Human Development

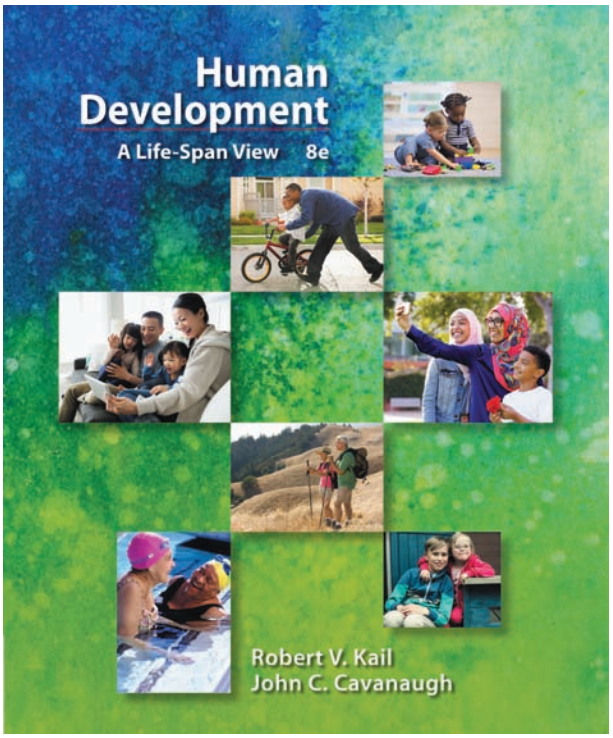
A Life-Span View 8e

Robert V. Kail
John C. Cavanaugh

8e

Human Development

A Life-Span View



Robert V. Kail
Purdue University

John C. Cavanaugh
Consortium of Universities of the Washington Metropolitan Area

CENGAGE

Australia • Brazil • Mexico • Singapore • United Kingdom • United States

***Human Development: A Life-Span View*, Eighth Edition**
Robert V. Kail and John C. Cavanaugh

Product Director: Marta Lee-Perriard

Product Team Manager: Star Burruto

Product Manager: Andrew Ginsberg

Content Developer: Nedah Rose

Product Assistant: Leah Jenson

Digital Content Specialist: Allison Marion

Content Project Manager: Ruth Sakata Corley

Production and Composition Service:
SPi Global

Intellectual Property Analyst: Deanna Ettinger

Intellectual Property Project Manager:
Kathryn Kucharek

Art Director: Vernon Boes

Text and Cover Designer: Cheryl Carrington

Cover Image: (top to bottom) FatCamera/
Getty Images, Mike Kemp/Blend Images/
Getty Images, Hero Images/Getty Images,
Mireya Acierto/Getty Images, John Lund/
Getty Images, Knauer/Johnston/Getty Images,
Maskot/Getty Images, andipantz/iStock/
Getty Images

Library of Congress Control Number: 2017950383

Student Edition:
ISBN: 978-1-337-55483-1

Loose-leaf Edition:
ISBN: 978-1-337-56365-9

Cengage
20 Channel Center Street
Boston, MA 02210
USA

Printed in the United States of America
Print Number: 01 Print Year: 2017

To Dea and Chris

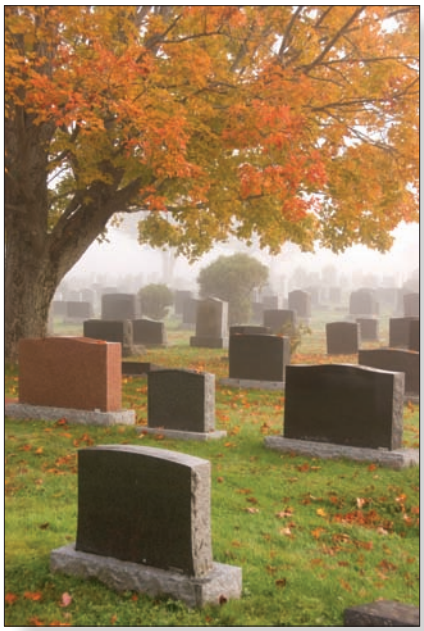
About the Author

ROBERT V. KAIL is Distinguished Professor of Psychological Sciences at Purdue University. His undergraduate degree is from Ohio Wesleyan University and his PhD is from the University of Michigan. Kail is editor of *Child Development Perspectives* and editor emeritus of *Psychological Science*. He received the McCandless Young Scientist Award from the American Psychological Association, was named the Distinguished Sesquicentennial Alumnus in Psychology by Ohio Wesleyan University, is a fellow of the Association for Psychological Science, and is an honorary professor at the University of Heidelberg, Germany. Kail has also written *Children and Their Development* and *Scientific Writing for Psychology*. His research focuses on cognitive development during childhood and adolescence. Away from the office, he enjoys photography and working out.

JOHN C. CAVANAUGH is President and CEO of the Consortium of Universities of the Washington Metropolitan Area. He received his undergraduate degree from the University of Delaware and his PhD from the University of Notre Dame. Cavanaugh is a fellow of the American Psychological Association, the Association for Psychological Science, and the Gerontological Society of America, and has served as president of the Adult Development and Aging Division (Division 20) of the APA. Cavanaugh has also written (with the late Fredda Blanchard-Fields) *Adult Development and Aging*. His research interests in gerontology concern family caregiving as well as the role of beliefs in older adults' cognitive performance. For enjoyment, he backpacks, enjoys photography and cooking, and is an avid traveler.

Brief Contents

Contents



Preface

"What do you want to be when you grow up?" "Where do you see yourself in the next 5 or 10 years?" "What kind of person do you want to become?" These and other questions about "becoming" confront us across our lives. Answering them requires us to understand ourselves in very thorough ways. It requires us to understand how we develop.

Human development is both the most fascinating and the most complex science there is. *Human Development: A Life-Span View*, Eighth Edition, introduces you to the issues, forces, and outcomes that make us who we are.

Contemporary research and theory on human development consistently emphasize the multidisciplinary approach needed to describe and explain how people change (and how they stay the same) over time. Moreover, the great diversity of people requires an appreciation for individual differences throughout development. *Human Development: A Life-Span View*, Eighth Edition, incorporates both and aims to address three specific goals:

- To provide a comprehensive, yet highly readable, account of human development across the life span.
- To provide theoretical and empirical foundations that enable students to become educated and critical interpreters of developmental information.
- To provide a blend of basic and applied research, as well as controversial topics and emergent trends, to demonstrate connections between the laboratory and life and the dynamic science of human development.

