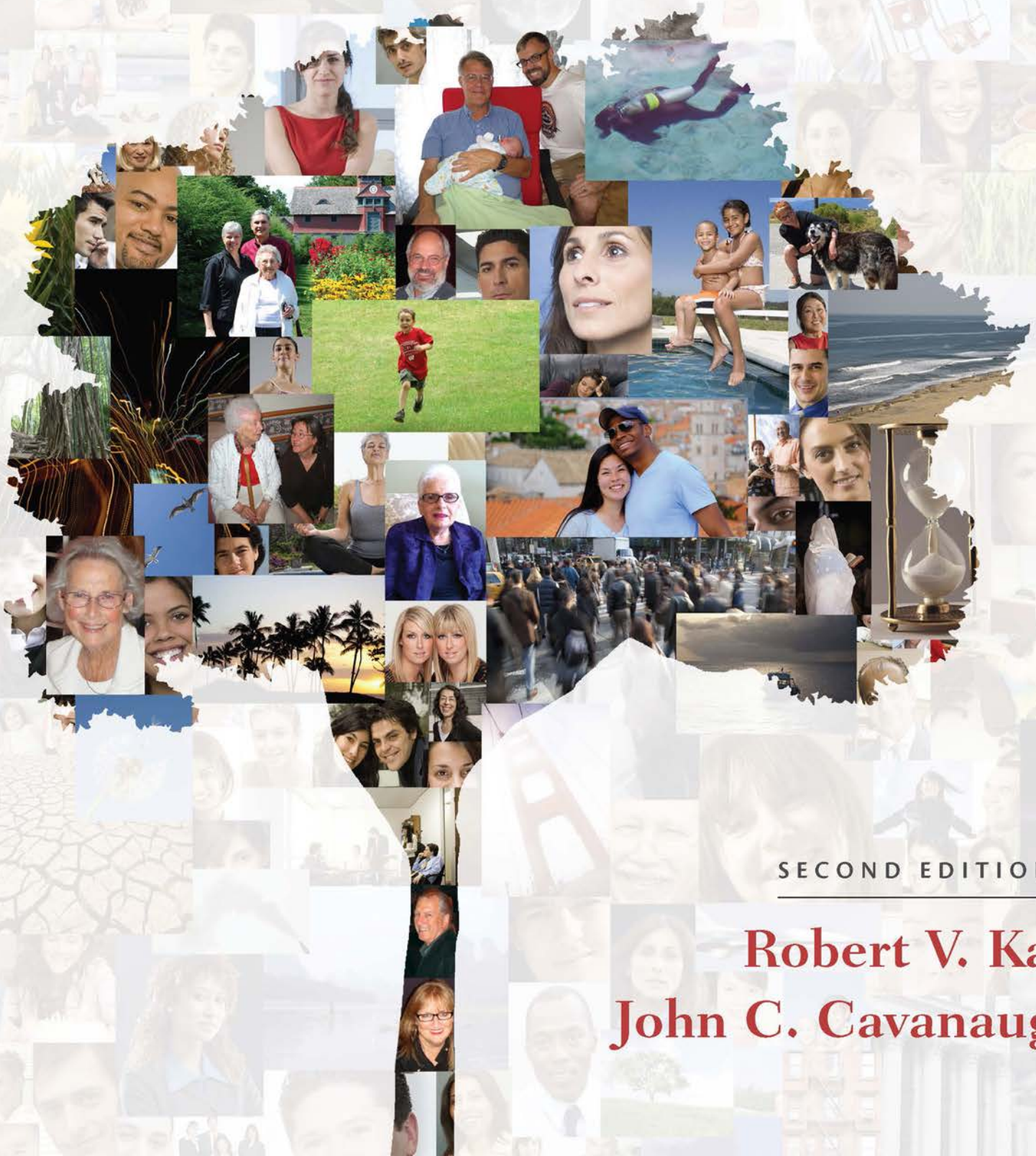
ESSENTIALS OF HUMAN DEVELOPMENT

A Life-Span View



SECOND EDITION

Robert V. Kail
John C. Cavanaugh

Second Edition

Essentials of Human Development

A Life-Span View

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Purdue University

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Consortium of Universities of the Washington Metropolitan Area

