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THIRD CANADIAN EDITION



HUMAN DEVELOPMENT
A Life-Span View

CHRISTINE A. ATEAH

ROBERT V. KAIL

JOHN C. CAVANAUGH

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1914–2014

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**Human Development: A Life-Span View,
Third Canadian Edition**

by Christine A. Ateah, Robert V. Kail,
and John C. Cavanaugh

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Integra Software Services

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WCN: 02-200-201

Adapted from *Human
Development: A Life-Span View*,
Sixth Edition, by Robert V. Kail and
John C. Cavanaugh, published by
Wadsworth, Cengage Learning.
Copyright © 2013 by Wadsworth,
Cengage Learning.

Printed and bound in the United
States of America
1 2 3 4 17 16 15 14

For more information contact
Nelson Education Ltd.,
1120 Birchmount Road, Toronto,
Ontario, M1K 5G4. Or you can visit
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**Library and Archives Canada
Cataloguing in Publication Data**

Kail, Robert V., author
Human development : a life-
span view / Christine A. Ateah,
Robert V. Kail, John C. Cavanaugh.
— Third Canadian edition.

Robert V. Kail is primary author of
the first edition.
Includes bibliographical references
and indexes.
ISBN 978-0-17-650220-1 (pbk.)

1. Developmental psychology—
Textbooks. I. Ateah, Christine A.
(Christine Anne), author
II. Cavanaugh, John C., author
III. Title.

BF713.K336 2014 155
C2013-907359-0

ISBN-13: 978-0-17-650220-1
ISBN-10: 0-17-650220-3

To Curwood, Jaymie, and Alexandra

Christine A. Ateah

To Dea and Patrice

Robert V. Kail and John C. Cavanaugh

About the Authors

Christine A. Ateah

Christine A. Ateah is Professor of Nursing at the University of Manitoba, in Winnipeg. Her undergraduate and Ph.D. degrees are from the University of Manitoba and her Master of Education degree is from the University of Alberta. She has been a nurse educator for over two decades, and her clinical and research interests are in child and family health promotion, particularly in relation to parent education and child abuse prevention. She teaches growth and development and pediatric nursing to undergraduate nursing students and also enjoys working with graduate students in her area of expertise. In addition to *Human Development: A Life-Span View*, Dr. Ateah has co-edited a book entitled *Within Our Reach: Preventing Abuse across the Lifespan* and has recently co-authored the first Canadian pediatric nursing textbook. She has numerous publications in the areas of parenting and child health and presents on her research nationally and internationally. When away from work, she enjoys spending time with her family, especially while travelling or relaxing at the cottage, as well as practising yoga and painting with watercolours.

Robert V. Kail

Robert V. Kail is Professor of Psychological Sciences at Purdue University. His undergraduate degree is from Ohio Wesleyan University and his Ph.D. is from the University of Michigan. Kail is editor of *Psychological Science*, the flagship journal of the Association for Psychological Science, and is the incoming editor of *Child Development Perspectives*. He received the McCandless Young Scientist Award from the American Psychological Association, was named the Distinguished Sesquicentennial Alumnus in Psychology by Ohio Wesleyan University, and is a fellow of the Association for Psychological Science. Kail has also written *Children and Their Development*. His research focuses on cognitive development during childhood and adolescence. Away from the office, he enjoys photography and working out.

John C. Cavanaugh

John C. Cavanaugh is Chancellor of the Pennsylvania State System of Higher Education. He received his undergraduate degree from the University of Delaware and his Ph.D. 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, writes poetry, and, while eating chocolate, ponders the relative administrative abilities of James T. Kirk, Jean-Luc Picard, Kathryn Janeway, Benjamin Sisko, and Jonathan Archer.

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“What do you want to be when you grow up?” “Where do you see yourself in the next five or ten 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*, Third Canadian 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 in the course of development. *Human Development: A Life-Span View*, Third Canadian 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 approach the study from a *chronological approach* (focusing on functioning at specific stages of the life span, such as infancy, adolescence, and middle adulthood), or from 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 we believe 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, early childhood, middle childhood, adolescence, young adulthood, middle adulthood, and late life).

But because the developmental continuity of topics such 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 more understandable explications of developmental theories.