ORGANIZATION

A Modified Chronological Approach

The great debate among authors and instructors in the field of human development is whether to take a *chronological approach* (focusing on functioning at specific stages of the life span, such as infancy, adolescence, and middle adulthood) or a *topical approach* (following a specific aspect of development, such as personality, throughout the life span). Both approaches have their merits. We have chosen a modified chronological approach that combines the best aspects of both. The overall organization of the text is chronological: We trace development from conception through late life in sequential order and dedicate several chapters to topical issues pertaining to particular points in the life span (such as infancy and early childhood, adolescence, young adulthood, middle adulthood, and late life).

Because the developmental continuity of such topics as social and cognitive development gets lost with narrowly defined, artificial age-stage divisions, we dedicate some chapters to tracing their development over larger segments of the life span. These chapters provide a much more coherent description of important developmental changes, emphasize the fact that development is not easily divided into "slices," and provide students with understandable explications of developmental theories.

Balanced Coverage of the Entire Life Span

A primary difference between *Human Development: A Life-Span View*, Eighth Edition, and similar texts is that this book provides a much richer and more complete description of adult development and aging. Following the introductory chapter, the remaining

15 chapters of the text are evenly divided between childhood, adolescence, adulthood, and aging. This balanced treatment reflects not only the rapid emergence of adult development and aging as a major emphasis in the science of human development but also recognizes that roughly three-fourths of a person's life occurs beyond adolescence.

As a reflection of our modified chronological approach, *Human Development: A Life-Span View*, Eighth Edition, is divided into four main parts. After an introduction to the science of human development (Chapter 1), Part One includes a discussion of the biological foundations of life (Chapter 2) and development during infancy and early childhood (Chapters 3–5). Part Two focuses on development during middle childhood and adolescence (Chapters 6–9). Part Three (Chapters 10–13) focuses on young and middle adulthood. Part Four examines late adulthood (Chapters 14 and 15) and concludes with a consideration of dying and bereavement (Chapter 16).

CONTENT AND APPROACH: The Biopsychosocial Emphasis

Our text provides comprehensive, up-to-date coverage of research and theory from conception to old age and death. We explicitly adopt the biopsychosocial framework as an organizing theme, describing it in depth in Chapter 1, then integrating it throughout the text—often in combination with other developmental theories.

An Engaging Personal Style

On several occasions, we communicate our personal involvement with the issues being discussed by providing examples from our own experiences as illustrations of how human development plays itself out in people's lives. Additionally, every major section of a chapter opens with a short vignette, helping to personalize a concept just before it is discussed. Other rich examples are integrated throughout the text narrative and showcased in the *Real People* features.

Emphasis on Inclusiveness

In content coverage, in the personalized examples used, and in the photo program, we emphasize diversity—within the United States and around the world—in ethnicity, gender, race, age, ability, and sexual orientation.

CHANGES IN THE EIGHTH EDITION

The eighth edition has been updated with new graphics and several hundred new reference citations to work from the past 3 years. Of particular note are these content additions, updates, and revisions:

Chapter 1

- New *Real People* feature on Muhammad Ali

Chapter 2

- Much revised *What Do* You *Think?* feature on conception in the 21st century
- Much revised coverage of the period of the fetus
- Much revised coverage of nutrition during pregnancy
- New material about noninvasive prenatal testing

Chapter 3

- Much revised coverage of co-sleeping
- Much revised coverage of breastfeeding
- New *Spotlight on Research* feature on infant reaching
- Much revised coverage of handedness

Chapter 4

- Much revised description of young children's naïve theories of biology
- New *Spotlight on Research* on preschool children's essentialist thinking
- Much revised description of memory
- Much revised description of infants' number skills
- Much revised coverage of infant-directed speech
- New coverage on the benefits of touchscreen devices for children's word learning

Chapter 5

- Much revised coverage of pretend play and solitary play
- Much revised coverage of father–infant relationships
- Much revised coverage of the impact of child care
- Much revised coverage of emotion regulation

Chapter 6

- New *Spotlight on Research* feature on impaired reading comprehension
- Much revised coverage of ADHD
- New material on children's mastery of conceptual and procedural knowledge of math

Chapter 7

- New coverage of impact of quality of sibling relationships
- New coverage of open adoptions
- Much revised coverage of divorce
- Much revised coverage of maltreatment
- Much revised coverage of groups
- Much revised coverage of bullying
- Much revised coverage of electronic media, including new *Spotlight on Research* feature

Chapter 8

- Much revised material on evaluating Kohlberg's theory, including new material on adolescents' balancing of fairness with group loyalty
- Much revised coverage of analytic and heuristic solutions in problem-solving

Chapter 9

- Revised coverage of adolescent storm and stress
- Much revised coverage of dating violence
- Much revised coverage of sexual minority youth
- New material on social cognitive career theory
- Much revised coverage of adolescent depression, including new *Spotlight on Research* feature

Chapter 10

- Revised Emerging Adulthood section that now includes subsections on Neuroscience, Behavior, and Emerging Adulthood; and Achieving Milestones: Education, Workforce, and Erikson's Intimacy
- Expanded discussion of relation between educational attainment and employment
- Expanded discussion of quarter-life crisis, including Robinson's reframing of Erikson's intimacy-isolation to commitment-independence and the addition of an emerging adult transition phase.
- Revised discussion on binge drinking, sexual assault, and alcohol use disorder.
- Revised nutrition discussion to reflect new dietary guidelines and work with Native American tribes
- New discussions of emotional intelligence and impression formation

Chapter 11

- Discussion of Social Baseline Theory to explain how the brain activity reveals how people seek social relationships to mitigate risk
- New *Real People* feature on James Obergefell and John Arthur
- Inclusion of millennial generation lifestyles, including their likely much lower rates of marriage and likelihood of being less well off than their parents
- Rewritten discussion of LGBTQ adults
- New *What Do* You *Think?* feature on paid family leave

Chapter 12

- New chapter introduction focusing on the shift to the "gig economy" and its impact on the meaning of work
- Differentiation of mentoring and coaching
- Mention of burnout effects on the brain
- Reduced redundancy in parenting and work–family conflict sections
- New *Spotlight on Research* feature on the long-term health effects of leisure activities
- New *Real People* feature on the politics of unemployment

Chapter 13

- Revised discussion of treatments for arthritis
- Revised discussion of the effects of stress on physical health
- Addition of the TESSERA (Triggering situations, Expectancy, States/State Expressions, and Reactions model in the discussion of personality traits

