacts (Watanagana & others, 2016). In this review, it also was argued that fetal MRI can especially be beneficial in assessing central nervous system abnormalities in the third trimester of pregnancy.
- Discussion of recent research that found isotretinoin (used to treat acne) is one of the most commonly prescribed drugs for adolescent girls seeking contraceptive advice, yet girls do not receive adequate information about its harmful effects on offspring if they become pregnant (Eltonsy & others, 2016; Stancil & others, 2016)
- Coverage of recent research on negative outcomes for fetal alcohol spectrum disorders (FASD) that include a lower level of executive function (Kingdon, Cardoso, & McGrath, 2016), externalized and internalized behavior problems (Tsang & others, 2016), and a significantly lower life expectancy (Thanh & Johnsson, 2016)
- Inclusion of recent research indicating that maternal cigarette smoking during pregnancy was linked to increased risk of smoking by offspring at 16 years of age (De Genna & others, 2016)
- Discussion of a recent study that found simultaneous exposure to environmental tobacco smoke and alcohol

Chapter 2: Biological Beginnings

- Editing and updating of chapter based on comments by leading expert David Moore

during pregnancy increased the offspring's risk of having ADHD (Suter & others, 2015)

- Description of a recent study that revealed maternal smoking during pregnancy was associated with increased risk of asthma and wheezing in adolescence (Hollams & others, 2014)
- Discussion of recent research indicating that cocaine use by pregnant women is linked to attention deficit hyperactivity disorder, oppositional defiant disorder, and posttraumatic stress disorder (PTSD) in offspring (Richardson & others, 2016)
- Coverage of a recent meta-analysis that found marijuana use during pregnancy was associated with low birth weight in offspring and an increased likelihood of being placed in a neonatal intensive care unit (Gunn & others, 2016)
- Inclusion of two recent research reviews that concluded maternal obesity during pregnancy is associated with an increased likelihood of offspring becoming obese in childhood and adulthood (Pinto Pereira & others, 2016; Santangeli, Sattar, & Huda, 2015)
- Coverage of the recent increase in e-cigarette use, including a survey that found pregnant women hold misconceptions about e-cigarettes (Mark & others, 2015)
- Description of a recent study in which at 14 weeks following conception fetuses of obese pregnant women had less efficient cardiovascular functioning (Ingul & others, 2016)
- Inclusion of a recent research review indicating that pregestational diabetes increases the risk of fetal heart disease (Pauliks, 2015)
- Coverage of a recent study that found maternal pregnancy diabetes was linked to an increased risk of fatty liver disease in offspring at 18 years of age (Patel & others, 2016)
- Description of recent research in which maternal pregnancy diabetes was associated with an increased risk of autism in offspring (Xiang & others, 2015)
- Discussion of a recent study in China that revealed folic acid supplementation during pregnancy decreased the risk of preterm birth (Liu & others, 2015)
- Revised content on fish consumption by pregnant women, who are now being advised to increase their fish consumption, especially low-mercury fish such as salmon, shrimp, tilapia, and cod (American Pregnancy Association, 2016; Federal Drug Administration, 2016)
- Coverage of two recent studies that found very advanced maternal age (40 years and older) was linked to negative perinatal outcomes, including spontaneous abortion, preterm birth, stillbirth, and fetal growth restriction (Traisorislip & Tongsong, 2015; Waldenstrom & others, 2015)
- Inclusion of a recent research review that found antidepressant use by pregnant women is linked to small increased risks of cardiac malfunctions in the fetus and persistent pulmonary hypertension in the newborn (Pearlstein, 2015), increased risk of miscarriage (Almeida & others, 2016), and increased risk of autism spectrum disorders in children (Boukhris & others, 2016)
- Coverage of recent research that has found increasing paternal age decreases the success rate of in vitro fertilization and increases the risk of preterm birth (Sharma & others, 2015)
- New discussion of how the father's relationship with the mother might influence the mother's health and well-being and contribute to positive or negative pre-natal development and birth
- Inclusion of a recent study that found intimate partner violence increased the mother's stress level (Fonseca-Machado Mde & others, 2015)
- Description of recent research in which CenteringPregnancy participation was linked to reduced incidence of low birth weight and reduced likelihood of placement in a neonatal intensive care unit (Gareau & others, 2016)
- Coverage of a recent study of adolescent mothers in which the CenteringPregnancy program was successful in getting participants to attend meetings, have appropriate weight gain, increase the use of highly effective contraceptive methods, and increase breast feeding (Trotman & others, 2015)
- Discussion of a recent research review in which water-birth neonates experienced fewer negative outcomes than non-waterbirth neonates (Bovbjerg, Cheyney, & Everson, 2016)
- Description of a recent research review that concluded waterbirth is associated with high levels of maternal satisfaction with pain relief and the experience of childbirth (Nutter & others, 2015)
- Discussion of a recent study in which acupuncture reduced labor pain 30 minutes after the intervention (Allameh, Tehrani, & Ghasemi, 2015)
- Coverage of recent studies that have found low Apgar scores are linked to long-term additional educational support needs and decreased educational attainment (Tweed & others, 2016), risk of developmental vulnerability at 5 years of age (Razaz & others, 2016), and risk of developing ADHD (Hanc & others, 2016)
- 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 caesarean delivery (Martin & others, 2015)
- Updated statistics on the percentage of babies born preterm and low birth weight in the United States, including ethnic variations (Martin & others, 2015)
- Inclusion of information about a recent study in which kangaroo care and massage therapy were equally effective in improving body weight and reducing hospital stay for low birth weight infants (Rangey & Sheth, 2015)
- Description of a recent study that found kangaroo care significantly reduced the amount of crying and increased heart rate stability in preterm infants (Choudhary & others, 2016)

- Coverage of a recent study in Great Britain in which the use of kangaroo care in neonatal units resulted in substantial cost savings mainly because of its reductions in diseases such as gastroenteritis and colitis (Lowson & others, 2016)
- Inclusion of a recent study in which massage therapy improved the scores of HIV-exposed infants on both physical and mental scales, as well as improving their hearing and speech (Perez & others, 2015)
- Discussion of a recent study in which depressive symptoms in both the mother and father were associated with impaired bonding with their infant in the postpartum period (Kerstis & others, 2016)

Chapter 3: Physical and Cognitive Development in Infancy

- New description indicating that neuronal connections number in the trillions (de Haan, 2015)
- Coverage of a recent study that found higher-quality mother-infant interaction predicted a higher level of frontal lobe functioning when assessed by EEG later in infancy (Bernier, Calkins, & Bell, 2016)
- New discussion of the recent increase in the use of functional near-infrared spectroscopy to assess infants' brain activity through a device that is portable and allows researchers to monitor infants' brain activity while they are exploring the world around them (Brigadoi & Cooper, 2015; de Haan & Johnson, 2016; Ravicz & others, 2015). Also, inclusion of new Figure 3 that shows an infant in an experiment using near-infrared spectroscopy.
- New commentary that after prone sleeping position, the two most critical factors in predicting SIDS are (1) maternal smoking, and (2) bed sharing (Mitchell & Krous, 2015)
- Coverage of three recent studies that found sleep difficulties in infancy were linked to later developmental problems in attention (Geva, Yaron, & Kuint, 2016; Sadeh & others, 2015) and emotional dysfunction (Geva, Yaron, & Kuint, 2016)
- Updated data on the continuing increase in breast feeding by U.S. mothers (Centers for Disease Control and Prevention, 2014)
- Description of a recent Danish study that found breast feeding did not protect against allergic sensitization in early childhood and allergy-related diseases at 7 years of age (Jelding-Dannemand, Malby Schoos, & Bisgaard, 2015)
- Coverage of a recent large-scale study of more than 500,000 Scottish children in which those who were exclusively breast fed at 6 to 8 weeks were less likely to ever have been hospitalized through early childhood than their formula-fed counterparts (Ajetunmobi & others, 2015)
- Inclusion of recent research that found breast feeding was associated with a small increase in intelligence in children (Kanazawa, 2015)
- New discussion of how walking skills might produce a developmental cascade of changes in infancy, including increases in language skills (Adolph & Robinson, 2015; He, Walle, & Campo, 2015)
- Description of recent studies that indicated short-term training involving practice of reaching movements increased both preterm and full-term infants' reaching for and touching objects (Cunha & others, 2015; Guimaraes & Tudelia, 2015)
- Coverage of a recent study in which 3-month-olds who had regular gentle tactile stimulation when they were fetuses were more likely to have an easy temperament than their counterparts who experienced irregular gentle or no gentle tactile stimulation as fetuses (Wang, Hua, & Xu, 2015)
- Inclusion of recent research in which kangaroo care was effective in reducing neonatal pain (Seo, Lee, & Ahn, 2016)
- Coverage of recent research that revealed problems in joint attention as early as 8 months of age were linked to diagnosis of autism by 7 years of age (Veness & others, 2014)
- A recent study that found infants who initiated joint attention at 14 months of age had higher executive function at 18 months of age (Miller & Marcovitch, 2015)
- Discussion of recent research on when infantile amnesia begins to occur by Patricia Bauer and her colleagues (Bauer, 2015; Bauer & Larkina, 2015; Pathman, Doydum, & Bauer, 2015). In a recent study, by 8 to 9 years of age, children's memory of events that occurred at 3 years of age began to significantly fade away (Bauer & Larkina, 2014).
- New discussion of Patricia Kuhl's (2015) findings that a baby's brain is most open to learning the sounds of a native language beginning at 6 months for vowels and at 9 months for consonants
- Description of recent research in which vocabulary development from 16 to 24 months of age was linked to vocabulary, phonological awareness, reading accuracy, and reading comprehension five years later (Duff & others, 2015)
- Discussion of a recent study of toddlers in which frequent TV exposure increased the risk of delayed language development (Lin & others, 2015)
- Coverage of a recent study that found Skype provides some improvement in children's language learning over television and videos (Roseberry & others, 2014)