Balanced Coverage of the Entire Life Span

A primary difference between *Human Development: A Life-Span View* 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 16 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-quarters of most people's lives occurs beyond adolescence.

As a reflection of our modified chronological approach, this third Canadian edition of *Human Development: A Life-Span View* 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 3–6). Part Two focuses on development during middle childhood and adolescence (Chapters 7–10). Part Three (Chapters 11–14) focuses on young and middle adulthood. Part Four examines late adulthood (Chapters 15 and 16), and concludes with a consideration of dying and bereavement (Chapter 17).

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 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 as illustrations of how human development plays itself out in people's lives.

Additionally, major sections of chapters open with a short vignette, helping to personalize a concept just before it is discussed. Other rich examples are integrated throughout the text narrative and are showcased in the Real People feature in nearly every chapter.

Emphasis on Inclusiveness

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

Changes in the Third Canadian Edition

Besides updating the third edition with new graphics and several hundred new reference citations to works from recent years, the major change in this edition is a neuroscience theme. Neuroscience is a rapidly growing field that combines research on how the brain develops and works with the behaviour that we exhibit.

It provides insights into how and why we are able to think about things differently as we grow up and grow older, as well as how certain diseases impair those abilities.

The boxed features about current trends and controversies have been recast as “What Do *You* Think?” discussions to encourage students to think critically about the developmental aspects of issues such as stem cell research and marriage education. From Kristen Jaymes Stewart to Nelson Mandela to numerous ordinary people, many new Real People boxes illustrate life-span topics.

This edition continues to reflect and further update the Canadian context, such as the discussion of issues that are unique to our Aboriginal peoples, and inclusion of Canadian research and statistics, which helps us to understand our own experiences.

Specific improvements made throughout this third Canadian edition are detailed in the following list of changes by chapter.

Chapter 1: The Study of Human Development

- Neuroscience added as a subsection, introducing this new theme in the book.
- Stem cell discussion and Canadian context updated in What Do *You* Think?
- “Recurring Issues” now discussed as “and” instead of “versus” to make it clear that both sides are important.
- In the discussion of forces on development, interaction now follows the four forces.

Chapter 2: Biological Foundations

- New coverage of research into prenatal memory of sensory experiences, and revision of the Spotlight on Research feature to focus on the effect of low birth weight on memory.
- Updated Canadian statistics.
- New material about pregnant women’s cell phone use and prenatal development.
- Updated discussion of the delayed effects of the teratogen DES.
- Expanded section about combined effects of prenatal risk factors.
- Updated section on fetal surgery and gene replacement.

Chapter 3: Tools for Exploring the World

- Updated and reorganized section on brain specialization.
- New section on theory of mind in children with autism.
- New face-perception research discussed in Spotlight on Research.
- Updated Canadian research on SIDS and safe sleep.
- Updated discussion of how infants process sensory information.

Chapter 4: Entering the Social World

- New section on functional view of emotions.
- New table summarizing emotional development in infancy.
- Expanded discussion of acquisition of negative emotions.
- Expanded coverage of the roles of heredity and environment in temperament and of stability of temperament.

Chapter 5: Growing and Learning in the Preschool Years

- Expanded coverage of the impact of video on young children’s word learning, including a new Spotlight on Research box about learning from infant-oriented media.
- New Real People box illustrating accommodation and assimilation in action.

- Updated guidelines for interviewing preschoolers for eyewitness testimony.
- Expanded discussion of bilingualism.

Chapter 6: Interacting and the Work of Play

- Updated discussion on parenting, and its influences and effects.
- Updated discussion on the legal status and use of physical punishment of children in Canada and other countries.
- New material on preventing child maltreatment.
- Expansion of discussion of the causes and effects of child maltreatment.
- New content on self-regulation and Canadian research.
- Updated content on gender and development.

Chapter 7: Off to School

- Expanded coverage of physical fitness in Canadian elementary school children.
- Updated and expanded coverage of learning disabilities.
- Updated findings from the Multimodal Treatment Study of Children with ADHD (MTA) concluding that ADHD is a chronic condition.
- Updated discussions of reading and writing skills.

Chapter 8: Expanding Social Horizons

- Section on effects of television updated and now includes new subsection about use of computers to play games and to stay in touch with friends.
- New Spotlight on Research feature about helping parents and children adjust to life after a divorce.
- Expanded discussion of susceptibility to peer pressure.
- Updated content on bullying.
- Updated and expanded coverage of children's descriptions of other people.