Chapter 14

- Expanded discussion of international demographics of older adults
- Reorganized and revised section on biological theories of aging
- Revised discussion of the role of beta-amyloid protein in brain aging and as a biomarker of Alzheimer's disease
- New *Real People* feature on the "Angelina Jolie effect" on breast cancer screening
- Revised discussion on divided attention
- Expanded discussion of neuroimaging research on creativity and aging
- New *What Do* You *Think?* feature on the question of whether creativity exists
- Revised discussions about genetics and dementia, and about the beta-amyloid cascade hypothesis

Chapter 15

- Revised discussion of healthy aging and connection with selective optimization with compensation framework
- New discussion of the preventive and corrective proactivity model
- New *Real People* feature on Katherine Johnson
- Revised discussion of spirituality in later life
- Revised discussion on LGBT long-term relationships
- Expanded and revised discussion of frailty and disability in late life, especially related to socioeconomic factors, and global issues
- Revised discussion of financial exploitation of older adults and the role of financial institutions in preventing it

Chapter 16

- Table with most frequent causes of death by age
- Discussion of updated brain death criteria and implementation issues
- New *What Do* You *Think?* featuring the Brittany Maynard case
- Discussion of death doulas
- New *Real People* feature with focus on Randy Pausch's last lecture
- Discussion of the model of adaptive grieving dynamics
- Discussion of disenfranchised grief
- Added discussion of ambiguous grief

SPECIAL FEATURES

Three special features are a significant reason why this textbook is unique. These features are woven seamlessly into the narrative—not boxed off from the flow of the chapter. Each box appears in nearly every chapter. The three features are:

Spotlight on Research	These features emphasize a fuller understanding of the science and scope of life-span development.
What Do *You* Think?	These features ask students to think critically about social and developmental issues.
Real People Applying Human Development	These features illustrate the everyday applications of life-span development issues.

PEDAGOGICAL FEATURES

Among the most important aspects of *Human Development: A Life-Span View*, Eighth Edition, is its exceptional integration of pedagogical features, designed to help students maximize their learning.

- *Section-by-Section Pedagogy*. Each major section of a chapter (every chapter has four or five) has been carefully crafted: It opens with a set of learning objectives, a vignette, typically includes one or more *Think About It* questions in the margin encouraging critical thinking, and ends with a set of questions called *Test Yourself* that reinforces key elements of the section. For easy assignment and to help readers visually organize the material, major units within each chapter are numbered.
- *Chapter-by-Chapter Pedagogy*. Each chapter opens with a table of contents and concludes with a bulleted, detailed *Summary* (broken down by learning objective within each major section), followed by a list of *Key Terms* (with page references).

In sum, we believe that our integrated pedagogical system will give the student all the tools she or he needs to comprehend the material and study for tests.

MINDTAP®

MindTap® for *Human Development: A Life-Span View* engages and empowers students to produce their best work—consistently. By seamlessly integrating course material with videos, activities, apps, and much more, MindTap® creates a unique learning path that fosters increased comprehension and efficiency.

For students:

- MindTap® delivers real-world relevance with activities and assignments that help students build critical thinking and analytic skills that will transfer to other courses and their professional lives.
- MindTap® helps students stay organized and efficient with a single destination that reflects what's important to the instructor, along with the tools students need to master the content.
- MindTap® empowers and motivates students with information that shows where they stand at all times—both individually and compared to the highest performers in class.

Additionally, for instructors, MindTap® allows you to:

- Control what content students see and when they see it with a learning path that can be used as-is or matched to your syllabus exactly.
- Create a unique learning path of relevant readings and multimedia and activities that move students up the learning taxonomy from basic knowledge and comprehension to analysis, application, and critical thinking.
- Integrate your own content into the MindTap® Reader using your own documents or pulling from sources such as RSS feeds, YouTube videos, websites, Googledocs, and more.
- Use powerful analytics and reports that provide a snapshot of class progress, time in course, engagement, and completion.

In addition to the benefits of the platform, MindTap® for *Human Development: A Life-Span View* includes:

- Formative assessments at the conclusion of each chapter.
- Interactive activities drawn from the *What Do* You *Think?* and *Real People* text features that foster student participation through polls, photo shares, and discussion threads.
- Illustrative video embedded in the MindTap® Reader to highlight key concepts for the students.
- Investigate Development enables students to observe, evaluate, and make decisions about human development so they see the implications of research on a personal level. Students interact with simulated case studies of milestones in a person's development, observing and analyzing audiovisual cues, consulting research, and making decisions. Instead of rote memorization of isolated concepts, Investigate Development compels students to think critically about research and brings human development to life.

SUPPLEMENTS FOR THE INSTRUCTOR

Online PowerPoint® Slides

These vibrant Microsoft® PowerPoint® lecture slides for each chapter assist you with your lecture by providing concept coverage using images, figures, and tables directly from the textbook.

Online Instructor's Manual

This detailed manual provides sample syllabi, course guidelines, in-class exercises, and chapter objectives to assist instructors in teaching the course.

Cengage Learning Testing, powered by Cognero® Instant Access

Cengage Learning Testing Powered by Cognero® is a flexible, online system that allows you to: import, edit, and manipulate content from the text's test bank or elsewhere, including your own favorite test questions; create multiple test versions in an instant; and deliver tests from your LMS, your classroom, or wherever you want.

ACKNOWLEDGMENTS

Textbook authors do not produce books on their own. We owe a debt of thanks to many people who helped take this project from a first draft to a bound book. Thanks to Jim Brace-Thompson, for his enthusiasm, good humor, and sage advice at the beginning of this project; to Nedah Rose for taking the reins and guiding the eighth edition; and to Andrew Ginsberg, Product Manager; Ruth Sakata-Corley, Content Production Manager; and Vernon Boes, Art Director, for their work in bringing this edition to life.

We would also like to thank the many reviewers who generously gave their time and effort to help us sharpen our thinking about human development and, in so doing, shape the development of this text.