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Second Edition

Essentials of Human Development

A Life-Span View

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Preface

Human development is the most fascinating and most complex science there is. Describing how people change (and how they stay the same) over their lives requires a multidisciplinary approach to fully capture the richness of the physical, intellectual, and social dimensions of development. Instructors often find it challenging to cover human development in the typical semester-long course. Consequently, we have created a focused text that emphasizes the essential, defining features of modern research and theory in human development. Specifically, *Essentials of Human Development: A Life-Span View*, Second Edition, fills the need for a shorter text that provides the following:

- A streamlined, readable account of human development across the life span
- Conceptual foundations that enable students to become educated and critical interpreters of developmental information
- An introduction to research and to the application of that research to important issues in life-span development

ORGANIZATION: A Modified Chronological Approach

Some human development texts take a chronological approach (focusing on functioning at specific stages of the life span, such as infancy, adolescence, and middle adulthood), but others use a topical approach (following a specific aspect of development, such as personality, throughout the life span). Both approaches have their merits, so we have combined them in a way that captures 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 (infancy and early childhood, adolescence, young adulthood, middle adulthood, and late life).

But 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 more coherent description of important developmental changes, emphasize that development is not easily divided into "slices," and provide students with understandable explanations of developmental theories.

Balanced Coverage of the Entire Life Span

A primary difference between *Essentials of Human Development: A Life-Span View*, Second Edition, and similar texts is that this book provides a richer and more complete description of adult development and aging. Following the introductory chapter, the remaining 15 chapters of the text are evenly divided among 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 a recognition that roughly three fourths of a person's life occurs beyond adolescence.

As a reflection of our modified chronological approach, *Essentials of Human Development: A Life-Span View*, Second Edition, is divided into four main parts. After an introduction to the science of human development (Chapter 1), Part 1 includes a discussion of the biological foundations of life (Chapter 2) and development during infancy and early

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childhood (Chapter 3 to 5). Part 2 focuses on development during middle childhood and adolescence (Chapter 6 to 9). Part 3 (Chapter 10 to 13) focuses on young and middle adulthood. Part 4 examines late adulthood (Chapter 14 and 15) and concludes with a consideration of dying and bereavement (Chapter 16).

CONTENT AND APPROACH: 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, and 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 experiences as illustrations of how human development plays itself out in people's lives. In addition, every major section of a chapter opens with a short vignette, helping personalize a concept before it is discussed. Other rich examples are integrated throughout the text narrative and showcased in the Real People feature in nearly every chapter.

Emphasis on Inclusiveness

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

Appreciation of the Diverse Career Goals of Students

Students often study human development because they're pursuing a career related to health and human sciences, be it as a nurse, physician, educator, psychologist, social worker, or speech-language therapist. These students are often eager to see how human development research can allow them to work more effectively with future patients, students, or clients. Consequently, *Essentials of Human Development: A Life-Span View* emphasizes the application of human development research across diverse professional settings. *Human Development in Action* features (in the margins) encourage students to imagine themselves in a specific professional setting and to apply knowledge of human development to a specific problem. Similarly, *Apply* questions at the end of every section ask students to use material presented in that section to solve a problem facing a professional in the health and human sciences. Thus, this book consistently underscores the utility of research and theory in human development for improving the human condition.

Changes in the Second Edition

The second edition has been updated with new graphics and hundreds of new reference citations to work from the past 3 years. Of particular note are the following content additions, updates, and revisions.

Chapter 1 includes a new Spotlight on Research feature about the stability of intelligence from childhood to late life. This provides the opportunity to discuss research methods and how key human characteristics change or remain the same across the life span.