Chapter 9: Rites of Passage

- Expanded coverage of neuroscience, including more material on
 - links between adolescent brain development and risk-proneness, and
 - links between adolescent brain development and information-processing efficiency.

Chapter 10: Moving into the Adult Social World

- Expanded coverage of identity development.
- Expanded and updated discussion of parent–child relationships in adolescence.
- Updated coverage of romantic relationships in adolescence and of dating violence.
- Expanded and updated section on depression in adolescence.
- Much-revised discussion of factors leading to antisocial behaviour, including new material on cascading effects of risk factors.

Chapter 11: Becoming an Adult

- Section on emerging adulthood rewritten, with new material on neuroscience work on brain maturation.
- New Real People feature about Kristen Jaymes Stewart (of *Twilight* saga).
- Revised discussion of binge drinking for the What Do *You* Think? feature.
- Revised section on primary and secondary mental abilities.
- New subsection on fluid and crystallized intelligence.
- New integrated figure showing connections among primary and secondary mental abilities and fluid and crystallized intelligence.
- New subsection on neuroscience research on intelligence, including the parieto-frontal integration theory (P-FIT).

- Inclusion of research using reflective judgment in teacher education in the section on postformal thinking.

Chapter 12: Being with Others

- Additional material on online friendships.
- Added material on online dating and speed dating.
- New international information about marriage and singlehood.
- New What Do *You* Think? feature on marriage education.
- Expanded coverage on the context of remarriage.

Chapter 13: Work and Leisure

- Social cognitive career theory added to occupation choice section.
- Occupational expectations section includes more on the relationship between adolescent expectations and adult reality as well as research on Millennials' expectations.
- New Spotlight on Research feature on job satisfaction in a cross-cultural study of teachers.
- Vallerand's Passion Model of employee burnout added.
- Concept of "glass cliff" added.
- New Real People feature on coping with layoffs.

Chapter 14: Making It in Midlife

- Updated discussion of diagnosis and treatment of osteoporosis, including bone mineral density assessment.
- Updated coverage of rheumatoid arthritis.
- Thorough updating of menopause symptoms, outcomes, and hormone replacement therapy.
- Updated discussion of prostate cancer screening.
- Post-traumatic stress disorder added to consequences of stress.
- Expanded coverage of personality traits.
- Discussion of the "sandwich" generation and related issues.
- Expanded discussion of the empty nest, with more on adult children moving back home.

Chapter 15: The Personal Context of Later Life

- New What Do *You* Think? feature on personal decisions about optimal length of life.
- Discussion of biological theories of aging reorganized.
- New neuroscience material added to sections on physiological change and cognition, including creativity.
- New Real People feature on creativity in late life.
- Updating of genetics and testing research in Alzheimer's disease.

Chapter 16: Social Aspects of Later Life

- New section on housing options, including aging in place, assisted living, and Eden Alternative.
- New Real People feature about Nelson Mandela.
- New discussion about emotion regulation.
- New Spotlight on Research box about neuroimaging and emotion regulation.
- Added discussion of online friendships.
- Major revision of section on sibling relationships.

Chapter 17: The Final Passage

- Definition and discussion of thanatology.
- New section on complicated or prolonged grief disorder, proposed for DSM-5.
- Reorganized euthanasia section.

SPECIAL FEATURES

Four special features are a significant reason that this textbook is unique. These features are woven seamlessly into the narrative, signalled by a distinct icon for each—not boxed off from the flow of the chapter. These features are:



Spotlight on Research, which emphasizes a fuller understanding of the science and scope of life-span development.



Real People, which illustrates the everyday applications of life-span development issues.



What Do You Think?, which asks students to think critically about social and developmental issues.



Healthy Living, which discusses how age- and stage-related concepts and research presented in the chapter can be applied to the promotion of healthy living.

These features are described in the *To the Student* section at the end of this preface.