Past Reviewers of *Human Development: A Life-Span View*

GARY L. ALLEN
University of South Carolina

POLLY APPLEFIELD
University of North Carolina at Wilmington

ANN M. B. AUSTIN
Utah State University

KENNETH E. BELL
University of New Hampshire

DANIEL R. BELLACK
Trident Technical College

MAIDA BERENBLATT
Suffolk County Community College

L. RENÉ BERGERON
University of New Hampshire

BELINDA BEVINS-KNABE
University of Arkansas at Little Rock

DAVID BISHOP
Luther College

ELIZABETH M. BLUNK
Southwest Texas State University

JOSETTE BONEWITZ
Vincennes University

JANINE P. BUCKNER
Seton Hall University

CYNTHIA B. CALHOUN
Southwest Tennessee Community College

LANTHAN D. CAMBLIN, JR.
University of Cincinnati

PAUL ANDERER CASTILLO
State University of New York, Canton

LISA DAVIDSON
Northern Illinois University

CATHERINE DEERING
Clayton College and State University

CHARLES TIMOTHY DICKEL
Creighton University

JUDITH DIETERLE
Daytona Beach Community College

SHELLEY M. DRAZEN
SUNY, Binghamton

SANDY EGGERS
University of Memphis

KENNETH ELLIOTT
University of Maine, Augusta

MARTHA ELLIS
Collin County Community College

NOLEN EMBRY
Lexington Community College

WILLIAM FABRICIUS
Arizona State University

STEVE FINKS
University of Tennessee

LINDA FLICKINGER
St. Clair County Community College

DOUGLAS FRIEDRICH
University of West Florida

REBECCA GLOVER
University of North Texas

J. A. GREAVES
Jefferson State Community College

TRESMAINE R. GRIMES
Iona College

PATRICIA GUTH
Westmoreland County Community College

LANA-LEE HARDACRE
Conestoga College

JULIE A. HASELEU
Kirkwood Community College

PHYLLIS HEATH
Central Michigan University

MYRA HEINRICH
Mesa State College

BRETT HEINTZ
Delgado Community College

SANDRA HELLYER
Indiana University–Purdue University at Indianapolis

SHIRLEY-ANNE HENSCH
University of Wisconsin Center

THOMAS HESS
North Carolina State University

HEATHER M. HILL
University of Texas, San Antonio

SUSAN HORTON
Mesa Community College

ALYCIA M. HUND
Illinois State University

KATHLEEN HURLBURT
University of Massachusetts–Lowell

JENEFER HUSMAN
University of Alabama

KAREN IHNEN
St. Cloud Technical and Community College

HEIDI INDERBITZEN
University of Nebraska at Lincoln

ERWIN J. JANEK
Henderson State University

WAYNE JOOSE
Calvin College

RICHARD KANDUS
Mt. San Jacinto College

MARGARET D. KASIMATIS
Carroll College

MICHELLE L. KELLEY
Old Dominion University

JOHN KLEIN
Castleton State College

WENDY KLIEWER
Virginia Commonwealth University

AMY LANDERS
Old Dominion University

KIRSTEN D. LINNEY
University of Northern Iowa

BLAKE TE-NEIL LLOYD
University of South Carolina

SANFORD LOPATER
Christopher Newport University

NANCY MACDONALD
University of South Carolina, Sumter

SUSAN MAGUN-JACKSON
University of Memphis

MARION G. MASON
Bloomsburg University of Pennsylvania

MICHAEL JASON MCCOY
Cape Fear Community College

LISA MCGUIRE
Allegheny College

JULIE ANN MCINTYRE
Russell Sage College

BILL MEREDITH
University of Nebraska at Omaha

EDWARD J. MORRIS
Owensboro Community College

MARTIN D. MURPHY
University of Akron

JANET D. MURRAY
University of Central Florida

MARY ANNE O'NEILL
Rollins College Hamilton Holt School

JOHN W. OTEY
Southern Arkansas University

SHANA PACK
Western Kentucky University

MARIBETH PALMER-KING
Broome Community College

ELLEN E. PASTORINO
Valencia Community College

IAN PAYTON
Bethune-Cookman College

JOHN PFISTER
Dartmouth College

BRADFORD PILLOW
Northern Illinois University

GARY POPOLI
Hartford Community College

ROBERT PORESKY
Kansas State University

JOSEPH M. PRICE
San Diego State University

HARVE RAWSON
Franklin College

CATHERINE HACKETT RENNER
West Chester University

ROSEMARY ROSSER
University of Arizona

LISA ROUTH
Pikes Peak Community College

ROBERT F. RYCEK
University of Nebraska at Kearney

JEFF SANDOZ
University of Louisiana at Lafayette

BRIAN SCHRADER
Emporia State University

CAROLYN A. SHANTZ
Wayne State University

STACIE SHAW
Presentation College

TIMOTHY O. SHEARON
Albertson College of Idaho

CYNTHIA K. SHINABARGER REED
Tarrant County College

MARCIA SOMER
University of Hawaii-Kapiolani Community College

LINDA SPERRY
Indiana State University

TRACY L. SPINRAD
Arizona State University

CARRIE SWITZER
University of Illinois, Springfield

SUSAN D. TALLEY
Utah State University

KELLI W. TAYLOR
Virginia Commonwealth University

LORRAINE C. TAYLOR
University of South Carolina

VIRGINIA TOMPKINS
Ohio State University

BARBARA TURNAGE
University of Central Florida

YOLANDA VAN ECKE
Mission College

ANNE WATSON
West Virginia University

CAROL G. WEATHERFORD
Clemson University

FRED A. WILSON
Appalachian State University

CAITLIN WILLIAMS
San Jose State University

NANCI STEWART WOODS
Austin Peay State University

SANDY WURTELE
University of Colorado at Colorado Springs

VIRGINIA WYLY
State University of New York College at Buffalo

KAREN YANOWITZ
Arkansas State University

CHRISTINE ZIEGLER
Kennesaw State University

To the Student

Human Development: A Life-Span View is written with you, the student, in mind. In the next few pages, we describe several features of the book that will make it easier for you to learn. Please don't skip this material; it will save you time in the long run.

Learning and Study Aids

Each chapter includes several distinctive features to help you learn the material and organize your studying.

- Each chapter opens with an overview of the main topics and a detailed outline.
- Each major section within a chapter begins with a set of learning objectives. There is also a brief vignette introducing one of the topics to be covered in that section and providing an example of the developmental issues people face.
- When key terms are introduced in the text, they appear in bold, orange type and are defined in the margin. This should make key terms easy to find and learn.
- Key developmental theories are introduced in Chapter 1 and are referred to throughout the text.
- Critical thinking questions appear in the margins. These *Think About It* questions are designed to help you make connections across sections within a chapter or across chapters.
- The end of each section includes a feature called *Test Yourself*, which will help you check your knowledge of major ideas you just read about. The Test Yourself questions serve two purposes. First, they give you a chance to spot-check your understanding of the material. Second, the questions will relate the material you have just read to other facts, theories, or the biopsychosocial framework you read about earlier.
- Text features expand or highlight a specific topic. This book includes the following three features:
  - *Spotlight on Research* elaborates a specific research study discussed in the text and provides more details on the design and methods used.
  - *What Do* You *Think?* offers thought-provoking discussions about current issues affecting development.
  - *Real People: Applying Human Development* is a case study that illustrates how an issue in human development discussed in the chapter is manifested in the life of a real person.
- The end of each chapter includes several special study tools. A *Summary* organized by learning objective within major section headings provides a review of the key ideas in the chapter. Next is a list of *Key Terms* that appear in the chapter.