Chapter 4: Socioemotional Development in Infancy

- Revisions in chapter based on feedback from leading experts John Bates and Ross Thompson
- Coverage of recent research indicating that smiling and laughter at 7 months of age was associated with self-regulation at 7 years of age (Posner & others, 2014)

- Inclusion of a recent study in which mothers were more likely than fathers to use soothing techniques to reduce infant crying (Dayton & others, 2015)
- New discussion of describing infant temperament in terms of reactivity and self-regulation (Bates & Pettit, 2015)
- Revised description of the temperament category of extraversion/surgency
- Description of recent research that found an inhibited temperament at 2 to 3 years of age was related to social-phobia-related symptoms at 7 years of age (Lahat & others, 2014)
- Inclusion of recent findings indicating that an inhibited temperament in infants and young children is linked to the development of social anxiety disorder in adolescence and adulthood (Rapee, 2014; Perez-Edgar & Guyer, 2014)
- New research that revealed effortful control was a strong predictor of academic success skills in kindergarten children from low-income families (Morris & others, 2014)
- New discussion of the recent interest in the *differential susceptibility* and *biological sensitivity to context* models that emphasize certain characteristics—such as a difficult temperament—may render children more vulnerable to difficulty in adverse contexts but also make them more likely to experience optimal growth in very supportive conditions (Belsky & others, 2015; Belsky & Pluess, 2016; Simpson & Belsky, 2016)
- New commentary about recent advances in infants’ understanding of others (Rhodes & others, 2015), including research indicating that infants as young as 13 months of age seem to consider another’s perspective when predicting their actions (Choi & Luo, 2015)
- Inclusion of recent research in which infant attachment insecurity (especially insecure resistant attachment) and early childhood behavioral inhibition predicted adolescent social anxiety symptoms (Lewis-Morrarty & others, 2015)
- Discussion of a recent study in dual-earner couples that found women did more than 2 hours of additional work compared with 40 minutes more for men after the birth of their child (Yavorsky & others, 2015)
- Description of a recent national poll that estimated there are 2 million stay-at-home dads in the United States, a significant increase from 1.6 million in 2004 and 1.1 million in 1989 (Livingston, 2014)
- Coverage of a recent study in which both paternal and maternal sensitivity assessed when the infant was 10 to 12 months old were linked to the child’s cognitive development at 18 months of age and the child’s language development at 36 months (Malmburg & others, 2016)
- Added commentary that infants and toddlers are more likely to be found in family child care and informal care settings while older children are more likely to be in child care centers and preschool and early education programs

- Description of a recent Australian study in which higher-quality child care at 2 to 3 years of age was linked to children’s better self-regulation of attention and emotion at 4 to 5 and 6 to 7 years of age (Gialamas & others, 2014)

Chapter 5: Physical and Cognitive Development in Early Childhood

- Coverage of a recent study in which young children with higher cognitive ability showed increased myelination by 3 years of age (Deoni & others, 2016)
- Inclusion of recent research on how poverty is linked to maturational lags in children’s frontal and temporal lobes that in turn were associated with lower school readiness skills (Meyer & others, 2015)
- Description of a recent study that revealed higher levels of maternal sensitivity in early childhood were related to higher total brain volume in children (Kok & others, 2015)
- Discussion of a recent study in which viewing as little as one hour of television daily was associated with an increase in body mass index (BMI) between kindergarten and the first grade (Peck & others, 2015)
- Coverage of recent research indicating that in longitudinal studies, when mothers participated in prenatal and early childhood WIC programs, young children showed short-term cognitive benefits and longer-term reading and math benefits (Jackson, 2015)
- Recent description by expert panels from Australia, Canada, the United Kingdom, and the United States that were remarkably similar in recommending that young children get an average of 15 or more minutes of physical activity per hour over a 12-hour period, or about 3 hours total activity per day (Pate & others, 2015)
- Coverage of recent research in which 60 minutes of physical activity per day in preschool academic contexts improved young children’s early literacy (Kirk & Kirk, 2016)
- Inclusion of recent research in which myelination in a number of brain areas was linked to young children’s processing speed (Chevalier & others, 2015)
- Discussion of recent research that found preschool sustained attention was linked to a greater likelihood of completing college by 25 years of age (McClelland & others, 2013)
- Coverage of a recent study of young children that found executive function was associated with emergent literacy and vocabulary development (Becker & others, 2014)
- Description of recent research in which executive function at 3 years of age predicted theory of mind at 4 years of age and executive function at 4 years of age predicted theory of mind at 5 years of age, but the reverse did not occur—theory of mind at earlier ages did not predict executive function at later ages (Marcovitch & others, 2015)

- New coverage of developmental changes in executive function in early childhood, including recent research on executive function and school readiness (Wiloughby & others, 2016)
- Inclusion of research in which secure attachment to mothers during the toddler years was linked to a higher level of executive function at 5 to 6 years of age (Bernier & others, 2015)
- Discussion of a recent observational study that found a higher level of control by fathers predicted a lower level of executive function in 3-year-olds (Meuwissen & Carlson, 2016)
- Coverage of recent research in which experiencing peer problems in early childhood was linked to lower executive function later in childhood (Holmes, Kim-Spoon, & Deater-Deckard, 2016)
- Expanded and updated coverage of factors that influence children's theory of mind development: prefrontal cortex functioning (Powers, Chavez, & Hetherington, 2016) and various aspects of social interaction (Hughes & Devine, 2015), including secure attachment and mental state talk, and having older siblings and friends who engage in mental state talk
- 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)
- Updated data on the number of U.S. children who were victims of child maltreatment in 2013 (U.S. Department of Health and Human Services, 2015)
- Discussion of a recent study in which individuals who had experienced their parents' divorce were more at risk for engaging in a lifetime suicide attempt (Alonzo & others, 2015)
- Inclusion of a 30-year longitudinal study that found offspring of parents who engaged in child maltreatment and neglect are at increased risk for engaging in child neglect and sexual maltreatment themselves (Widom, Czaja, & Dumont, 2015)
- Description of recent research on almost 3,000 adolescents that revealed a negative association of the father's, but not the mother's, unemployment on the adolescents' health (Baciková-Slesková, Benka, & Orosová, 2015)
- Coverage of recent research indicating that enriched work-family experiences were positively linked to better parenting quality, which in turn was associated with better child outcomes; by contrast, conflicting work-family experiences were related to poorer parenting quality, which in turn was linked to more negative child outcomes (Viera & others, 2016)
- Inclusion of recent research in which children were more likely to have behavior problems if their post-divorce environment was less supportive and stimulating, their mother was less sensitive and more depressed, and their household income was lower (Weaver & Schofield, 2015). Also in this study, higher levels of predivorce maternal sensitivity and child IQ served as protective factors in reducing child problems after the divorce.

Chapter 6: Socioemotional Development in Early Childhood

- Some changes made in chapter based on feedback from leading expert Jennifer Lansford
- Expanded coverage of the importance of emotion regulation in childhood and links between emotion regulation and executive function (Calkins & Perry, 2016; Durlak, Comitrovich, & Gullotta, 2015; Griffin, Freund, & McCardle, 2015)
- Description of recent research in which young children with authoritative parents were less likely to be obese than their counterparts with authoritarian parents (Kakinami & others, 2015)
- Inclusion of new information that physical punishment is outlawed in 41 countries (Committee on Rights of the Child, 2014)
- New content on the correlational nature of research on punishment, as well as bidirectional, reciprocal socialization influences that take into account child characteristics and problems (Laible, Thompson, & Froimson, 2015; Sheehan & Watson, 2008)
- Coverage of a recent study in which unmarried African American parents who were instructed in coparenting techniques during the prenatal period and also one month after the baby was born had better rapport, communication, and problem-solving skills when the baby was 3 months old (McHale, Salman-Engin, & Covert, 2015)
- Inclusion of recent research in which maladaptive marital conflict when children were 2 years old was associated with an increase in internalizing problems eight years later due to an undermining of attachment security in girls, while negative emotional aftermath of conflict increased both boys' and girls' internalizing problems (Brock & Kochanska, 2016)
- Coverage of a longitudinal study that revealed parental divorce experienced prior to 7 years of age was linked to a lower level of the children's health through 50 years of age (Thomas & Hognas, 2015)
- Description of recent research on non-residential fathers in divorced families that linked high father-child involvement and low interparental conflict to positive child outcomes (Flam & others, 2016)
- Discussion of a recent study that found co-parenting following divorce was positively associated with better mental health and higher self-esteem and academic achievement (Lamela & Figueiredo, 2016)
- Inclusion of a recent research review that concluded higher screen time was associated with a lower level of cognitive development in early childhood (Carson & others, 2015)
- Description of a study that found parental reduction in their own screen time was associated with a decrease in child screen time (Xu, Wen, & Rissel, 2014)