PEDAGOGICAL FEATURES

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

- *Integration of Features* One of the first things you may notice in paging through this text is that the four special features described earlier, which are normally set apart in boxes in other texts (boxes that students often skip!), are integrated directly into the narrative. This unrivalled integration is meant to help the student stay focused on a seamless presentation of human development across the life span.
- *Section-by-Section Pedagogy* Each major section (four or five per chapter) has been carefully crafted. The section opens with a set of learning objectives, a vignette, and a mini-table of contents for the section; 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), and Online Activities (which lists online resources that support this textbook).

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

SUPPLEMENTARY MATERIALS

An extensive array of supplemental materials are available to accompany this text. These supplements are designed to make teaching and learning more effective. For more information on any of these resources, please contact your local sales representative or call Nelson Education Limited Customer Support at 1-800-268-2222.

Instructor Ancillaries

About the Nelson Education Teaching Advantage (NETA)

The **Nelson Education Teaching Advantage (NETA)** program delivers research-based instructor resources that promote student engagement and higher-order thinking to enable the success of Canadian students and educators.

Be sure to visit Nelson Education's **Inspired Instruction** website at <http://www.nelson.com/inspired> to find out more about NETA. Don't miss the testimonials of instructors who have used NETA supplements and have seen student engagement increase!



Instructor Resources

Key instructor ancillaries are provided at <http://www.nelson.com/site/humandevlopment3ce>, giving instructors the ultimate tool for customizing lectures and presentations. These instructor resources include the following:

- **The Enriched Instructor's Manual** was written by Jason Daniels, University of Alberta. It is organized according to the textbook chapters and addresses eight key educational concerns, such as typical stumbling blocks students face and how to address them. Other features include barriers to learning, engagement strategies, and assessment tools.
- **The Test Bank** was written by Karen McLaren. It includes over 1,500 multiple-choice questions written according to NETA guidelines for effective construction and development of higher-order questions. Test Bank files are provided in Word format for easy editing and in PDF format for convenient printing whatever your system.

The NETA Test Bank is available in a new, cloud-based platform. **Testing Powered by Cognero®** is a secure online testing system that allows you to author, edit, and manage test bank content from any place you have Internet access. No special installations or downloads are needed, and the desktop-inspired interface, with its drop-down menus and familiar, intuitive tools, allows you to create and manage tests with ease. You can create multiple test versions in an instant, and import or export content into other systems. Tests can be delivered from your learning management system, your classroom, or wherever you want.



- **Microsoft® PowerPoint® lecture slides** for every chapter have been created by Tru Kwong, Mount Royal University. There are 35 slides per chapter on average, many featuring key figures, tables, and photographs from this third Canadian edition of *Human Development*. NETA principles of clear design and engaging content have been incorporated throughout.
- **TurningPoint®**: Another valuable resource for instructors is **TurningPoint® classroom response software** customized for *Human Development*, Third Canadian Edition. Now you can author, deliver, show, access, and grade, all in PowerPoint ... with no toggling back and forth between screens! JoinIn on Turning Point is the only classroom response software tool that gives you true PowerPoint integration. With JoinIn, you are no longer tied to your computer.

You can walk about your classroom as you lecture, showing slides and collecting and displaying responses with ease. There is simply no easier or more effective way to turn your lecture hall into a personal, fully interactive experience for your students. If you can use PowerPoint, you can use JoinIn on TurningPoint! (Contact your Nelson sales representative for details.)

- **Image Library:** This resource consists of digital copies of figures, short tables, and photographs used in the book. Instructors may use these .jpg files to create their own PowerPoint presentations.
- **DayOne:** DayOne—Prof InClass is a PowerPoint presentation that you can customize to orient your students to the class and their text at the beginning of the course.



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Acknowledgments

Many individuals were involved in getting this third Canadian edition into its final form. I would like first to thank Robert Kail and John Cavanaugh for their original work on such an excellent book and subsequent editions, which made work on this version a great experience. I would also like to thank Lenore Taylor-Atkins, executive editor, and Jessica Freedman, developmental editor, for their helpful guidance through the process of revision; Laurel Sparrow for her expertise as copy editor; Natalia Denesiuk Harris, senior content production manager; Christine Elliott, freelance permissions researcher; and Miriam Gonzalez, for her excellent work as my research assistant.