We strongly encourage you to take advantage of these learning and study aids as you read the book. We have also left room in the margins for you to make notes to yourself on the material, so you can more easily integrate the text with your class and lecture material.

Your instructor will probably assign about one chapter per week. Don't try to read an entire chapter in one sitting. Instead, on the first day, preview the chapter. Read the introduction and notice how the chapter fits into the entire book; then page through the chapter, reading the learning objectives, vignettes, and major headings. Also read the italicized sentences and the boldfaced terms. Your goal is to get a general overview of the entire chapter—a sense of what it's all about.

Now you're ready to begin reading. Go to the first major section and preview it again, reminding yourself of the topics covered. Then start to read. As you read, think about what you're reading. Every few paragraphs, stop briefly. Try to summarize the main ideas in your own words; ask yourself if the ideas describe your own experience or that of others you know; tell a friend about something interesting in the material. In other words, read actively—get involved in what you're reading. Don't just stare glassy-eyed at the page!

Continue this pattern—reading, summarizing, thinking—until you finish the section. Then answer the Test Yourself questions to determine how well you've learned what you've read. If you've followed the read-summarize-think cycle as you worked your way through the section, you should be able to answer most of the questions.

The next time you sit down to read (preferably the next day), start by reviewing the second major section. Then complete it with the read-summarize-think cycle. Repeat this procedure for all the major sections.

When you've finished the last major section, wait a day or two and then review each major section. Pay careful attention to the italicized sentences, the boldfaced terms, and the Test Yourself questions. Also, use the study aids at the end of the chapter to help you integrate the ideas in the chapters.

With this approach, it should take several 30- to 45-minute study sessions to complete each chapter. Don't be tempted to rush through an entire chapter in a single session. Research consistently shows that you learn more effectively by having daily (or nearly daily) study sessions devoted to both reviewing familiar material *and* taking on a relatively small amount of new material.

Terminology

A few words about terminology before we embark. We use certain terms to refer to different periods of the life span. Although you may already be familiar with the terms, we want to clarify how they will appear in this text. The following terms will refer to a specific range of ages:

Newborn: birth to 1 month
Infant: 1 month to 1 year
Toddler: 1 year to 2 years
Preschooler: 2 years to 6 years
School-age child: 6 years to 12 years
Adolescent: 12 years to 20 years
Young adult: 20 years to 40 years
Middle-age adult: 40 years to 60 years
Young-old adult: 60 years to 80 years
Old-old adult: 80 years and beyond

Sometimes, for the sake of variety, we will use other terms that are less tied to specific ages, such as babies, youngsters, and older adults. However, you will be able to determine the specific ages from the context.

Organization

Authors of textbooks on human development always face the problem of deciding how to organize the material into meaningful segments across the life span. This book is organized into four parts: Prenatal Development, Infancy, and Early Childhood; School-Age Children and Adolescents; Young and Middle Adulthood; and Late Adulthood. We believe this organization achieves two major goals. First, it divides the life span in ways that relate to the divisions encountered in everyday life. Second, it enables us to provide a more complete account of adulthood than other books do.

Because some developmental issues pertain only to a specific point in the life span, some chapters are organized around specific ages. Overall, the text begins with conception

and proceeds through childhood, adolescence, adulthood, and old age to death. But because some developmental processes unfold over longer periods of time, some of the chapters are organized around specific topics.

Part One covers prenatal development, infancy, and early childhood. Here we will see how genetic inheritance operates and how the prenatal environment affects a person's future development. During the first two years of life, the rate of change in both motor and perceptual arenas is amazing. How young children acquire language and begin to think about their world is as intriguing as it is rapid. Early childhood also marks the emergence of social relationships, as well as an understanding of gender roles and identity. By the end of this period, a child is reasonably proficient as a thinker, uses language in sophisticated ways, and is ready for the major transition into formal education.

Part Two covers the years from elementary school through high school. In middle childhood and adolescence, the cognitive skills formed earlier in life evolve to adult-like levels in many areas. Family and peer relationships expand. During adolescence, there is increased attention to work, and sexuality emerges. The young person begins to learn how to face difficult issues in life. By the end of this period, a person is on the verge of legal adulthood. The typical individual uses logic and has been introduced to most of the issues that adults face.

Part Three covers young adulthood and middle age. During this period, most people achieve their most advanced modes of thinking, achieve peak physical performance, form intimate relationships, start families of their own, begin and advance within their occupations, manage to balance many conflicting roles, and begin to confront aging. Over these years, many people go from breaking away from their families to having their children break away from them. Relationships with parents are redefined, and the pressures of being caught between the younger and older generations are felt. By the end of this period, most people have shifted focus from time since birth to time until death.

Part Four covers the last decades of life. The biological, physical, cognitive, and social changes associated with aging become apparent. Although many changes reflect decline, many other aspects of old age represent positive elements: wisdom, retirement, friendships, and family relationships. We conclude this section, and the text, with a discussion of the end of life. Through our consideration of death, we will gain additional insights into the meaning of life and human development.

We hope the organization and learning features of the text are helpful to you—making it easier for you to learn about human development. After all, this book tells the story of people's lives. Understanding the story is what it's all about.

Neuroscience Index

Note: Page numbers in *italics* indicate figures, tables, or illustrations.

Diversity Index

Note: Page numbers in *italics* indicate figures, tables, or illustrations.

Ravypixel/Shutterstock.com

The Study of Human Development

1

Jeanne Calment was one of the most important people to have ever lived. Her amazing achievement was not made in sports, government, or any other profession. When she died in 1996 at age 122 years and 164 days, she set the world record that still stands for the longest verified human life span. Jeanne lived her whole life in Arles, France. She met Vincent Van Gogh and experienced the inventions of the light bulb, automobiles, airplanes, space travel, computers, and all sorts of everyday conveniences. She survived two world wars. Longevity ran in her family: her older brother François lived to 97, her father to 93, and her mother to 86. Jeanne was extraordinarily healthy her whole life, rarely being ill. She was also active; she learned fencing when she was 85, and she was still riding a bicycle at age 100. She lived on her own until she was 110, when she moved to a nursing home. Her life was documented in the 1995 film *Beyond 120 Years with Jeanne Calment*. Shortly before her 121st birthday, Musicdisc released *Time's Mistress*, a CD of Jeanne speaking over a background of rap and hip-hop music.