- Inclusion of recent research on children in which higher viewing of TV violence, video game violence, and music video violence was independently associated with a higher level of physical aggression (Coker & others, 2015)
- New coverage of recommendations by Kathy Hirsh-Pasek and her colleagues (2015) that the best educational applications (apps) for young children are characterized by active involvement, engagement, meaningfulness, and social interaction

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

- Inclusion of a recent Chinese study that found higher blood pressure in 23 percent of boys and 15 percent of girls was attributable to being overweight or obese (Dong & others, 2015)
- Description of a 14-year longitudinal study in which parental weight gain predicted children's weight change (Andriani, Liao, & Kuo, 2015)
- Coverage of a study that found both a larger waist circumference and a higher body mass index (BMI) combined to place children at higher risk for developing cardiovascular disease (de Koning & others, 2015)
- 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)
- Updated statistics on the percentage of U.S. children who have ever been diagnosed with ADHD (American Psychiatric Association, 2013; Centers for Disease Control and Prevention, 2016)
- New research that revealed the dopamine transporter gene DAT 1 was involved in decreased cortical thickness in the prefrontal cortex of children with ADHD (Fernandez-Jaen & others, 2015)
- Inclusion of recent research in which a higher physical activity level in adolescence was linked to a lower level of ADHD in emerging adulthood (Rommel & others, 2015)
- Description of a recent meta-analysis that concluded short-term aerobic exercise is effective in reducing symptoms such as inattention, hyperactivity, and impulsivity (Cerillo-Urbina & others, 2015)
- Coverage of a recent meta-analysis in which exercise was associated with better executive function in children with ADHD (Vysniauske & others, 2016)
- Discussion of a recent meta-analysis in which mindfulness training significantly improved the attention of children with ADHD (Cairncross & Miller, 2016)
- Updated data on the increasing percentage of children diagnosed with autism spectrum disorder (Centers for Disease Control and Prevention, 2016)
- Update on the percentage of children with a disability who spend time in a regular classroom (*Condition of Education*, 2015)
- Expanded and updated coverage of Alan Baddeley's important concept of working memory, including coverage of its link to improving many aspects of children's cognitive and academic development (Gerst & others, 2016; Peng & Fuchs, 2016)
- Discussion of a recent study in which a social and emotional learning program focused on mindfulness and caring for others was effective in improving a number of cognitive processes in fourth- and fifth-grade students, including mindfulness and cognitive control (Schonert-Reichl & others, 2015)
- Expansion of the activities that improve executive function to include scaffolding of self-regulation (Bodrova & Leong, 2015)
- Coverage of recent research in which mindfulness training improved children's attention and self-regulation (Poehlmann-Tynan & others, 2016), achievement (Singh & others, 2016), and coping strategies in stressful situations (Dariosis & others, 2016)
- Updated description of the most recent editions of the various Wechsler intelligence scales
- Description of a recent meta-analysis that revealed a correlation of $+.54$ between intelligence and school grades (Roth & others, 2015)
- Description of a recent study using Stanford-Binet intelligence scales that found no differences between non-Latino White and African American preschool children when they were matched for age, gender, and level of parent education (Dale & others, 2014)
- Coverage of a recent analysis that concluded the underrepresentation of African Americans in STEM subjects and careers is linked to practitioners' expectations that they have less innate talent than non-Latino Whites (Leslie & others, 2015)
- New description of how children who are gifted excel in various aspects of processing information (Ambrose & Sternberg, 2016a)
- Discussion of a recent study that revealed parents and teachers rated elementary school children who are not gifted as having more emotional and behavioral problems than children who are gifted (Eklund & others, 2015)
- Inclusion of some changes in the coverage of language development based on recommendations by leading expert Mandy McGuire
- Revised and updated content on bilingualism, including information about whether parents of infants and young children should teach them two languages simultaneously (Bialystok, 2014, 2015)
- New description of the rate at which bilingual and monolingual children learn language(s) (Hoff, 2016) and inclusion of a recent study that found by 4 years of age children who continued to learn both Spanish and English had a total vocabulary growth that was greater than that of monolingual children (Hoff & others, 2014)

Chapter 8: Socioemotional Development in Middle and Late Childhood

- Description of a recent study that found narcissistic parents especially overvalue their children's talents (Brummelman & others, 2015)
- Inclusion of recent research in which higher levels of self-control at 4 years of age were linked to improvements in math and reading achievement in the early elementary school years for children living predominantly in rural and low-income contexts (Blair & others, 2015)
- New content on how during middle and late childhood, as part of their understanding of emotions, children can engage in “mental time travel,” in which they anticipate and recall the cognitive and emotional aspects of events (Lagattuta, 2014a, b; Lagattuta & others, 2015)
- New commentary on how children who have developed a number of coping techniques have the best chance of adapting and functioning competently after disasters and traumas (Ungar, 2015)
- New section on Jonathan Haidt's (2013) criticism of Kohlberg's view of moral reasoning as always conscious and deliberate, and his lack of attention to the automatic, intuitive precursors of moral reasoning
- New commentary about the multiple factors that may contribute to gender differences in academic achievement in areas such as reading and math (Wentzel & Miele, 2016)
- Inclusion of information from a meta-analysis that found females are better than males at recognizing non-verbal displays of emotion (Thompson & Voyer, 2014)
- New content on peer rejection being consistently linked to the development and maintenance of conduct problems (Chen, Drabick, & Burgers, 2015)
- Discussion of a recent analysis that concluded bullying can have long-term effects, including problems at work and difficulty in establishing long-term relationships (Wolke & Lereya, 2015)
- New research review that found antibullying interventions that focused on the whole school, such as Olweus', were more effective than interventions involving classroom curricula or social skills training (Cantone & others, 2015)
- New content on the *Every Student Succeeds Act (ESSA)* that became U.S. law in December 2015 (Rothman, 2016). This law replaces *No Child Left Behind* and while not totally eliminating state standards for testing students, reduces their influence. The new law also allows states to opt out of *Common Core* standards.
- New discussion of recent research in which underachieving high school students who read online modules about how the brain changes when people learn and study improved their grade point averages (Paunesku & others, 2015)

- Description of a longitudinal study of university students in which a nonlimited mindset predicted better self-regulation and higher grades (Job & others, 2015)
- Discussion of a recent study that found young Chinese adolescents have a greater sense of responsibility to parents than do their U.S. counterparts and that the U.S. students' sense of responsibility, but not the Chinese students', declined across two years (Qu & Pomerantz, 2015)

Chapter 9: Physical and Cognitive Development in Adolescence

- Description of a recent research review that concluded there is insufficient quality research to confirm that changing testosterone levels in puberty are linked to adolescent males' mood and behavior (Duke, Glazer, & Steinbeck, 2014)
- Inclusion of a recent study of Chinese girls that confirmed childhood obesity contributed to an earlier onset of puberty (Zhai & others, 2015)
- Coverage of a recent Korean study in which early menarche was associated with risky sexual behavior in females (Cheong & others, 2015)
- Coverage of a recent study that found early maturation predicted a stable higher level of depression for adolescent girls (Rudolph & others, 2015)
- Discussion of a recent study that revealed early-maturing Chinese boys and girls engaged in delinquency more than their on-time or late-maturing counterparts (Chen & others, 2015)
- New discussion of neurotransmitter changes in adolescence, particularly increased dopamine production (Monahan & others, 2016)
- Updated national data on the percentages of adolescents at different age levels who have engaged in sexual intercourse, including gender and ethnic variations, as well as updates in Figure 3 (Kann & others, 2014)
- Description of a recent Swedish study of more than 3,000 adolescents indicating that sexual intercourse prior to age 14 was linked to a number of risky sexual behaviors at age 18 (Kastbom & others, 2015)
- Discussion of a recent study of a number of parenting practices that found the factor that best predicted a lower level of risky sexual behavior by adolescents was supportive parenting (Simons & others, 2016)
- New research indicating that adolescent males who play sports engage in more risky sexual behavior while adolescent females who play sports engage in less risky sexual behavior (Lipowski & others, 2016)
- Updated data on the percentage of adolescents who use contraceptives when they have sexual intercourse (Kann & others, 2014)
- Inclusion of a recent cross-cultural study of adolescent pregnancy rates in 21 countries (Sedgh & others, 2015)
- Updated statistics on the continuing decline in overall adolescent pregnancy rates in the United States and the

decline in all ethnic groups, including updates in Figure 4 (Martin & others, 2015)