I would also like to thank the many reviewers who generously gave their time and effort to help me sharpen my thinking about human development and, in so doing, shape the development of this text:

Anna Baas-Anderson, Sheridan College

Cass Foursha-Stevenson, Mount Royal University

Jacqueline Kampman, Thompson Rivers University

Ken Kustiak, Grant MacEwan University

Elizabeth Levin, Laurentian University

Dana Murphy, Nipissing University

Nancy A. Ogden, Mount Royal University

Jill Rettinger, Georgian College

Michelle Silver, University of Toronto–Scarborough

Rhonda Snow, University of the Fraser Valley

Susan Weir, University of Regina

Christine A. Ateah

To the Student

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

LEARNING AND STUDY AIDS

Each chapter in the text 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 that introduces one of the topics to be covered in that section and provides an example of the developmental issues people face.
- When key terms are introduced in the text, they are **boldfaced**. The definition of the key term appears in the margin. This will 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 the major ideas you have 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, at times the questions will relate the material you have 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 features, each identified by a distinctive icon.



Spotlight on Research elaborates a specific research study discussed in the text and provides more details on the design and methods used.



Real People illustrates in a case study how an issue in human development is manifested in the life of a real person.



What Do You Think? asks students to think critically about social and developmental issues.



Healthy Living discusses how age- and stage-related concepts and research presented in the chapter can be applied to the promotion of healthy living.

The end of each chapter includes several special study tools:

- A *Summary*, organized by major section headings, provides a review of the key ideas in the chapter.
- *Key Terms* that appear in the chapter are listed with page references.
- *Study Tools* draws the chapter to a close. It lists all of the supplementary materials that can be found on the student CourseMate site.

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. When you are assigned a chapter, you may find it preferable to read it in more than one sitting. We suggest that you start by reading 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 note the boldfaced terms and their definitions in the page margins. Your first 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 do, think about what you're reading. Every few paragraphs, stop briefly. Try to summarize, in your own words, the main ideas; ask yourself whether 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.

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, 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 both to reviewing familiar material *and* taking on a relatively small amount of new material.

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TERMINOLOGY

Certain terms will be used to refer to different periods of the life span. Although you may already be familiar with the terms, we would like to clarify how they will be used 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-aged adult	40 years to 64 years
Young-old adult	65 years to 80 years
Oldest-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 in 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.

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, and understanding the story is what it’s all about.



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NEL

The Study of Human Development

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Learn More about It

Jeanne Calment was one of the most important people ever to have lived. Her achievement, though notable, 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 for the longest verified human life span. Jeanne lived her whole life in Arles, France. During her lifetime, she met Vincent Van Gogh, and experienced the invention of the lightbulb, automobiles, airplanes, space travel, computers, and all sorts of everyday conveniences. Longevity ran in her family: her older brother, François, lived to the age of 97, her father to 93, and her mother to 86. 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, 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.

Have you ever wondered what your life span will be? What people you will meet and what experiences you will have? Have you ever thought about how you managed to go from being a young child to the more experienced person you are now? Or



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

human development

multidisciplinary scientific study of how people change and how they stay the same

what might lie ahead in your future over the next few years or decades? Take a moment and think about 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. And also make a note about what you think you might experience across the rest of your life. (Then, many years from now, retrieve it and see if you were right.)

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

Likewise, looking ahead to what your future may hold is also exciting. Will you be able to create your own destiny? What forces are out there to shape you years from now? How will personal changes affect your future?

In this course, you will have the opportunity to ask some of the most basic questions there are: 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 have throughout life—child, teenager, partner, spouse, parent, worker, grandparent—shape your development? How do we deal with our 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 them requires us to draw on theories and research in the physical and social sciences, including biology, genetics, chemistry, medicine, nursing, 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 across people. As a science, human development is firmly grounded in theory and research and seeks to understand human behaviour.

Before our journey begins, we need to collect some things to make the trip more rewarding. In this chapter, we pick up the necessary road maps that point us in the proper direction: a framework to organize theories and research, common issues and influences on development, and the methods developmentalists 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

- Identify the fundamental issues of development scholars addressed throughout history.
- Discuss the basic forces in the biopsychosocial framework and the effect of the timing of these forces on their impact.
- Consider how neuroscience enhances our understanding of human development.

Victor Ramos smiled broadly as he held his newborn grandson for the first time. So many thoughts rushed into his mind—What would Daniel experience growing up? Would the neighbourhood they live in prevent him from reaching his potential? Would the family genes for good health be passed on? How would Daniel’s life growing up in Canada be different from Victor’s own experiences in the Philippines?