Did you ever wonder how long you will live? The people you will meet and the experiences you will have? Did you ever think about how you managed to go from being a young child to the more experienced person you are now? Or what might lie ahead over the next few years or decades? Would you like to

Georges GOBET/Agence France Presse/Newscom

Jeanne Calment experienced many changes in society during her 122-year life span.

break Jeanne Calment's longevity record? What do you think other people would want? The What Do *You* Think? feature provides the results of a poll of Americans, as well as provocative questions about extending life radically.

Consider your life to this point. Make a note to yourself about—or share with someone else—your fondest memories from childhood or the events and people who have most influenced you. Also make a note about what you think you might experience during the rest of your life. Put your notes in a safe place (if it's stored online, don't forget your password). Then many years from now, retrieve it and see if you were right.

Thinking about your past and future experiences is the beginning of an exciting personal journey. Remember major moments or experiences you've had. What happened? Why do you think things happened the way they did? What major forces have shaped your life?

Likewise, look ahead. What future story do you want to write about yourself? Think about the forces that may shape the course of your life years from now—about those forces that you can influence and those that you cannot. Think about how the changes you experience will affect your future.

In this course, you will have the opportunity to ask some of life's most basic questions: How did your life begin? How did you go from a single cell—about the size of the period at the end of a sentence in this text—to the fully grown, complex adult person you are today?

What Do ***You*** Think? Would You Want to Live to Be 142?

Humans may be on the brink of fundamentally redefining the typical life span. The May 2013 issue of *National Geographic* magazine showed a baby with the caption "This baby will live to be 120." Topping that, the February 23/March 2, 2015, double issue of *Time* magazine devoted its main feature to the possibility the baby on their front cover could live to 142 years (or longer). As you will learn in this book, our knowledge of the factors determining the length of the human life span is extensive, and we have in our grasp the ability to dramatically lengthen the number of years people live. But just because science enables us to think about extending life considerably, the key question is whether people will *want* to live to be 142 (or even 120).

The Pew Research Center (2013a) asked a representative sample of 2,012 U.S. adults whether they would want to live decades longer, to at least 120 years. Interestingly, when people answered from their own perspective, 56% said they would not want to live that long. But when asked what they thought other people would do, 68% said they thought other people would choose to live to at least 120. We will take a closer look at other aspects of this poll in later chapters, but in general, the results showed that people are optimistic about their own aging and the scientific advances that will enable them to enjoy a better quality of life in old age.

A dramatic extension of the human life span to 120 years or more would likely raise ethical and moral questions, such as how to define a full and purpose-driven life, especially with respect to how we should handle the end of life. For questions such as these, many people turn to religious leaders for guidance. As part of their survey research project, the Pew Research Center (2013b) also looked at how 18 major American religious groups might approach radical life extension. Because no major religious group in America has taken a formal position on this issue, Pew researchers looked at what bioethicists (people who focus on ethics within health areas, for instance), clergy, and other scholars have said about how their respective traditions might approach the matter.

The Pew report contains links to related writings in the various religious traditions that, as you might imagine, vary across denomination. Buddhists may see longer life as providing more opportunities to learn wisdom and compassion and to achieve nirvana. Catholics may see longer lives as diminishing the search for the transcendent. Hindus may welcome longer life, as their normal blessing is "Live long." Muslims and Jews may view longer life as a reflection of God's plan for humanity. For many Protestants, the key factor would be whether longer life spans are seen as a way to avoid death, which would likely lead them to oppose it. These views reflect different perspectives that result from interpreting both individual and collective experiences that are influenced in turn by various biological, psychological, and sociocultural forces (explored later in this chapter).

As we move along our journey through the human life span, questions that take us to the intersection of science and personal belief will occur frequently. Later in this chapter, we will encounter the rules by which scientific research is conducted, so you will better understand what the Pew Research Center did in conducting their poll. In Chapter 16, when we encounter the complex personal issues relating to the end of life, you will have a thorough grounding in how people use (or ignore) research findings in their own lives.

Back to the question posed here—would *you* like to live to 120? 142? Longer? What do *you* think?

Will you be the same or different later in life? How do you influence other people's lives? How do they influence yours? How do the various roles you play throughout life—child, teenager, partner, spouse, parent, worker, grandparent—shape your development? How do you deal with the thought of your own death and the death of others?

These are examples of the questions that create the scientific foundation of **human development**, *the multidisciplinary study of how people change and how they remain the same over time*. Answering these questions requires us to draw on theories and research in the physical and social sciences, including biology, genetics, neuroscience, chemistry, allied health and medicine, psychology, sociology, demography, ethnography, economics, and anthropology. The science of human development reflects the complexity and uniqueness of each person and each person's experiences as well as commonalities and patterns among people. As a science, human development is firmly grounded in theory and research as it seeks to understand human behavior.

human development
The multidisciplinary study of how people change and how they remain the same over time.

Before our journey begins, we need to collect some things to make the trip more rewarding. In this chapter, we pick up the necessary GPS coordinates that point us in the proper direction: a framework to organize theories and research, common issues and influences on development, and the methods developmental scientists use to make discoveries. Throughout the book, we will point out how the various theories and research connect to your own experience. Pack well and bon voyage.

1.1 Thinking About Development

LEARNING OBJECTIVES

- What fundamental issues of development have scholars addressed throughout history?
- What are the basic forces in the biopsychosocial framework? How does the timing of these forces affect their impact?
- How does neuroscience enhance our understanding of human development?

Hassan Qabbani smiled broadly as he held his newborn grandson for the first time. So many thoughts rushed into his mind: What would Mohammad experience growing up? Would the poor neighborhood they lived in prevent him from reaching his potential? Would he inherit the family genes for good health? How would his life growing up as an Arab American in the United States be different from Hassan's experiences in Syria?

Like many grandparents, Hassan wonders what the future holds for his grandson. The questions he asks are interesting in their own right, but they are important for another reason: They bear on general issues of human development that have intrigued philosophers and scientists for centuries. In the next few pages, we introduce some of these issues, which surface when any aspect of development is being investigated.