Chapter 2 includes extensively revised coverage of molecular genetics and a new Spotlight on Research feature on links between maternal depression and children's behavior.

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Chapter 3 includes a new Spotlight on Research feature on infants' grasping as well revised coverage of infants' face perception and theory of mind.

Chapter 4 includes new material on young children's understanding of robots and ways to help young children pay attention more effectively; there is also a new Spotlight on Research feature on the impact of parents' speech on language learning.

Chapter 5 contains a new Spotlight on Research feature on gender along with new material on children's play with pets, on the influence of oxytocin on prosocial behavior, and on gender differences in memory and effortful control.

Chapter 6 features much revised coverage of gifted children and children with attention-deficit hyperactivity disorder (ADHD) as well as a new Spotlight on Research feature on ways to make tests less threatening.

Chapter 7 includes new material on spanking and on genetic influences on parenting along with much revised coverage of prejudice and of the influence of computers.

Chapter 8 has much revised coverage of the impact of pubertal timing and the factors that contribute to obesity; it also has a new Spotlight on Research feature on programs for preventing eating disorders.

Chapter 9 contains revised coverage of dating violence including a new Spotlight on Research feature.

Chapter 10 has a new Linking Research to Life feature on sexual assault on college campuses and a new Real People feature about Lorde.

Chapter 11 contains a new discussion about online dating as well as the hookup culture, updated material on same-sex marriage, and a reorganized parenting section.

Chapter 12 includes a new discussion about Sheryl Sandberg's concept of women "leaning in" and a new section on occupational expectations along with restructured discussions of occupational choice and career development.

Chapter 13 includes a new Spotlight on Research feature about designing software for middle-aged and older nonexperts, as well as new discussions on mindfulness-based stress reduction techniques and midlife correction as part of personality development.

Chapter 14 features a revised and restructured section on biological theories about aging, new discussions about chronic diseases such as diabetes, expanded discussions about genetics and biomarkers of Alzheimer's disease, and a new discussion about chronic traumatic encephalopathy.

Chapter 15 has a new Real People feature about Pete Seeger, an expanded Linking Research to life feature about reforming Social Security and Medicare, and a new Spotlight on Research feature about the costs of holding in grief for the sake of one's partner.

Chapter 16 includes a new Linking Research to Life feature about Brittany Maynard and the death with dignity debate, a discussion about new ways of diagnosing persistent vegetative state, and a New Real People feature about Randy Pausch's last lecture.

PEDAGOGICAL FEATURES

Among the most important aspects of *Essentials of Human Development: A Life-Span View* is its exceptional integration of pedagogical features, designed to help students maximize their learning. Features that are normally set apart are woven seamlessly into the narrative. This unrivaled integration is meant to help students stay focused on a seamless presentation of human development across the life span.

- **SPOTLIGHT ON RESEARCH** features emphasize a fuller understanding of the science and scope of life-span development.
- **REAL PEOPLE: APPLYING HUMAN DEVELOPMENT** features illustrate the everyday applications of life-span development issues.
- **LINKING RESEARCH TO LIFE** features show how findings from research can be used to improve human development throughout the life span.

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- *Learning Objectives*, followed by brief *vignettes*, open the major sections in each chapter. Each major section is numbered for easy assignment and to help students visually organize the material.
- **HUMAN DEVELOPMENT IN ACTION** questions in the margins encourage application of research to real problems in professional settings.
- *Test Yourself* questions at the end of major sections reinforce key concepts discussed in the section.
- A bulleted *Summary*, organized around the chapter's learning objectives within each major section, ends each chapter.

In sum, we believe that our integrated pedagogical system gives students all the tools they need to comprehend the material and study for tests.