- Coverage of a recent study of African American teen versus nonteen mothers' and fathers' long-term life outcomes in a number of areas (Assini-Meytim & Green, 2015)
- Description of a recent study in which family meals during adolescence protected against being overweight or obese in adulthood (Berge & others, 2015)
- Updated national data on adolescents' exercise patterns, including gender and ethnic variations (Kann & others, 2014)
- Inclusion of recent research in which an exercise program of 180 minutes per week improved the sleep patterns of obese adolescents (Mendelson & others, 2016)
- Discussion of a recent study in which a high-intensity exercise program decreased the depressive symptoms and improved the moods of depressed adolescents (Carter & others, 2016)
- Updated national data on adolescents' sleep patterns, including developmental changes (Kann & others, 2014)
- Coverage of a large-scale study of more than 270,000 adolescents from 1991 to 2012 that found adolescents have been decreasing the amount of sleep they get in recent years (Keyes & others, 2015)
- Description of recent Swedish studies of 16- to 19-year-olds in which shorter sleep duration was associated with a greater likelihood of school absence and shorter sleep duration and sleep deficit were the best sleep predictors of having a low grade point average (Hysing & others, 2015, 2016)
- Discussion of a recent study that revealed early school start times were linked to a higher vehicle crash rate by adolescent drivers (Vorona & others, 2014)
- Inclusion of the recent recommendation by the American Academy of Pediatrics that schools institute start times from 8:30 to 9:30 a.m. to improve students' academic performance and quality of life (Adolescent Sleep Working Group, AAP, 2014)
- Updated coverage of the Monitoring the Future study's assessment of drug use by secondary school students with 2014 data on U.S. eighth-, tenth-, and twelfth-graders (Johnston & others, 2016)
- Description of a longitudinal study in which earlier age at first use of alcohol was linked to risk of heavy alcohol use in early adulthood (Liang & Chikritzhs, 2015)
- New research that revealed early- and rapid-onset trajectories of alcohol, marijuana, and substance use were associated with substance use in early adulthood (Nelson, Van Ryzin, & Dishion, 2015)
- New content on why the transition to high school may produce problems for students (Eccles & Roeser, 2016)
- Updated data on school dropouts with a continuing decline in dropout rates for various ethnic groups (Child Trends, 2014; National Center for Education Statistics, 2014)

- Discussion of a recent study in which adolescents took greater risks when they were with three same-aged peers than when they were alone (Silva, Chein, & Steinberg, 2016)

Chapter 10: Socioemotional Development in Adolescence

- Changes made based on leading expert Kate McLean's recommendations
- New coverage of the narrative approach to identity, which involves examining identity by having individuals tell their life stories and then evaluating the extent to which the stories are meaningful and integrated (McAdams & Zapata-Gietl, 2015; Singer & Kasmark, 2015)
- Inclusion of a recent study that examined identity domains using both identity status and narrative approaches with the interpersonal domain (especially dating and friendship aspects) frequently mentioned (McLean & others, 2016). In the narrative approach, family stories were common.
- Coverage of two recent studies that found a strong and positive ethnic identity was linked to a lower incidence of substance abuse and psychiatric problems (Anglin & others, 2016; Grindal & Nieri, 2016)
- Description of recent research in which higher parental monitoring reduced negative peer influence on adolescent risk-taking (Wang & others, 2016)
- Coverage of a recent meta-analysis that found a higher level of parental monitoring and rule enforcement were linked to later initiation of sexual intercourse and greater use of condoms by adolescents (Dittus & others, 2016)
- New research in which lower disclosure to parents was linked to antisocial behavior in 10- to 18-year-olds (Chriss & others, 2015)
- Discussion of recent research that found snooping was a relatively infrequent parental monitoring technique (compared with solicitation and control) but was a better indicator of problems in adolescent and family functioning (Hawk, Becht, & Branje, 2016)
- Coverage of a recent study that revealed insecure attachment to mothers was linked to becoming depressed and remaining depressed from 15 to 20 years of age (Agerup & others, 2015)
- Description of a study in which high parent-adolescent conflict was associated with a lower level of empathy across a six-year period (Van Lissa & others, 2015)
- Inclusion of a recent study that found a higher level of parent-adolescent conflict was linked to higher anxiety, depression, and aggression, and lower self-esteem (Smokowski & others, 2015a)
- New research on Chinese American families that revealed parent-adolescent conflict was linked to a sense of alienation between parents and adolescents, which in turn was related to more depressive

symptoms, delinquent behavior, and lower academic achievement (Hou, Kim, & Wang, 2016)

- Discussion of a recent study that found boys were more likely to be influenced by peer pressure involving sexual behavior than were girls (Widman & others, 2016)
- Description of recent research in which adolescents adapted their smoking and drinking behavior to that of their best friends (Wang & others, 2016b)
- Inclusion of recent research that revealed mother-daughter conflict in Mexican American families was linked to an increase in daughters' romantic involvement (Tyrell & others, 2016)
- Description of a recent research review in which a higher level of media multitasking was linked to lower levels of school achievement, executive function, and growth mindset in adolescents (Cain & others, 2016)
- New information from a research review with details about the complexities of why media multitasking can interfere with learning and driving (Courage & others, 2015)
- Updated data on the percentage of adolescents who use social networking sites and engage in text messaging daily (Lenhart, 2015a, b)
- Coverage of a recent study in which having friends who engage in delinquency is associated with early onset and more persistent delinquency (Evans, Simons, & Simons, 2015)
- New content on the link between low academic success and delinquency (Mercer & others, 2015) and the association of cognitive factors, such as low self-control, with delinquency (Fine & others, 2016)
- New coverage of the roles of stress and loss in adolescent depression and inclusion of a recent study that found adolescents who became depressed were characterized by a sense of hopelessness (Weersing & others, 2016)
- New description of a recent study that found adolescent girls' greater experience of interpersonal dependent stress was linked to their higher level of rumination, which accounted for their higher level of depressive symptoms than boys (Hamilton & others, 2015)
- Description of a recent study in which family therapy improved juvenile court outcomes beyond what was achieved in nonfamily-based treatment (Dakof & others, 2015)
- Inclusion of recent research that revealed positive parenting characteristics were associated with less depression in adolescents (Smokowski & others, 2015)
- New information from a research review that concluded SSRIs show clinical benefits for adolescents at risk for moderate and severe depression (Cousins & Goodyer, 2015)
- Updated data on the percentage of U.S. adolescents who seriously consider suicide each year (Kann & others, 2014)
- Inclusion of recent research in which both depression and hopelessness were predictors of whether adolescents would repeat a suicide attempt across a six-month period (Consoli & others, 2015)

- Coverage of a recent study that found child maltreatment was linked to adolescent suicide attempts (Holland & others, 2015)
- New research in which a lower level of school connectedness was associated with increased suicidal ideation in female and male adolescents, and with suicide attempts by female adolescents (Langille & others, 2015)

Chapter 11: Physical and Cognitive Development in Early Adulthood

- Description of a recent Danish study focused on the most widely described markers of emerging adulthood (Arnett & Padilla-Walker, 2015)
- New commentary that 70 percent of college students do not get adequate sleep and 50 percent report daytime sleepiness (Hershner & Chervin, 2015)
- Inclusion of information from a recent national survey indicating that 29.5 percent of U.S. 20- to 39-year-olds are overweight and 31.5 percent are obese (Dietary Guidelines Advisory Committee, 2015)
- Discussion of recent international comparisons of 33 countries in which the United States had the highest percentage of obese adults (35.3 percent) and Japan the lowest percentage (3.7); the average of the countries was 23.2 percent of the population being obese
- Coverage of recent research on binge drinking by U.S. college students, including recent trends (Johnston & others, 2015)
- Recent research on the atypical features of depression in overweight/obese adults (Lojko & others, 2015)
- Coverage of a recent meta-analysis in which moderate and vigorous aerobic exercise resulted in a lower incidence of major depressive disorder (Schuch & others, 2016b)
- Description of a recent study in which adults who regularly exercise had lower levels of anxiety and depression (Khazada, Soomro, & Khan, 2015)
- Discussion of recent research that found a one-year exercise intervention decreased stress symptoms in working adults (Kettunen, Vuorimaa, & Vasankari, 2015)
- Coverage of recent research indicating that 40 percent of 22-year-olds reported recently having had a casual sex partner (Lyons & others, 2015)
- Description of a recent study that revealed when emerging adults drink alcohol, they are more likely to have casual sex and less likely to discuss possible risks (Johnson & Chen, 2015)
- Inclusion of recent research of more than 3,900 18- to 25-year-olds that found having casual sex was negatively linked to well-being and positively related to psychological distress (Bersamin & others, 2014)
- Updated data on the percentage of individuals who have AIDS globally (UNAIDS, 2015)
- New description of a recent study in which the personality trait of openness to experience predicted creativity

in the arts while intellect predicted creativity in the sciences (Kaufman & others, 2016)

- Inclusion of two recent studies indicating the importance of purpose in life in predicting well-being in emerging adulthood (Hill & others, 2016) and a lower incidence of cardiovascular disease and likelihood of living a longer life (Cohen, Bavishi, & Rozanski, 2016)
- Updated discussion of the job categories most likely to have an increase in openings through 2024 (Occupational Outlook Handbook, 2016/2017)
- New coverage of the unemployment rate of recent college graduates and the high percentage who have to take jobs that do not require a college degree (Center for Economic and Policy Research, 2014; Gabor, 2014)
- Discussion of a recent study in which unemployment was associated with higher mortality but the link was higher among those who were unmarried (Van Hedel & others, 2015)
- Inclusion of a longitudinal study that found low self-control in childhood was linked to the emergence and persistence of unemployment from 21 to 50 years of age (Daly & others, 2015)
- Description of recent research in which women reported more family interference from work than did men (Allen & Finkelstein, 2014)
- Inclusion of recent research in which partner coping, having a positive attitude about multiple roles, using planning and management skills, and not having to cut back on professional responsibilities were linked to better relationships between dual earners (Matias & Fontaine, 2015)