Like many grandparents, Victor 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

Think about your life up until now. What factors have shaped it? You might suspect such things as your genetic heritage, your family or neighbourhood, 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 might have also noticed that you are like some people you know, and very much unlike others (and they from you). 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, let’s examine each one.

Nature versus Nurture

Think for a minute about a particular characteristic that you and several people in your family have, such as intelligence, good looks, or a friendly, outgoing personality. Why is this trait so prevalent? Is it because you inherited the trait from your parents? Or is it 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.

For example, in Chapter 2 you will see that some individuals inherit a disease that leads to delays in intellectual development if they eat dairy products. However, if their environment contains no dairy products, they develop normal intelligence. Similarly, in Chapter 11 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.

nature–nurture issue

issue concerning the manner in which genetic and environmental factors influence development



THINK ABOUT IT

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

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

Continuity and Discontinuity

Think of some ways in which you remain similar to how you were as a 5-year-old. Maybe you were outgoing and friendly at that age and remain outgoing and friendly today. Examples like these suggest a great deal of continuity in development, in that once a person begins down a particular developmental pathway—for example, toward friendliness or intelligence—he or she stays on that path throughout life. According to this view, if Daniel is a friendly and smart 5-year-old, he should be friendly and smart as a 25- and 75-year-old.

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

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, behaviours often look nearly identical, or continuous. But when viewed over the course of many months or years, the same behaviours may have changed dramatically, reflecting discontinuous change. Throughout this book, you will find examples of developmental changes that represent continuities and others that are discontinuities. For example, in Chapter 4 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 16 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 versus Context-Specific Development

In some cities in Brazil, 10- to 12-year-olds sell fruit and candy to pedestrians and passengers on buses. Although they have little formal education and often cannot identify the numbers on the money, they handle money proficiently (Saxe, 1988).

Life for Brazilian child street vendors contrasts sharply with childhood in Canada, where 10- to 12-year-olds are formally taught at home or school to identify numbers and to perform the kinds of arithmetic needed to handle money. 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. Some theorists would argue that despite what look like differences in development, there is really only one fundamental developmental process for everyone. According to this view, differences in development are simply variations on a fundamental developmental process, in much the same way that cars as different as a Ford, a Honda, and a Porsche are all products of fundamentally the same manufacturing process.

The opposing view is that differences among people are not simple variations on a theme. Advocates of this view argue that human development is inextricably

continuity–discontinuity issue

issue concerned with whether a developmental phenomenon follows either a smooth progression throughout the life span or a series of abrupt shifts

universal versus context-specific development issue

issue of whether there is one path of development or several

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. 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 MINI Cooper and a stretch limousine.

As is the case for the nature–nurture and continuity–discontinuity issues, the end result is a blend; individual development reflects both universal and context-specific influences. For example, the basic 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 across cultures.

Putting all three issues together, and using personality to illustrate, we can ask how heredity and environment interact to influence the development of personality, whether the development of personality is continuous or discontinuous, and whether personality 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.

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 product of a unique combination of these forces. No two individuals, even in the same family, experience these forces in the same way; even identical twins eventually have different friendship networks, partners, and occupations.

To see why each of these forces is important, think about whether a mother decides to breast-feed her infant. Her decision will be based on biological variables (e.g., amount of milk produced), her attitudes about the virtues of breast-feeding, the influences of other people (e.g., the father), and her cultural traditions about appropriate ways to feed infants. Additionally, her decision will reflect her age and stage of life. Only by focusing on all 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 human development is more than any one of the basic forces considered alone. Rather, each force interacts with the others to make up development. Let's look at the different elements of the biopsychosocial model in more detail.