MINDTAP FOR *ESSENTIALS OF HUMAN DEVELOPMENT*

MindTap for *Essentials of Human Development* 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 like RSS feeds, YouTube videos, websites, Google Docs, 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 *Essentials of Human Development* includes:

- Investigate Development, a case-based simulation that enables students to observe, evaluate, and make decisions about human development and shows the implications of research on a personal level. Students interact with simulated case studies of milestones in a person's development, observing and analyzing audio-visual 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.
- Formative assessments at the conclusion of each chapter.
- Interactive activities drawn from text features that foster student participation.
- Illustrative video embedded in the MindTap Reader to highlight key concepts for students.

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SUPPLEMENTARY MATERIALS: Online Instructor's Resource Manual

The *Instructor's Resource Manual* contains resources designed to streamline and maximize the effectiveness of course preparation. The contents include chapter overviews and outlines, learning objectives, critical thinking discussion questions, instructional goals, lecture expanders, video recommendations, and handouts.

Cengage Learning Testing Powered by Cognero

Cognero is a flexible, online system that allows you to author, edit, and manage test bank content as well as create multiple test versions in an instant. You can deliver tests from your school's learning management system, your classroom, or wherever you want. The test bank contains multiple-choice, completion, true/false, and essay questions for each chapter.

Online PowerPoint

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

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Reviewers

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

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To the Student

Essentials of Human Development: A Life-Span View, Second Edition, is written with you, the student, in mind. In the next few pages, we describe several features of the book that 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 a detailed outline and an overview of the main topics.
- 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 type and are defined in the margins. 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.
- *Human Development in Action* questions appear in the margins. These are designed to help you apply information from the text to problems that you might encounter as a professional in health, human sciences, or education.
- 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 relate the material you just read to other facts, theories, or the biopsychosocial framework you read about earlier.
- Text features that expand or highlight a specific topic are integrated with the rest of the material. This book includes the following three features, each identified by a distinctive icon:
  - **SPOTLIGHT ON RESEARCH** features elaborate on specific research studies discussed in the text and provide more details on the design and methods used.
  - **REAL PEOPLE: APPLYING HUMAN DEVELOPMENT** features present case studies that illustrate how issues in human development discussed in the chapter are manifested in the lives of real people.
  - **LINKING RESEARCH TO LIFE** features show how findings from research relate directly to real issues or problems facing people at different phases in their lives.
- The end of each chapter includes two 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 also left room in the margins for you to make notes on the material so that you can more easily integrate the text with your class and lecture material.

Tips on How to Use this Book

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

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introduction and notice how the chapter fits into the entire book; next, 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 whether the ideas describe your experiences or those of others you know, or 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, and 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 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. Certain terms are used to refer to different periods of the life span. Although you may already be familiar with the terms, here we clarify how they are used in this text. The following terms refer to a specific range of ages:

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

Sometimes, for variety, we 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

To organize the material into meaningful segments across the life span, *Essentials of Human Development: A Life-Span View*, Second Edition, is divided 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

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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, some chapters are organized around specific topics.

Part 1 covers prenatal development, infancy, and early childhood. Here we see how genetic inheritance operates and how the prenatal environment affects a person's future development. During the first 2 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 2 covers the years from elementary school through high school. In middle childhood and adolescence, the cognitive skills formed earlier in life evolve to adultlike 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 issues that adults face.

Part 3 covers young adulthood and middle age. During this period, most people achieve their most advanced modes of thinking, reach peak physical performance, form intimate relationships, start families of their own, begin and advance within their occupations, 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 the older generations are felt. By the end of this period, most people have shifted focus from time since birth to time until death.

Part 4 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, you 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, and understanding the story is what it's all about.