Chapter 12: Socioemotional Development in Early Adulthood

- Discussion of a longitudinal study in which insecure avoidant attachment at 8 years of age was linked to negative social outcomes at 21 years of age (Fransson & others, 2016)
- Description of a recent study of adoptees that found higher maternal sensitivity in infancy and middle and late childhood predicted more secure attachment representations in emerging adulthood (Schoenmaker & others, 2015)
- Discussion of recent research that revealed young adults with an anxious attachment style were more likely to be characterized by higher negative affect, stress, and perceived social rejection; those with an avoidant attachment style were more likely to be characterized by less desire to be with others when alone (Sheinbaum & others, 2015)
- New research in which adults with a secure attachment style had fewer sleep disruptions than their counterparts with an insecure avoidant or insecure anxious attachment (Adams & McWilliams, 2015)
- Coverage of a recent study in which insecurely attached adults had a higher level of social anxiety than their securely attached counterparts (Notzon & others, 2016)
- New content on the potential positive and negative aspects of cross-gender friendships (Hart, Adams, & Tullet, 2016)
- Updated coverage of the continued dramatic rise in the number of never married, single adults in the United States, including specific data on the 18- to 29-year age bracket (Gallup Poll, 2015; U.S. Census Bureau, 2015a)
- Inclusion of a recent U.S. survey on the percentage of adults in different age brackets who had used online dating sites or apps (Pew Research Center, 2015)
- Discussion of a recent study that confirmed declaring a relationship status on Facebook was associated with both romantic love and jealousy (Orosz & others, 2015)
- Updated information about the continuing sharp increase in cohabitation in the United States
- Updated data on the continuing decline of U.S. marriage rates (Centers for Disease Control and Prevention, 2014)
- Updated data on the continuing rise in the age at which U.S. men and women get married (U.S. Census Bureau, 2015b)
- Description of recent research indicating that an increasing number of children are growing up in homes in which their parents never got married and that this is far more likely to occur when the mother has a low level of education (Pew Research, 2015)
- Coverage of a recent study that explored what U.S. never-married men and women are looking for in a potential spouse (Wang, 2014)
- Updated data on the continuing decline in the percentage of U.S. adults who are getting divorced (Centers for Disease Control and Prevention, 2015)
- Inclusion of a recent research review that concluded the experience of divorce or separation confers risk for poor health outcomes, including a 23 percent higher mortality rate (Sbarra, 2015)
- Description of a recent large-scale study in the United States and six European countries that explored the buffering effect of marriage on mortality for individuals who are not in the labor force (Van Hedel & others, 2015)
- Coverage of a recent research review that concluded divorced men and women are more likely to commit suicide than their married counterparts (Yip & others, 2015)
- Discussion of a recent study on the increased risk of heart attack for divorced adults, especially female divorced adults (Dupre & others, 2015)
- Updated data on the percentage of U.S. adults who get remarried and the gender remarriage gap in which men were almost twice as likely to get remarried in a recent year than women were (Payne, 2015)
- Discussion of a recent study that found remarried adults had less frequent sex than those in their first marriage (Stroope, McFarland, & Uecker, 2015)
- Inclusion of content from a recent study that found greater sharing of responsibilities in same-sex couples than in different-sex couples (Matos & others, 2015)
- New coverage of the increasing interest in individuals who describe themselves as transgender (Scelfo, 2015)

- Updated data on the average age at which U.S. women have their first child (Martin & others, 2015)
- Inclusion of content from a recent Pew Research (2015) poll on the influence of educational attainment on the age when U.S. women first became mothers

Chapter 13: Physical and Cognitive Development in Middle Adulthood

- Changes based on input from leading experts K. Warner Schaie, George Rebok, and David Almeida
- New commentary about middle adulthood not getting nearly as much research attention as late adulthood
- Description of recent data from the U.S. Census Bureau (2012) that indicate more than 102,000,000 U.S. adults are 40 to 64 years of age, which accounts for 33 percent of the U.S. population
- Inclusion of Margie Lachman and her colleagues' (2015) recent comments about why middle age is a pivotal period in life
- Coverage of recent research that has shown a combination of adaptive biological and social factors can buffer physical and cognitive declines in middle adulthood (Agrigoroaei & Lachman, 2010; Lachman, Teshale, & Agrigoroaei, 2015; Puteman & others, 2013)
- Discussion of a recent study in which sarcopenic obesity was associated with a 24 percent increase in risk for all-cause mortality, with men having a higher risk than women (Tian & Xu, 2016)
- Description of a recent study that found middle-aged individuals who exercised regularly in adolescence were less likely to develop cardiovascular disease (Nechuta & others, 2015)
- Coverage of a recent study in which a high level of physical activity was associated with a lower risk of cardiovascular disease in all three weight categories studied (normal, overweight, and obese) (Carlsson & others, 2016)
- Inclusion of a recent national study that confirmed moderate-to-vigorous exercise on a regular basis was linked to reduced all-cause mortality, especially for men (Loprinzi, 2015)
- Coverage of a recent study in which having an unhealthy diet was a strong predictor of cardiovascular disease (Menotti & others, 2015)
- Inclusion of a recent Korean study that linked a number of lifestyle factors to sleep problems in middle age (Yoon & others, 2015)
- Description of recent research in which poor sleep quality in middle adulthood was linked to cognitive decline (Waller & others, 2016)
- New commentary that chronic disorders account for 86 percent of all health care expenditures in the United States (Qin & others, 2015)
- Discussion of recent research indicating that how individuals react to daily stressors is linked to future health outcomes and longevity (Mroczek & others, 2015; Sin & others, 2015)
- New coverage of recent research on the influence of yoga, relaxation, and hypnosis on immune system functioning (Derry & others, 2015; Kiecolt-Glazer & others, 2014)
- Updated data on deaths in middle age due to cancer and cardiovascular disease (Centers for Disease Control and Prevention, 2015)
- New discussion of testosterone replacement therapy (TRT), including a recent large-scale study of more than 80,000 men that linked testosterone replacement therapy with a reduction in cardiovascular disease and all-cause mortality (Sharma & others, 2015)
- Description of a recent study in which TRT was associated with increased longevity in men with a low level of testosterone (Comhaire, 2016)
- Updated data on the percentage of men 40 to 70 years of age and over 70 years of age who have erectile dysfunction (Mola, 2015)
- Discussion of Timothy Salthouse's (2015) recent emphasis on the main reason for different age trends in longitudinal and cross-sectional comparisons of cognitive functioning being prior experience, with test scores improving the next time a test is taken
- Coverage of a recent study in which a smaller decline in processing speed was one of the key predictors of living longer (Aichele, Rabbitt, & Ghisletta, 2016)
- Updated and expanded information about the percentage of U.S. 45- to 54- and 55- to 65-year-olds in the workforce, including trends from 2000 to 2015 (Short, 2015)
- Description of recent research that found engaging in physical and cognitive leisure activities after retirement decreased cognitive decline for individuals who worked in less cognitively challenging jobs prior to retirement (Andel, Finkel, & Pedersen, 2015)
- Inclusion of recent research in which middle-aged individuals who engaged in active leisure pursuits had a higher level of cognitive performance in late adulthood (Ihle & others, 2015)
- Coverage of a recent study that revealed individuals who engaged in a greater amount of sedentary screen-based leisure activity had shorter telomere lengths (Loprinzi, 2015)

Chapter 14: Socioemotional Development in Middle Adulthood

- Discussion of a recent meta-analysis that revealed stressful life events were related to increased risk of autoimmune diseases such as arthritis and psoriasis (Porcelli & others, 2016)
- Coverage of a recent study that found stressful daily hassles were linked to increased anxiety and lower physical well-being (Falconier & others, 2015)
- New discussion of Margie Lachman and her colleagues' (2015) recent views on how personal control

changes when individuals move into middle age, including comparison of the factors involved in personal control for young people and middle-aged adults

- Revised organization of the discussion of the Big Five factors of personality describing research on each of the five factors
- Description of recent research that found individuals high in openness to experience have superior cognitive functioning across the lifespan (Briley, Domiteaux, & Tucker-Drob, 2014) and experience less negative affect to stressors (Leger & others, 2016)
- Inclusion of recent research that found conscientiousness was linked to superior problem-focused coping (Sesker & others, 2016), greater success in accomplishing goals (McCabe & Fleeson, 2016), and better cognitive status and less cognitive decline in older adults (Luchetti & others, 2016)
- Coverage of recent research indicating that individuals high in extraversion are more satisfied with their relationships (Toy, Nai, & Lee, 2016), show less negative affect to stressors (Leger & others, 2016), and have a more positive outlook on their future well-being (Soto & others, 2015)
- Discussion of recent research indicating that people high in agreeableness engage in more positive affect to stressors (Leger & others, 2016)
- Description of recent research documenting that individuals high in neuroticism have a lower sense of well-being 40 years later (Gale & others, 2014)
- New section on the personality-trait-like characteristic of optimism and recent research on its link to better health and physical functioning in middle age (Boelen, 2015)
- Inclusion of a recent study in which a higher level of optimism increased the likelihood that individuals who had just experienced an acute coronary event would engage in more physical activity and have fewer cardiac readmissions (Huffman & others, 2016)
- Description of a recent research review of the influence of optimism on positive outcomes for individuals with chronic diseases through direct and indirect pathways (Avvenuti, Baiardini, & Giardini, 2016)
- Discussion of a recent study indicating that middle-aged married individuals have a lower likelihood of work-related health limitations than their counterparts who are not married (Lo, Cheng, & Simpson, 2016)
- Inclusion of recent research with middle-aged adults that indicated positive marital quality was linked to better health for both spouses (Choi, Yorgason, & Johnson, 2016)
- New discussion of the increasing divorce rate in middle-aged adults and the reasons for the increase (Brown & Lin, 2013)
- Coverage of a recent study that found the life satisfaction of middle-aged women in low-quality marriages increased after divorce (Bourassa, Sbarra, & Whisman, 2015)
- Updated information about the percentage of children who are living with at least one grandparent in the United States (U.S. Census Bureau, 2015)