Recurring Issues in Human Development

What factors shaped the *you* that you are right now? You might suspect such things as your genetic heritage, your family or neighborhood, the suddenness of some changes in your life and the gradualness of others, and the culture(s) in which you grew up or now live. You also might have noticed that you are like some people you know—and very much unlike others. So you might suspect that everyone's life is shaped by a complex set of factors.

Your speculations capture three fundamental characteristics of human development: nature and nurture, continuity and discontinuity, and universal and context-specific development. A person's development is a blend of these characteristics; for example, some of your characteristics remain the same through life (continuity) and others change (discontinuity). Because these characteristics apply to all the topics in this book, we'll examine each one.

Nature and Nurture

Think about a particular feature that you and several people in your family have, such as intelligence, good looks, or a friendly and outgoing personality. Why is this feature so prevalent? Did you inherit it from your parents and they from your grandparents? Or is it mainly because of where and how you and your parents were brought up? *Answers to these questions illustrate different positions on the* **nature–nurture issue**, *which involves the degree to which genetic or hereditary influences (nature) and experiential or environmental influences (nurture) determine the kind of person you are.* The key point is that development is always shaped by both: Nature and nurture are mutually interactive influences.

nature–nurture issue
The degree to which genetic or hereditary influences (nature) and experiential or environmental influences (nurture) determine the kind of person you are.

For example, in Chapter 2, you will see that some individuals inherit a disease that leads to intellectual disability if they eat dairy products. However, if their environment contains no dairy products, they develop normal intelligence. Similarly, in Chapter 10, you will learn that one risk factor for cardiovascular disease is heredity but that lifestyle factors such as diet and smoking play important roles in determining who has heart attacks.

As these examples illustrate, a major aim of human development research is to understand how heredity and environment jointly determine development. For Hassan, it means his grandson's development will surely be shaped both by the genes he inherited and by the experiences he will have.

Think About It

Think of some common, everyday behaviors such as dancing and playing basketball with your friends. How do nature and nurture influence these behaviors?

Continuity and Discontinuity

Think of some ways in which you are still the same as you were as a 5-year-old. Maybe you were outgoing and friendly at that age and remain outgoing and friendly today. Such examples suggest a great deal of continuity in development. From this perspective, once a person heads down a particular developmental path—for example, toward friendliness or intelligence—he or she tends to stay on that path throughout life, other things being equal. From a continuity perspective, if Mohammad is a friendly and smart 5-year-old, then he should be friendly and smart as a 25-year-old and a 75-year-old.

The other view is that development is not always continuous. In this view, people can change from one developmental path to another and perhaps several times in their lives. Consequently, Mohammad might be smart and friendly at age 5, smart but obnoxious at 25, and wise but aloof at 75.

continuity–discontinuity issue
Concerns whether a particular developmental phenomenon represents a smooth progression throughout the life span (continuity) or a series of abrupt shifts (discontinuity).

The **continuity–discontinuity issue** *concerns whether a particular developmental phenomenon represents a smooth progression throughout the life span (continuity) or a series of abrupt shifts (discontinuity).* Of course, on a day-to-day basis, behaviors often look nearly identical, or continuous. But when viewed over the course of many months or years, the same behaviors may have changed dramatically, reflecting discontinuous change. For example, your face may look nearly identical in "selfies" taken on successive days (continuity) but change dramatically in photos taken years apart (discontinuity).

Throughout this book, you will find examples of developmental changes that represent continuities and others that are discontinuities. For example, in Chapter 5, you will see evidence of continuity: Infants who have satisfying emotional relationships with their parents typically become children with satisfying peer relationships. But in Chapter 15, you will see an instance of discontinuity: After spending most of adulthood trying to ensure the success of the next generation and to leave a legacy, older adults turn to evaluating their own lives in search of closure and a sense that what they have done has been worthwhile.

Universal and Context-Specific Development

In many native and indigenous cultures, mathematical concepts are mastered by young children not through formal education about numbers but through everyday tasks such as picking berries and selling goods in street markets (Kisker et al., 2012; Sleeter, 2016). In contrast, children in the United States are formally taught at home or school to identify numbers and to perform the abstract arithmetic operations needed to handle these tasks.

Can one theory explain development in both groups of children? *The* **universal and context-specific development issue** *concerns whether there is one path of development or several.* Some theorists argue that despite what look like differences in development, there is only one fundamental developmental process for everyone. According to this view, differences in development are simply variations on the same fundamental process in much the same way cars as different as a Chevrolet, a Honda, and a Lexus are all products of fundamentally the same manufacturing process.

The alternative view is that differences among people are not simply variations on a theme. Advocates of this view argue that human development is inextricably intertwined with the context within which it occurs. A person's development is a product of complex interaction with the environment, and that interaction is *not* fundamentally the same in all environments. Rather, each environment has its own set of unique procedures that shape development, just as the "recipes" for different cars yield vehicles as different as a Smart car and a stretch limousine.

As is the case for the nature–nurture and continuity–discontinuity issues, the result is a blend; individual development reflects both universal and context-specific influences. For example, the order of development of physical skills in infancy is essentially the same in all cultures. But how those skills are focused or encouraged in daily life differs.

Putting all three issues together and using personality to illustrate, we can ask how the development of personality is shaped by interactions between heredity and environment, is continuous or discontinuous, and develops in much the same way around the world. To answer these kinds of questions, we need to look at the forces that combine to shape human development.

Mathias T. Oppersdorff/Science Source

Even with little formal education, this Brazilian boy has well-developed mathematical skills. This is an example of cultural contextual forces shaping development.

Basic Forces in Human Development: The Biopsychosocial Framework

When trying to explain why people develop as they do, scientists usually consider four interactive forces:

- **Biological forces** *that include all genetic and health-related factors that affect development.*
- **Psychological forces** *that include all internal perceptual, cognitive, emotional, and personality factors that affect development.*
- **Sociocultural forces** *that include interpersonal, societal, cultural, and ethnic factors that affect development.*
- **Life-cycle forces** *that reflect differences in how the same event affects people of different ages.*

Each person is a unique combination of these forces. To see why each force is important, think about whether a mother decides to breast-feed her infant. Her decision will be based on biological variables (e.g., the quality and amount of milk she produces), her attitudes about the virtues of breast-feeding, the influences of other people (e.g., the father, her own mother), and her cultural traditions and societal norms about appropriate ways to feed infants. In addition, her decision will reflect her age and stage of life. Only by focusing on all of these forces can we have a complete view of the mother's decision.