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Second Edition

Essentials of Human Development

A Life-Span View

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The Study of Human Development

1

1.1 Thinking About Development
Recurring Issues in Human Development
Basic Forces in Human Development: The Biopsychosocial Framework
REAL PEOPLE: APPLYING HUMAN DEVELOPMENT: Nelson Mandela
Neuroscience: A Window Into Human Development

1.2 Developmental Theories
Psychodynamic Theory
Learning Theory
Cognitive-Developmental Theory
Ecological and Systems Perspective
Lifelong Developmental Perspective
The Big Picture

1.3 Doing Developmental Research
Measurement in Human Development Research
General Designs for Research
Designs for Studying Development
SPOTLIGHT on Research: The Stability of Intelligence from Age 11 to Age 90 Years
Conducting Research Ethically
Communicating Research Results
Applying Research Results: Social Policy
LINKING RESEARCH TO LIFE: Do You Want to Live to Be 120 Years Old?
Problems with Using Photographs to Measure Understanding of Emotions

SUMMARY

KEY TERMS

Jeanne Calment was one of the most important people to have ever lived. Her achievement was not made in any profession. When she died in 1996 at an age of 122 years and 164 days, she set the world record for the longest verified human life span. Jeanne lived her whole life in Arles, France. She met Vincent Van Gogh and experienced the invention of the lightbulb, automobiles, airplanes, space travel, computers, and all sorts of everyday conveniences. Jeanne was extraordinarily healthy her whole life, hardly ever 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. Shortly before her 121st birthday, Music Disc released *Time's Mistress*, a CD of Jeanne speaking over a background of rap and hip-hop music.

Later in this chapter in the Linking Research to Life feature, we will pose the question of whether you want to live as long as Jeanne did. Reflecting on this question is a good way to prepare for the issues we will confront in this course. For example, think about how you changed from being a young child to the person you are now. Or think about what you might experience over the next few years or decades. Take a moment and write down—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 hope some memorable events will be in your future. (Then, many years from now, retrieve it and see whether these events occurred.)

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Georges GOBET Agence France Presse/Newscom

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

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? Will you be the same or different by the time you reach late life? How do you influence other people's lives? How do they influence yours? How do the various roles you may have throughout life—child, teenager, partner, spouse, parent, worker, grandparent—shape your development? How will you deal with your own and others' deaths?

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. The science of human development reflects the complexity and uniqueness of each person and each person's experiences, as well as commonalities and patterns across people.

In this chapter, we go over the basics: theories, common issues and influences on development, and methods developmentalists use to make discoveries.

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?

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

Javier Suarez smiled broadly as he held his newborn grandson for the first time. So many thoughts rushed into his mind–What would Ricardo experience growing up? Would the poor neighborhood they live in prevent him from reaching his potential? Would the family genes for good health be passed on? How would Ricardo's life growing up as a Latino in the United States be different from Javier's own experiences in Mexico?

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Like many grandparents, Javier wonders what the future holds for his grandson. The questions he asks relate to general issues of human development that have intrigued philosophers and scientists for centuries. Let's see what these issues are.

Recurring Issues in Human Development

What factors have shaped your life until now? Your genetic heritage, your family or neighborhood, the suddenness of some changes in your life and the gradualness of others, and the culture or cultures in which you grew up or now live might be among the influences. Everyone's life is shaped by a complex set of factors.

Your speculations capture three pairs of 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). Let's examine each pair of characteristics.

Nature and Nurture

Think for a minute 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? Or is it mainly because of where and how you 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.

A major aim of human development research is to understand how heredity and environment jointly determine development. For Javier, the new grandparent at the opening of this section, it means his grandson's development will be shaped both by the genes he inherited and by the experiences he will have.

Human Development *in Action*

Think of some careers, such as professional athlete, computer company manager, and artist. How do nature and nurture influence behaviors you consider typical for people who excel in these careers?

Continuity and Discontinuity

Do you think that you've not changed very much since you were a young child? This view suggests continuity in development: once a person begins down a particular developmental path—for example, toward friendliness or intelligence—he or she tends to stay on that path throughout life.

Another view—that development is discontinuous—is illustrated when individuals change in some significant way. A common example is when toddlers go through what people refer to as the "Terrible Twos," seemingly going from being sweet and cooperative to assertive and demanding. In this view, people can change from one developmental path to another, perhaps several times in their lives.