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

all interpersonal, societal, cultural, and ethnic factors that influence development

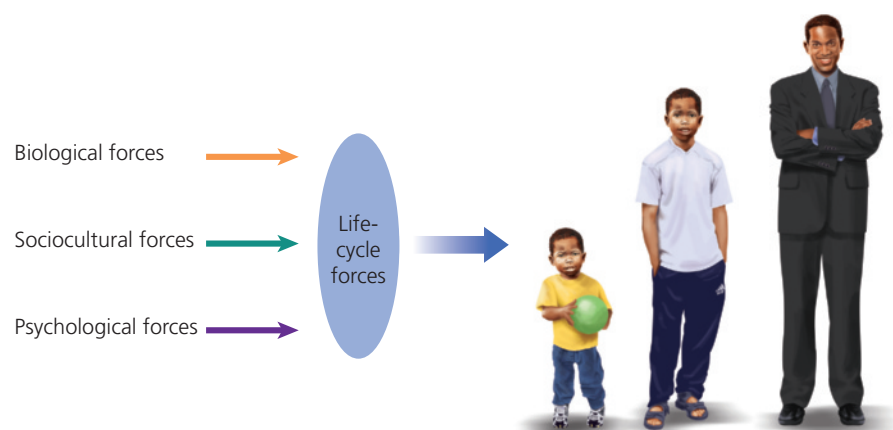
life-cycle forces

differences in how the same event may affect people of different ages

biopsychosocial framework

view that integrates biological, psychological, sociocultural, and life-cycle forces on development

FIGURE 1.1
Biopsychosocial Forces in Development



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

SOURCE: Cengage Learning



1 design//Stockphoto

Biological influences on development help explain why relatives tend to look alike.

Biological Forces

Prenatal development, brain maturation, puberty, menopause, facial wrinkling, and change in cardiovascular functioning all illustrate biological forces. Many of these biological forces are determined by our genetic code and will be discussed in upcoming chapters. For example, many children resemble their parents, which shows biological influences on development. But biological forces also include the effects of lifestyle factors, such as diet and exercise. Collectively, biological forces can be viewed as providing the necessary raw material (in the case of genetics) and as setting the boundary conditions (in the case of one's general health) for development.

Psychological Forces: Known by Our Behaviour

Psychological forces probably 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 when you meet others. Most of us say that we have a nice personality and are intelligent, honest, self-confident, or something along those lines. Concepts like these reflect psychological forces.

In general, psychological forces are all the internal cognitive, emotional, personality, perceptual, spiritual, and related factors that influence behaviour. Psychological forces have received the most attention of the three main developmental forces. Much of what we discuss throughout the text reflects psychological forces. 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 relate to

each other. In other words, we need to view an individual's development as part of a much larger system, in which no part of the system can act without influencing all other aspects of the system. This larger system includes one's parents, children, and siblings as well as important individuals outside the family, such as friends, teachers, and co-workers. The system also includes institutions that influence development, such as schools, television, places of worship, and the workplace. At a broader level, the society in which a person grows up plays a key role.

All these people and institutions fit together to form a person's culture—the knowledge, attitudes, and behaviour associated with a group of people. Culture can be linked to a particular country or people (e.g., Filipino culture), to a specific point in time (e.g., popular culture of the 2000s), or to groups of individuals who maintain specific, identifiable cultural traditions (e.g., Indo-Canadians). Knowing the culture from which a person comes provides some general information about important influences that may appear throughout the life span.

Understanding the impact of culture is particularly important in Canada, one of the most diverse countries in the world. A large number of languages are spoken here, and the many customs people bring add to a growing richness that offers insights into the broad spectrum of human experience and attests to the diversity of the Canadian population.

Although the Canadian and American populations are changing rapidly, much of the research we describe in this text was conducted on individuals who have a middle-class socioeconomic background and/or who are of European descent. 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 each group, since appropriate terminology changes over time. For example, we use “European heritage” (instead of Caucasian or white) and “Aboriginal” (instead of Indian or Native). These labels are not perfect. In some cases, they blur distinctions among ethnic groups. For example, the term “Aboriginal peoples” is frequently used to refer to those individuals who are descendants of the original inhabitants of North America namely: First Nations, Métis, and Inuit (Aboriginal Affairs and Northern Development Canada, 2012). However, their specific cultural backgrounds vary on several important dimensions, so we should not view them as being from a homogenous group as they have unique languages, cultural practices, and beliefs. Similarly, the term “Asian Canadian” 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 more general term.

Life-Cycle Forces: Timing Is Everything

Consider the following two females. Jacqui, a 32-year-old woman, 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 she is pregnant. Jenny, a 14-year-old girl, lives in the same neighbourhood as Jacqui. She has



Photodisc

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