Chapter 15: Physical and Cognitive Development in Late Adulthood

- Changes based on feedback from leading experts K. Warner Schaie, Kristen Kennedy, George Rebok, and William Hoyer
- Update on the increasing life expectancy at birth in the United States (78.8 years in 2013) and at age 65 (19.3 additional years) (Yu & others, 2016)
- Updated data on international comparisons of the countries where life expectations are highest and lowest (Central Intelligence Agency, 2015)
- Update on gender and ethnic differences in life expectancies in the United States (U.S. Department of Health and Human Services, 2015)
- Updated data on the increasing number of U.S. centenarians, which reached 72,000 in 2014 (Xu, 2016)
- Description of a recent list (2015) of the oldest people who have ever lived, with the list having only two men (number 11 and number 17) in the top 25
- New criticisms of the evolutionary theory of aging (Singer, 2016)
- Coverage of a recent study in which greater leisure time screen-based sedentary behavior was linked to shorter telomere length (Loprinzi, 2015)
- Inclusion of recent interest in energy sensing and apoptosis as key aspects of the mitochondrial theory of aging (Gonzalez-Freire & others, 2015)
- Reorganization of the discussion of biological theories of aging to include a new heading, “Cellular Processes,” with new content on the increasing interest in sirtuins (Covington & Bajpeyi, 2016; Giblin & Lombard, 2016) and the mTOR pathway (Chen & others, 2016; Cheng & others, 2016; Schreiber, O’Leary, & Kennedy, 2016) as key cellular processes in aging and longevity
- Description of a recent study in which the percentage of T cells decreased in adults in their seventies, eighties, and nineties (Valiathan, Ashman, & Asthana, 2016)
- New section, “Conclusions,” that describes the current belief that although there are some individual aging triggers, such as telomere shortening, a full understanding of biological aging involves multiple processes operating at different biological levels (de Magalhaes & Tacutu, 2016)
- Inclusion of research indicating that global brain volume predicted mortality in adults (Van Elderen & others, 2016)
- Discussion of a recent study in which mice in an enriched environment learned more flexibly because of adult hippocampal neurogenesis (Garthe, Roeder, & Kempermann, 2016)
- New discussion of the increasing risk of falls in older adults and a recent meta-analysis that concluded exercise reduces the risk of falls in adults 60 years of age and older (Stubbs, Brefka, & Denkginer, 2015) and another study that found walking was more effective

than balance training in reducing older adults' falls (Okubo & others, 2016)

- New discussion of researchers' conclusions that older adults' sleep is lighter and more disrupted than young adults' sleep (McRae & others, 2016)
- New content on the increasing consensus that short (less than seven hours) and long (nine hours or more) sleep duration per night is detrimental to older adults' cognitive functioning (DeVore, Grodstein, & Schemhammer, 2016; Lo & others, 2016)
- Description of a recent study in which engaging in regular aerobic exercise improved the sleep profiles of older men (Melancon, Lorrain, & Dionne, 2015)
- Description of a recent study of older adults indicating that regular walking at or above 150 minutes per week predicted a lower likelihood of sleep onset and sleep maintenance problems four years later (Hartescu, Morgan, & Stevinson, 2015)
- Coverage of a recent study of older adults in which a faster walking pace, not smoking, modest alcohol intake, and avoiding obesity were associated with a lower risk of heart failure (Del Gobbo & others, 2015)
- Inclusion of a national study of the percentage of community-dwelling older adults with touch, taste, and smell impairment (Correia & others, 2016)
- Inclusion of recent research with sarcopenic older adults that found those who were physically active had a 25 percent probability of greater longevity than their sedentary counterparts (Brown, Harhay, & Harhay, 2016)
- Discussion of a recent research review that concluded more physically fit and active older adults have greater prefrontal cortex and hippocampal volume, a higher level of brain connectivity, more efficient brain activity, better memory, and a higher level of executive function (Erickson, Hillman, & Kramer, 2015)
- New research on women that indicated leisure-time physical inactivity was a risk factor for subsequent development of arthritis (Di Giuseppe & others, 2016)
- Discussion of recent research indicating that calorie restriction slows RNA decline during the aging process (Hou & others, 2016)
- Description of research on joggers in Denmark that revealed engaging in light or moderate jogging on a regular basis was linked to increased longevity (Schnohr & others, 2015)
- Discussion of a recent study in which core resistance and balance training improved older adult women's balance, muscle strength, leg power, and body composition better than Pilates training (Markovic & others, 2015)
- Inclusion of new information about the benefits of exercise for cellular functioning, including recent research that found aerobic exercise was linked to greater telomere length in older adults (Loprinzi & Loenneke, 2015)
- Description of recent research in which calorie restriction maintained more youthful functioning of the

hippocampus, which is an important brain structure in memory (Schafer & others, 2015)

- New research involving a 20-year longitudinal study of 42- to 97-year-olds that revealed a greater processing speed decline was associated with mortality risk (Aichele, Rabbitt, & Ghisletta, 2015)
- Coverage of research in which episodic memory performance predicted which individuals would develop dementia 10 years prior to the clinical diagnosis of the disease (Boraxbekk & others, 2015)
- Inclusion of a recent study that found executive function but not memory predicted a higher risk of coronary disease and stroke three years later (Rostamian & others, 2015)
- New research that indicated executive function predicted higher levels of self-rated health in community-dwelling older adults (McHugh & Lawlor, 2015)
- Discussion of a recent study in which executive dysfunction was a strong predictor of stroke in cognitively normal aging adults (Oveisgharan & Hachinski, 2015)
- Coverage of a recent study in which older adults assessed in 2013–2014 engaged in a higher level of abstract reasoning than their counterparts who had been assessed two decades earlier (Gerstorff & others, 2015)
- Discussion of recent research on 60- to 90-year-olds in which iPad training 15 hours a week for 3 months improved their episodic memory and processing speed relative to engaging in social or non-challenging activities (Chan & others, 2015)
- Discussion of a recent research review in which Exergaming was linked to improved cognitive functioning in older adults (Ogawa, You, & Leveille, 2016)
- New research indicating that use of fish oil supplements was linked to higher cognitive scores and less atrophy in one or more brain regions (Daiello & others, 2015)
- Updated information on brain training games based on the consensus of leading experts (Stanford Center for Longevity and Max Planck Institute for Human Development, 2014)
- Updated data on the dramatically increased percentage of older adults who are in the work force and projections of work force participation to 2020, including gender differences (Short, 2015)
- Coverage of recent research in which cortical thickness in frontoparietal networks predicts executive function in older adults (Schmidt & others, 2016)
- Expanded content on the diverse mix of pathways of work and retirement that individuals now pursue (Kojola & Moen, 2016)
- New description of how new neuroimaging techniques have been developed that can detect the presence of plaques and tangles, providing scientists with an opportunity to identify the transition from healthy cognitive functioning to the earliest indication of Alzheimer disease (Park & Farrell, 2016)
- New commentary noting that more than 60 percent of individuals with Alzheimer disease have at least one ApoE4 allele (Riedel, Thompson, & Brinton, 2016)

- New coverage of a recent meta-analysis of modifiable risk factors for Alzheimer disease, including some medical exposures, dietary factors, preexisting diseases, cognitive activity, and alcohol consumption (Xu & others, 2015)

Chapter 16: Socioemotional Development in Late Adulthood

- Discussion of a recent study of older adults with dementia revealing that reminiscence therapy reduced their depressive symptoms and improved their self-acceptance and positive relationships with others (Gonzales & others, 2015)
- Coverage of a recent study in which *attachment-focused* reminiscence therapy reduced the depressive symptoms, perceived stress, and emergency room visits of older African Americans (Sabir & others, 2016)
- Inclusion of recent research in which aging adults who were more physically active were more satisfied with their lives (Maher & others, 2015)
- Description of a recent study that revealed older adults who increased their leisure-time activity were three times more likely to have a slower progression to functional disability (Chen & others, 2016)
- New content on how individuals with a positive affect, upbeat outlook on life, and optimism live longer (Carstensen & others, 2015; Reed & Carstensen, 2015)
- Inclusion of new content about a recent large-scale examination of healthy living in different age groups by the Stanford Center on Longevity that found social engagement with individuals and communities appeared to be weaker today than it was 15 years ago for 55- to 64-year-olds (Parker, 2016)
- Discussion of a recent study of 22- to 94-year-olds that found older adults showed selective optimization with compensation if they had a high level of cognitive resources (Robinson, Rickenbach, & Lachman, 2015)
- Inclusion of research that revealed processing speed was slower for older adults living in poverty (Zhang & others, 2015)
- Updates on the percentage of U.S. older adults living in poverty, including gender and ethnicity differences (Cubanski, Casillas, & Damice, 2015; Gabe, 2015)
- Inclusion of recent research on 65-and-older adults that found having an iPad increased their family ties and sense of having a greater overall connection to society (Delello & McWhorter, 2016)
- Updated information about the percentage of older adults who are married (U.S. Census Bureau, 2015)
- Description of a recent study of married and cohabiting older adults that indicated negative relationship quality predicted a higher level of blood pressure when both members of the couple reported having negative relationship quality (Birditt & others, 2016)
- Discussion of recent research of 40- to 60-year-olds who reported that their relationships with their

children were more important than those with their parents but that their relationships with their children were more negative than with their parents (Birditt & others, 2015)