The **continuity–discontinuity issue** *concerns whether a particular developmental phenomenon represents a smooth progression throughout life (continuity) or a series of abrupt shifts (discontinuity)*. Throughout this book, you will find examples of developmental changes that represent continuities and others that are discontinuities.

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

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

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 in the context of real-life tasks such as picking berries and selling goods in street markets (Kisker et al., 2012). In contrast, 10- to 12-year-olds in the United States are formally taught at home or school to identify numbers and to perform the arithmetic needed to handle these tasks. Can one theory explain development in both groups of children? *The* **universal versus context-specific development issue** *concerns whether there is just one path of development or several paths*.

Some theorists argue that, despite what look like differences in development, most people worldwide follow a similar developmental path. The alternative view argues

universal versus context-specific development issue
whether there is just one path of development or several paths

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Jan Csernoch/Alamy

Even with little formal education, this boy has well-developed mathematical skills, an example of cultural context forces on development.

that human development is inextricably intertwined with the context within which it occurs. In this view, a person's development is a product of complex interaction with the environment, and that interaction is not fundamentally the same in all environments. Each environment has its own set of unique procedures that shape 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 that affect development:

- *Biological forces* that include all genetic and health-related factors
- *Psychological forces* that include all internal cognitive, emotional, perceptual, and personality factors
- *Sociocultural forces* that include interpersonal, societal, cultural, and ethnic factors
- *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 a mother deciding whether she should breastfeed her infant. Her decision is based on biological variables (e.g., the quality and amount of milk she produces), her attitudes about the virtues of breastfeeding, the influences of other people (e.g., the father), and her cultural traditions about appropriate ways to feed infants. In addition, her decision reflects 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.

A 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.

biopsychosocial framework
a useful way to organize the biological, psychological, and sociocultural forces on human development

Biological Forces: Genetics and Health

Prenatal development, brain maturation, puberty, and menopause are examples of biological forces determined by our genetic code. But biological forces also include the effects of lifestyle factors, such as diet and exercise. Collectively, biological forces provide the raw material necessary and set the boundary conditions for development.

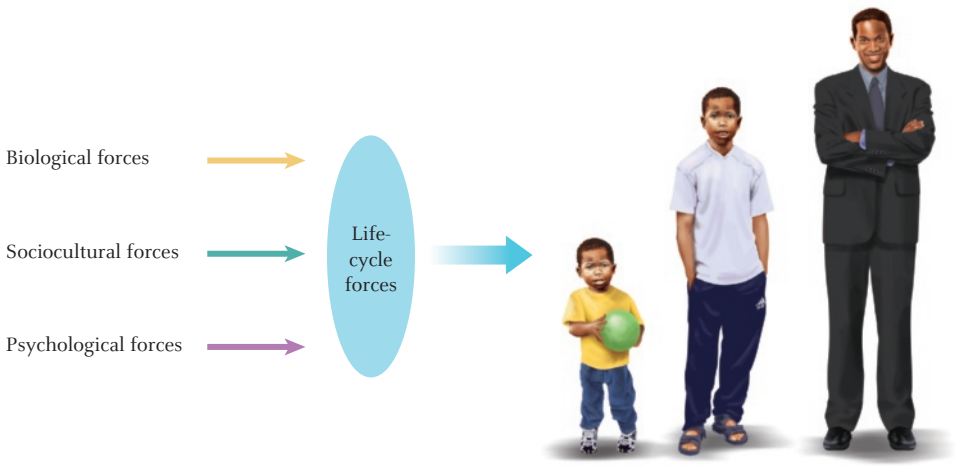

Figure 1.1
The biopsychosocial framework shows that human development results from interacting forces.

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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: intelligent, honest, self-confident, and so on. Concepts like these reflect psychological forces.