One useful way to organize the biological, psychological, and sociocultural forces on human development is with the **biopsychosocial framework**. As you can see in Figure 1.1, the biopsychosocial framework emphasizes that each of the forces interacts with the others to make up development. Let's look at the different elements of the biopsychosocial model in more detail.

universal and context-specific development issue
Concerns whether there is one path of development or several.

biological forces
All genetic and health-related factors that affect development.

psychological forces
All internal perceptual, cognitive, emotional, and personality factors that affect development.

sociocultural forces
Interpersonal, societal, cultural, and ethnic factors that affect development.

life-cycle forces
Differences in how the same event affects people of different ages.

biopsychosocial framework
Useful way to organize the biological, psychological, and sociocultural forces on human development.

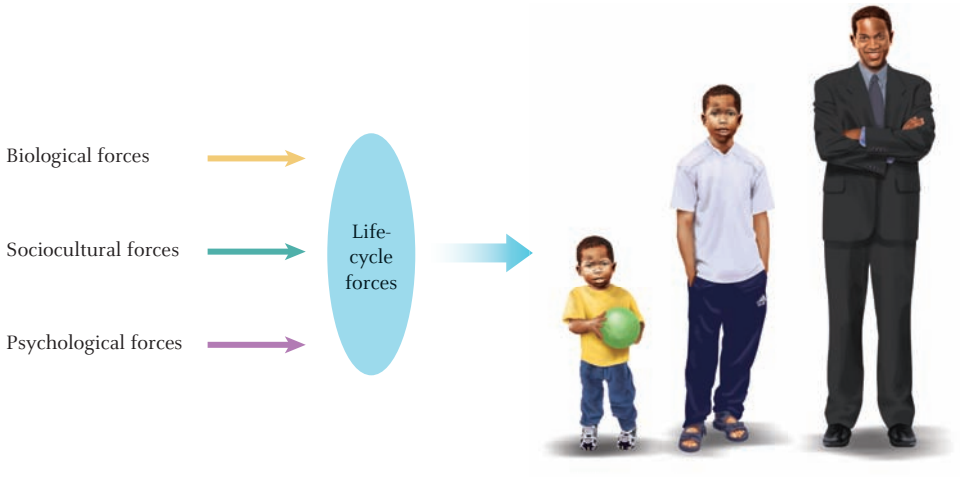


Figure 1.1
The biopsychosocial framework shows that human development results from interacting forces.

Biological Forces: Genetics and Health

Prenatal development, brain maturation, puberty, and physical aging may occur to you as outcomes of biological forces. Indeed, major aspects of each process are determined by our genetic code. For example, many children resemble their parents, which shows biological influences on development. But biological forces are not only genetic; they also include the effects of such things as diet and exercise. Collectively, biological forces can be viewed as providing the raw material necessary and as setting the boundary conditions (in the case of genetics) for development.

Psychological Forces: Known by Our Behavior

Psychological forces seem familiar because they are the ones used most often to describe the characteristics of a person. For example, think about how you describe yourself to others. Most of us say that we have a nice personality and are intelligent, honest, self-confident, or something similar. Concepts such as these reflect psychological forces.

In general, psychological forces are all the internal cognitive, emotional, personality, perceptual, and related factors that help define us as individuals and that influence behavior. Psychological forces have received the most attention of the three main developmental forces, and their impact is evident throughout this text. For example, we will see how the development of intelligence enables individuals to experience and think about their world in different ways. We'll also see how the emergence of self-esteem is related to the beliefs people have about their abilities, which in turn influence what they do.

Sociocultural Forces: Race, Ethnicity, and Culture

People develop in the world, not in a vacuum. To understand human development, we need to know how people and their environments interact and mutually influence each other. That is, we need to view an individual's development as part of a much larger system in which any individual part influences all other aspects of the system. This larger system includes one's parents, children, siblings, extended family, as well as important individuals outside the family, such as friends, teachers, and coworkers. The system also includes institutions that influence development, such as schools, media, and the workplace. At a broader level, the society in which a person grows up plays a key role.

All of these people and institutions fit together to form a person's culture: the knowledge, attitudes, and behavior associated with a group of people. Culture can be linked to a particular country or people (e.g., French culture); to a specific point in time (e.g., popular culture of the 2010s); or to groups of individuals who maintain specific, identifiable cultural traditions (e.g., Native American tribes, Muslims). Knowing the culture from which a person comes provides some general information about important influences that become manifest throughout the life span.

Understanding the impact of culture is particularly important in the United States, one of the most culturally diverse countries in the world. Hundreds of different languages are spoken, and in many states, no single racial or ethnic group constitutes a majority. The many customs of people from different cultures offer insights into the broad spectrum of human experience and attest to the diversity of the U.S. population.

Although the U.S. population is changing rapidly, much of the research we describe in this text was conducted on middle-class European Americans. Accordingly, we must be careful *not* to assume that findings from this group necessarily apply to people in other groups. Indeed, there is a great need for research on different cultural groups. Perhaps as a result of taking this course, you will help fill this need by becoming a developmental researcher yourself.

Another practical problem that we face is how to describe racial and ethnic groups. Terminology changes over time. For example, the terms *colored people*, *Negroes*, *black Americans*, and *African Americans* have all been used to describe Americans of African ancestry. In this book, we use the term *African American* because it emphasizes their unique cultural heritage. Following the same reasoning, we use *European American* (instead of *Caucasian* or *white*), *Native American* (instead of *Indian* or *American Indian*), *Asian American*, and *Latino American* (rather than *Hispanic*).

These labels are not perfect. In some cases, they blur distinctions among ethnic groups. For example, people from both Puerto Rico and Mexico may be described as Latinos. However, their cultural backgrounds vary on several important dimensions, so we should not view them as a homogeneous group. Similarly, the term *Asian American* blurs variations among people whose heritage is, for example, Japanese, Chinese, or Korean. Throughout this text, whenever researchers have identified the subgroups in their research sample, we will use the more specific terms in describing results. When we use the more general terms, remember that conclusions may not apply to all subgroups within the group described by the more general term.

Life-Cycle Forces: Timing Is Everything

Consider the following two females. Jacqui, a 32-year-old, has been happily married for six years. She and her husband have a steady income. They decide to start a family, and a month later Jacqui learns that she is pregnant. Jenny, a 17-year-old, lives in the same neighborhood as Jacqui. She has been sexually active for about six months but is not in a stable relationship. After missing her period, Jenny takes a pregnancy test and discovers that she is pregnant.

738248956l/Shutterstock.com

The culture in which you grow up influences how you experience life.