- Description of a recent study in which more frequent negative (but not positive) marital experiences were linked to a slower increase in older adults' cognitive limitations over time (Xu, Thomas, & Umbersom, 2016)
- Coverage of a recent study that found spousal support was more strongly linked to an important biomarker of biological aging, telomere length, than were other sources of social support (Barger & Cribbet, 2016)
- Discussion of a recent study in which a higher level of social support was associated with older adults' increased life satisfaction (Dumitrache, Rubio, & Rubio-Herrera, 2016)
- Description of recent research in which older adults involved in volunteering showed a strong link to lower incidence of cardiovascular disease and living longer (Han & others, 2016)
- New research that revealed having multiple chronic diseases was linked to a lower level of successful aging (Hsu, 2015)
- Inclusion of recent research on 90- to 91-year-olds that found living circumstances, independence, health, and a good death were associated with successful aging (Nosraty & others, 2015)
- Coverage of Laura Carstensen's (2015) recent commentary about the challenges and opportunities involved in the dramatic increase in life expectancy that has been occurring and continues to occur

Chapter 17: Death, Dying, and Grieving

- Some changes made in chapter based on feedback from leading expert Crystal Park
- Updated information that two additional states (New Mexico and Vermont) are among the five that allow assisted suicide
- New inclusion of Canada on the list of countries that allow assisted suicide, a change that occurred in 2016
- New content on why euthanasia is so controversial
- Discussion of recent research that found 61 percent of dying patients were in pain in their last year of life and almost one-third had symptoms of depression and confusion prior to death (Singer & others, 2015)
- Description of a recent research review that concluded the three most frequent themes in articles on a good death involved (1) preference for dying process, (2) pain-free status, and (3) emotional well-being (Meier & others, 2016)
- Discussion of recent research that found college students who lost someone close to them in college shootings and had severe posttraumatic stress symptoms four

months later were more likely to have severe grief one year after the shootings (Smith & others, 2015)

- Among individuals diagnosed with complicated grief, 40 percent reported at least one full or limited-symptom grief-related panic attack in the past week (Bui & others, 2015)
- Coverage of recent research that identified four meaning-making processes (sense making, benefit finding, continuing bonds, and identity reconstruction) in parent-physician bereavement meetings following a child's death (Meert & others, 2015)
- Updated data on the percentages of U.S. women and men 65 years and older who are widowed (Administration on Aging, 2014)

- Discussion of a recent study that found Mexican American older adults experienced a significant increase in depressive symptoms during the transition to widowhood (Monserud & Markides, 2016). In this study, frequent church attendance served as a protective buffer against increases in depressive symptoms.
- New commentary noting that becoming widowed is especially difficult when individuals have been happily married for a number of decades
- Updated data on the dramatic increase in the percentage of people in the United States who choose cremation (45 percent in 2013, compared with 27 percent in 2000 and 14 percent in 1985) (Cremation Association of America, 2015)

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Applications Contributors

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Michael E. Barber, *Santa Fe Community College*

Maida Berenblatt, *Suffolk Community College*

Susan A. Greimel, *Santa Fe Community College*

Russell Isabella, *University of Utah*

Jean Mandernach, *University of Nebraska–Kearney*

General Reviewers

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Eileen Achorn, *University of Texas–San Antonio*

Michael E. Barber, *Santa Fe Community College*

Gabriel Batarseh, *Francis Marion University*

Troy E. Beckert, *Utah State University*

Stefanie Bell, *Pikes Peak Community College*

Maida Berenblatt, *Suffolk Community College*

Kathi Bivens, *Asheville Buncombe Technical Community College*

Alda Blakeney, *Kennesaw State University*

Candice L. Branson, *Kapiolani Community College*

Ken Brewer, *Northeast State Technical Community College*

Margaret M. Bushong, *Liberty University*

Krista Carter, *Colby Community College*

Stewart Cohen, *University of Rhode Island*

Rock Doddridge, *Asheville Buncombe Technical Community College*

Laura Duvall, *Heartland Community College*

Jenni Fauchier, *Metro Community College–Omaha*

Richard Ferraro, *University of North Dakota*

Terri Flowerday, *University of New Mexico–Albuquerque*

Laura Garofoli, *Fitchburg State College*

Sharon Ghazarian, *University of North Carolina–Greensboro*

Dan Grangaard, *Austin Community College*

Rodney J. Grisham, *Indian River Community College*

Rea Gubler, *Southern Utah University*

Myra M. Harville, *Holmes Community College*

Brett Heintz, *Delgado Community College*

Sandra Hellyer, *Butler University*

Randy Holley, *Liberty University*

Debra L. Hollister, *Valencia Community College*

Rosemary T. Hornack, *Meredith College*

Alycia Hund, *Illinois State University*

Rebecca Inkrott, *Sinclair Community College–Dayton*

Russell Isabella, *University of Utah*

Alisha Janowsky, *Florida Atlantic University*

Lisa Judd, *Western Technical College*

Tim Killian, *University of Arkansas–Fayetteville*

Shenan Kroupa, *Indiana University–Purdue University Indianapolis*

Pat Lefler, *Bluegrass Community and Technical College*

Jean Mandernach, *University of Nebraska–Kearney*

Carrie Margolin, *Evergreen State College*

Michael Jason McCoy, *Cape Fear Community College*

Carol Miller, *Anne Arundel Community College*

Gwynn Morris, *Meredith College*

Ron Mossler, *Los Angeles Community College*

Bob Pasnak, *George Mason University*

Curtis D. Proctor-Artz, *Wichita State University*

Janet Reis, *University of Illinois–Urbana*

Kimberly Renk, *University of Central Florida*

Vicki Ritts, *St. Louis Community College–Meramec*

Jeffrey Sargent, *Lee University*

James Schork, *Elizabethtown Community and Technical College*
Jason Scofield, *University of Alabama*
Christin E. Seifert, *Montana State University*
Elizabeth Sheehan, *Georgia State University*
Peggy Skinner, *South Plains College*
Christopher Stanley, *Winston-Salem State University*
Wayne Stein, *Brevard Community College–Melbourne*
Rose Suggett, *Southeast Community College*
Kevin Sumrall, *Montgomery College*
Joan Test, *Missouri State University*
Barbara VanHorn, *Indian River Community College*
John Wakefield, *University of North Alabama*
Laura Wasielewski, *St. Anselm College*
Lois Willoughby, *Miami Dade College–Kendall*
Paul Wills, *Kilgore College*
A. Claire Zaborowski, *San Jacinto College*
Pauline Davey Zeece, *University of Nebraska–Lincoln*

Design Reviewers

Cheryl Almeida, *Johnson and Wales University*
Candice L. Branson, *Kapiolani Community College*
Debra Hollister, *Valencia Community College*
Alycia Hund, *Illinois State University*
Jean Mandernach, *University of Nebraska–Kearney*
Michael Jason Scofield, *University of Alabama*
Christin Seifert, *Montana State University*

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1 Introduction



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CHAPTER OUTLINE

THE LIFE-SPAN PERSPECTIVE

The Importance of Studying Life-Span Development

Characteristics of the Life-Span Perspective

Contemporary Concerns in Life-Span Development

THE NATURE OF DEVELOPMENT

Biological, Cognitive, and Socioemotional Processes

Periods of Development

Conceptions of Age

Developmental Issues

THEORIES OF DEVELOPMENT

Psychoanalytic Theories

Cognitive Theories

Behavioral and Social Cognitive Theories

Ethological Theory

Ecological Theory

An Eclectic Theoretical Orientation

RESEARCH IN LIFE-SPAN DEVELOPMENT

Methods for Collecting Data

Research Designs

Time Span of Research

Conducting Ethical Research

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

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

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



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

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

A decade before Kaczynski mailed his first bomb, Alice Walker spent her days battling racism in Mississippi. She had recently won her first writing fellowship, but rather than use the money to follow her dream of moving to Senegal, Africa, she put herself into the heart and heat of the civil rights movement. Walker had grown up knowing the brutal effects of poverty and racism.

Born in 1944, she was the eighth child of Georgia sharecroppers who earned \$300 a year. When Walker was 8, her brother accidentally shot her in the left eye with a BB gun. Since her parents had no car, it took them a week to get her to a hospital.

By the time she received medical care, she was blind in that eye, and it had developed a disfiguring layer of scar tissue. Despite the counts against her, Walker overcame pain and anger and went on to win a Pulitzer Prize for her book *The Color Purple*. She became not only a novelist but also an essayist, a poet, a short-story writer, and a social activist.

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



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

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.

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

The Importance of Studying Life-Span Development

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

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

Characteristics of the Life-Span Perspective

Growth and development are dramatic during the first two decades of life, but development is not something that happens only to children and adolescents. The traditional

approach to the study of development emphasizes extensive change from birth to adolescence (especially during infancy), little or no change in adulthood, and decline in old age. Yet a great deal of change does occur in the decades after adolescence. The life-span approach emphasizes developmental change throughout adulthood as well as childhood (Schaie & Willis, 2016).