In general, psychological forces are all internal cognitive, emotional, personality, perceptual, and related factors that influence behavior. Much of what we discuss throughout this text reflects psychological forces.

Sociocultural Forces: Race, Ethnicity, and Culture

People develop in the world, not in a vacuum. To understand human development, we need to view an individual's development as part of a larger system in which no individual part can act without influencing all other aspects of the system. This larger system includes an individual's parents, children, and siblings, as well as important people outside the family, such as friends, teachers, and co-workers. The system also includes institutions that influence development, such as schools, television, and the workplace. At a broader level, the society in which a person grows up plays a key role.

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

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., Mexican Americans). Knowing the culture from which a person comes provides some general information about important influences that become manifest throughout the life span.

Life-Cycle Forces: Timing Is Everything

Consider the following two females. Jacqui, a 32-year-old, has been happily married for 6 years. She and her husband have a steady income. They decide to start a family, and three months later Jacqui learns she is pregnant. Jenny, a 16-year-old, lives in the same neighborhood as Jacqui. She has been sexually active for about 6 months but is not in a stable relationship. After missing her period, Jenny takes a pregnancy test and discovers that she is pregnant.

Although both Jacqui and Jenny have become pregnant, the impact and outcome of each pregnancy will be affected by factors in each woman's situation, such as her age, her financial situation, and the extent of her social support systems. The example illustrates life-cycle forces: The same event can have different effects depending on when it happens in a person's life.

The Forces Interact

We've described the four forces in the biopsychosocial framework as if they were independent, but in reality each force shapes the others. No aspect of human development can be fully understood by examining the forces in isolation. All four must be considered in interaction.

Combining the four developmental forces gives a view of human development that encompasses the life span yet appreciates the unique aspects of each phase of life. From this perspective we can view each life story as a complex interplay among the four forces. Try this for yourself. Read the short biography of Nelson Mandela in the Real People: Applying Human Development feature; then, think about how each of the developmental forces would explain how he accomplished as much as he did.

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*real*People

APPLYING HUMAN DEVELOPMENT

Nelson Mandela

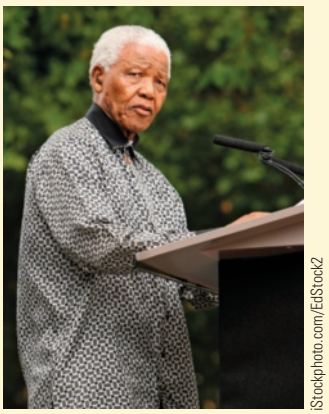
Few people have the breadth of lifetime experiences or the impact on their native country that Nelson Mandela did. Born on July 18, 1918, Mandela was the first member of his family to attend a school, and he earned a bachelor's degree at the University of South Africa. In 1948, he began his political career by opposing the Afrikaner-dominated National Party, which supported the apartheid policy of racial segregation. It was a decision that changed his life.

Mandela was initially dedicated to nonviolent opposition and was influenced by Mahatma Gandhi, who had begun his efforts at social activism in South Africa years earlier. However, after Mandela's arrest for treason in 1956 and his subsequent trial (he was acquitted), he changed his view about nonviolent opposition. The Sharpeville Massacre in 1960, in which 69 peaceful protesters were killed by South African police, convinced him that armed struggle was necessary to overthrow the apartheid government. So in 1961, he formed the armed wing of the African National Congress and began a guerrilla campaign of sabotage against military and government targets.

Mandela was arrested again in 1962. This time he was convicted of sabotage and treason and sentenced to life imprisonment. He remained in jail until February 11, 1990, when he was released by President F. W. de Klerk. During a speech immediately after his release, Mandela said that his main focus was to bring peace to the black majority and give them the right to vote in both national and local elections. Between 1990 and 1994, he negotiated the first multiracial elections in South Africa's history.

Mandela was elected president and served from 1994 to 1999. He helped the country move from white minority apartheid rule to a multiracial model of government built on reconciliation. His support of the Springboks rugby team that won the 1996 world title was especially important and was the subject of the 2009 film *Invictus*.

After Mandela retired in 1999, he remained politically active. He became an advocate for human rights organizations and in the fight against AIDS. He founded three organizations: the Nelson Mandela Foundation, the Nelson Mandela Children's Fund, and the Mandela Rhodes Foundation.



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Nelson Mandela

Nelson Mandela was a true world leader, a person who reshaped the history of his country. He showed continuity in his life through political activity, perseverance through great hardships, and finding a balance between his personal competence and the challenges he experienced during his life. At his death in 2013, he was remembered for his unique ability to keep the focus on his cause—justice—while moving from a very activist approach to one emphasizing healing and trust.

Neuroscience: A Window Into Human Development

Understanding that the four developmental forces interact is one thing. But what if you could actually see these forces interact? That's what is possible in the field of neuroscience. *Applied to human development*, **neuroscience** *is the study of the brain and nervous system, especially in terms of brain–behavior relationships*. Neuroscientists use a variety of methods to study brain–behavior relationships, from molecular analyses of individual brain cells to sophisticated brain imaging techniques.

Neuroscientific approaches are being applied to a range of issues in human development, especially those involving memory, reasoning, and emotion (Schneider, 2014). For example, neuroscientists are beginning to unlock relationships among developmental changes in specific regions of the brain to explain developmental phenomena such as adolescents' tendency to engage in risky behavior and older adults' short-term memory problems.

Neuroscience brings an important perspective to human development that reveals interactions among biological, psychological, sociocultural, and life-cycle forces, allowing a better understanding of how each person is a unique expression of these forces.

neuroscience
the study of the brain and nervous system, especially in terms of brain–behavior relationships

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TEST Yourself

➤ Recall

1. The nature–nurture issue involves the degree to which _____ and environment influence human development.
2. Azar remarked that her 14-year-old son is incredibly shy and has been so ever since he was a baby. This illustrates the _____ of development.
3. _____ forces include genetic and health factors.
4. Neuroscience examines _____ relationships.

➤ Interpret

- How does the biopsychosocial framework provide insight into the recurring issues of development (nature–nurture, continuity–discontinuity, and universal–context-specific)?
- How would you explain criminal behavior and suggest ways to prevent it from both a nature and a nurture perspective?

➤ Apply

- How does your life experience reflect the four developmental forces?
- How does understanding the forces underlying human development help you interpret people's behavior in your workplace?

Recall answers: (1) genetics, (2) continuity, (3) Biological, (4) brain–behavior

1.2 Developmental Theories

Learning Objectives

- What is a developmental theory?
- How do psychodynamic theories account for development?
- What is the focus of the learning theories of development?
- How do cognitive-developmental theories explain changes in thinking?
- What are the main points in the ecological and systems approach?
- What are the major tenets of the life-span and the life-course theories?

Marcus has just graduated from high school, first in his class. For his proud mother, Betty, this is a time to reflect on her son's past and to ponder his future. Marcus has always been a happy, easygoing child–a joy to rear. And he's constantly been interested in learning. Betty wonders why he is so perpetually good natured and so curious. If she knew the secret, she likes to say with a laugh, she could write a best-selling book and be a guest on *The Tonight Show.*

To answer Betty's questions about her son's growth, developmental researchers need a theory of his development. Theories are essential because they provide the whys for development. *In human development, a* **theory** *is an organized set of ideas that is designed to explain development*. For example, suppose two of your friends wonder why their baby cries often. Maybe the baby cries because she's hungry; maybe she cries to get her parents to hold her; maybe she cries because she's an unhappy baby. Each of these explanations is a simple theory: It tries to explain why the baby cries so much. Actual theories in human development are more complicated, but the purpose is the same—to explain behavior and development.

theory
an organized set of ideas that is designed to explain development

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