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 the middle of the second decade of the twenty-first century, the life expectancy in the United States was 79 years of age (U.S. Census Bureau, 2015). 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 challenges 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.

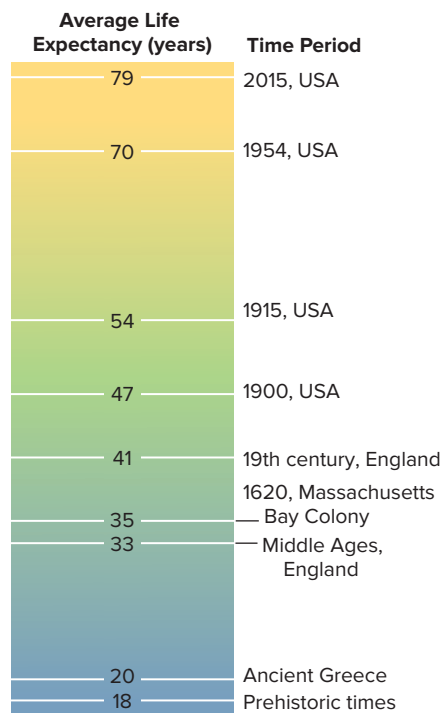


Figure 1 Human Life Expectancy at Birth from Prehistoric Times to Contemporary Times

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

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.

Indeed, the very conception of work as a full-time endeavor ending in the early 60s is ill suited for long lives. Arguably the most troubling is that we fret about ways the 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 (Antonucci & others, 2016; Hudson, 2016).

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 (Lustig & Lin, 2016; Reuter-Lorenz, Festini, & Jantz, 2016). The cognitive dimension, for example, includes attention, memory, abstract thinking, speed of processing information, and social intelligence. At every age, changes occur in every dimension. Changes in one dimension also affect development in the other dimensions.

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

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.

Development Is Multidirectional

Throughout life, some dimensions or components of a dimension expand and others shrink. For example, when one language (such as English) is acquired early in development, the capacity for acquiring second and third languages (such as Spanish and Chinese) decreases later in development, especially after early childhood (Levelt, 1989). During adolescence, as individuals establish romantic relationships, their relationships with friends might decrease. During late adulthood, older adults might become wiser by being able to call on experience to guide their intellectual decision making (Lim & Yu, 2015), but they perform more poorly on tasks that require speed in processing information (Hedden & others, 2016; Salthouse, 2014).

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 (Kuhn & Lindenberger, 2016). 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 (Willis & Belleville, 2016). However, possibly we possess less capacity for change when we become old (Salthouse, 2012). The exploration of plasticity and its constraints is a key element on the contemporary agenda for developmental research (Kuhn & Lindenberger, 2016; Schaie, 2016).

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 (George & Ferraro, 2016; Kaeberlein & Martin, 2016; Schaie & Willis, 2016). 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 (Eccles & Roeser, 2016; Kerig, 2016).

Contexts, like individuals, change (Gauvain & Perez, 2015). 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. 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

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 Sandy, are unusual circumstances that can have a major influence on a person's development.

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ways. Examples include the death of a parent when a child is young, pregnancy in early adolescence, a fire that destroys a home, winning the lottery, or getting an unexpected career opportunity.

include economic, political, and social upheavals such as the Great Depression in the 1930s, World War II in the 1940s, the civil rights and women's rights movements of the 1960s and 1970s, the terrorist attacks of 9/11/2001, as well as the integration of computers and cell phones into everyday life during the 1990s (Schaie, 2013). Long-term changes in the genetic and cultural makeup of a population (due to immigration or changes in fertility rates) are also part of normative historical change.

Nonnormative life events 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

How Would You...?

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



Development Involves Growth, Maintenance, and Regulation of Loss

Baltes and his colleagues (2006) assert that the mastery of life often involves conflicts and competition among three goals of human development: growth, maintenance, and regulation of loss. As individuals age into middle and late adulthood, maintenance and regulation of loss in their capacities takes center stage away from growth. Thus, a 75-year-old man might aim not to improve his memory or his golf swing but to maintain his independence and to continue playing golf. In 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). For example, the brain shapes culture, but it is also shaped by culture and the experiences that individuals have or pursue. In terms of individual factors, we can go beyond what our genetic inheritance and environment give us. We can create a unique developmental path by actively choosing from the environment the things that optimize our lives (Rathunde & Csikszentmihalyi, 2006).

Contemporary Concerns in Life-Span Development

Pick up a newspaper or magazine and you might see headlines like these: "Political Leanings May Be Written in the Genes," "Mother Accused of Tossing Children into Bay," "Gender Gap Widens," "FDA Warns About ADHD Drug," "Heart Attack Deaths Higher in African American Patients," "Test May Predict Alzheimer Disease."

Researchers using the life-span perspective explore these and many other topics of contemporary concern. The roles that health and well-being, parenting, education, and sociocultural contexts play in life-span development, as well as how social policy is related to these issues, are a particular focus of this textbook.

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.

Health and Well-Being

Health professionals today recognize the power of lifestyles and psychological states in health and well-being (Donatelle, 2017; Insel & Roth, 2016). Clinical psychologists are among the health professionals who help people improve their well-being. Read about one clinical psychologist who helps adolescents who have become juvenile delinquents or substance abusers in the *Careers in Life-Span Development* profile.

Careers in life-span development

Luis Vargas, Child Clinical Psychologist

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

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

Luis' main areas of interest are cultural issues and the assessment and treatment of children, adolescents, and families. He is motivated to find better ways to provide culturally responsive mental health services. One of his special interests is the treatment of Latino youth for delinquency and substance abuse.

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



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

© Dr. Luis A. Vargas

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

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; Lamb & Lewis, 2015). In later chapters, we analyze child care, the effects of divorce, parenting styles, intergenerational relationships, early childhood education, relationships between childhood poverty and education, bilingual education, new educational efforts to improve lifelong learning, and many other issues related to parenting and education (Feeney, Moravcik, & Nolte, 2016; Pianta, 2016; Wadsworth & others, 2016).

Sociocultural Contexts and Diversity

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

Culture encompasses the behavior patterns, beliefs, and all other products of a particular group of people that are passed on from generation to

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



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

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How Would You...?

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

participate in society's rewards and punishments (George & Ferraro, 2016; Wadsworth & others, 2016).

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.

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

generation. Culture results from the interaction of people over many years (Cole & Tan, 2015). 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 (Masumoto & 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 (Chen & Liu, 2016).

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 (Gonzales & others, 2016). In recent years, there has been a growing realization that research on children's development needs to include more children from diverse ethnic groups (Schaefer, 2015). A special concern is the discrimination and prejudice experienced by ethnic minority children (Spencer & Swanson, 2016).

Socioeconomic status (SES)

refers to a person's position within society based on occupational, educational, and economic characteristics. Socioeconomic status implies certain inequalities. Differences in the ability to control resources and to participate in society's rewards and punishments produce unequal opportunities (George & Ferraro, 2016; Wadsworth & others, 2016).

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 (Leaper, 2015). 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, 2016). Inadequate educational opportunities, violence, and lack of political access are just some of the problems faced by many women.

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 (Hudson, 2016; Sommer & others, 2016; Yeung & Mui-Teng, 2015).

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?



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).

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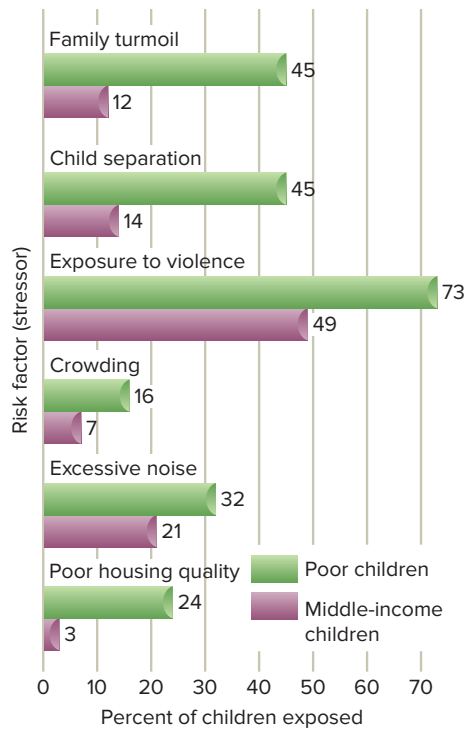


Figure 2 Exposure to Six Stressors Among Poor and Middle-Income Children

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

2016; Sommer & others, 2016). For example, a recent large-scale effort to help children escape from poverty is the Ascend two-generation educational intervention being conducted by the Aspen Institute (2013; 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* (Masten & Cicchetti, 2016). Think back to the chapter-opening story about Alice Walker. In spite of racism, poverty, her low

Children who grow up in poverty represent a special concern (Duncan, Magnuson, & Votruba-Drzal, 2015; Wadsworth & others, 2016). In 2014, 21.1 percent of U.S. children under 18 years of age were living in families with incomes below the poverty line, with African American and Latino families with children having especially high rates of poverty (more than 30 percent) (DeNavas-Walt & Proctor, 2015). 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 (Gonzales & others, 2016; McCartney & Yoshikawa, 2015; Yoshikawa & others, 2016). 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; Sabol & others,



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 well when they enter elementary school.

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