

Life-Span Development

seventh edition

John W. Santrock



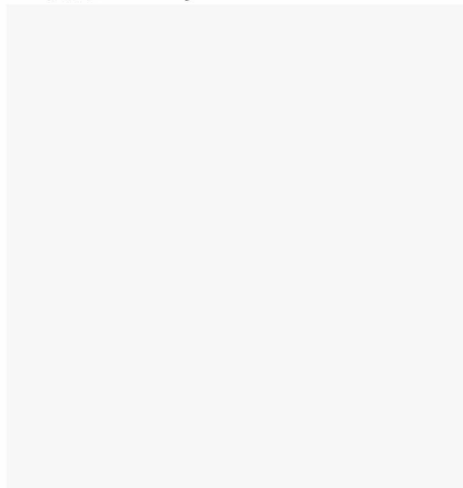
Life-Span Development

seventh edition

John W. Santrock

University of Texas–Dallas

*To My parents,
Ruth and John Santrock*



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LIFE-SPAN DEVELOPMENT, SEVENTH EDITION

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1 2 3 4 5 6 7 8 9 0 QPD/QPD 9 3 2 1 0 9 8

ISBN 0-697-36439-9

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Typeface: 10/12 Minion
Printer: Quebecor Printing Book Group/Dubuque, IA

Cover designer: Lisa Gravunder
Interior designer: Kathy Theis
Cover image: *Pierre Auguste Renoir, French 1841–1919, Two Sisters (On the Terrace), oil on canvas, 1881, 100.3 x 81 cm, Mr. and Mrs. Lewis Larned Coburn Memorial Collection, 1933.455 photograph © 1997, The Art Institute of Chicago, All Rights Reserved.*

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Library of Congress Cataloging-in-Publication Data

Santrock, John W.

Life-span development / John W. Santrock . — 7th ed.

p. cm.

Includes bibliographical references and index.

ISBN 0-697-36439-9

1. Developmental psychology. I. Title.

BF713.S26 1999

155—dc21

98-12814

CIP

INTERNATIONAL EDITION

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When ordering this title, use ISBN 0-07-115850-2.

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PREFACE

This is the seventh edition of *Life-Span Development*. When I began writing the first edition of the book, I was 37 years old. Across the seven editions, I have aged from the latter part of early adulthood into middle age, my children have moved through adolescence and into early adulthood, one of them got married, both of them graduated from college and established careers (Tracy is a marketing manager for GTE, Jennifer was a professional tennis player and now is a sales representative for Boston Scientific), and I became a grandfather. I gained a few gray hairs and finally, after several false starts, learned how to use a computer for word processing. I also gave up tennis but still exercise regularly, and I have been painting expressionist art since 1989.

The journey through the human life span grows in fascination for me. This is an exciting time to study and write about life-span development. Scholars around the world are making new discoveries and developing intriguing insights about every period of the life span at a much faster pace than in previous decades.

As in the past editions, I have carefully added to, subtracted from, integrated, and simplified the material for this seventh edition of the book. I retained the core ideas on life-span development from the sixth edition. However, I made some significant changes as part of incorporating updates in the research knowledge that is the foundation of the discipline. And I expanded the discussion of how to apply what we know about life-span development to the everyday lives of people in different periods of development.

The significant characteristics of *Life-Span Development*, seventh edition, can be grouped into four areas: (1) science and research, (2) applications, (3) student-friendliness and pedagogy, and (4) ancillaries.

Science and Research

Above all else, *Life-Span Development*, seventh edition, is an extremely up-to-date presentation of research in the three primary domains of development: biological, cognitive, and socioemotional.

Research Citations Research continues to be the core of this book. I thoroughly evaluated, expanded, and updated the research base of life-span development by including more than 400 research citations from 1996, 1997, 1998, and in-press sources.

Expert Consultants The extensive research agenda in life-span development makes it impossible for one author to provide an up-to-date account of content in all areas. Beginning with the sixth edition, I obtained the input of some of the world's leading scholars in life-span development, such as Paul Baltes, Diana Baumrind, and Ravenna Helson.

This tradition has been continued in the seventh edition. The expert consultants, whose photographs and brief biographies appear later in this preface, went over the content of individual chapters in their areas of expertise and made recommendations about what to change. Many of these experts are among the world's leading researchers and theorists in life-span development. They have made the seventh edition of *Life-Span Development* a far more accurate, up-to-date portrayal of human development than I could have by myself.

New Content Every chapter has been infused with new content. A sampling of the new content:

- Chapter 1: The history of interest in aging
Family policy and the homeless
Careers in life-span development
- Chapter 2: Urie Bronfenbrenner's and Glen Elder's evaluations of their theories, written especially for this book
John Clausen's in-depth longitudinal study involving life-history interviews
A new section on research journals
- Chapter 3: Discussion of evolution from a life-span perspective
Pregnancy planning and health-care providers
Expanded coverage of high-tech assisted reproduction
- Chapter 4: Abigail and Brittany Hensel, conjoined twins
Maximizing positive prenatal outcomes
- Chapter 5: Updated discussion of toilet training
Supporting the infant's physical development
New section on developmental biodynamics
Updated and expanded coverage of the brain's development

- Studying the newborn's perception
 - New emphasis on perceptual-motor coupling and unification
- Chapter 6: Nourishing the infant's cognitive development
 - The infant's understanding of the concept of number
- Chapter 7: New research on fathering
 - Discussion of recent NICHD study on day care
 - New research on the infant's self-other boundaries
 - Nurturing the infant's socioemotional development
 - New section on developmental consequences of child maltreatment
- Chapter 8: Teresa Amabile's creativity as a child
 - The Reggio Emilia approach to early childhood education
 - Early childhood education programs and computers
 - Nourishing the young child's cognitive development
- Chapter 9: New data on single-parent families in different countries
 - Communicating with children about divorce
 - New data on children's TV watching in different countries
 - Improving young children's socioemotional development
- Chapter 10: Jessica Dubroff, child pilot
 - New research on learning disabilities
 - Strategies for working with ADHD children
 - New section on Piaget and education, including the constructivist approach
 - Daniel Perkins's and John Bransford's ideas on improving children's critical thinking
 - Ann Brown's work on transforming schools into communities of thinking and learning
 - Ellen Winner's criteria for characterizing gifted children
 - Strategies for supporting children's cognitive growth
 - Teresa Amabile's ideas on how adults stifle children's creativity
 - Improving the English and computer literacy skills of Latino children
 - NAEYC recommendations for working with linguistically and culturally diverse children
- Chapter 11: Willard Hartup's recent thoughts on the nature of friendship
 - Updated discussion of ethnicity and schooling, including a number of strategies for improving relations between ethnically diverse students
 - Contextual variations in Gilligan's care perspective
 - The Global Lab and other technology connections with students around the world
 - A technology and science support program for ethnic minority girls
 - Recommendations for parents and teachers on promoting children's prosocial behavior
 - Emotional intelligence
 - Strategies for supporting children's socioemotional development
- Chapter 12: Updated discussion of adolescent drug use
 - New section on youth and cigarette smoking
 - Carnegie Foundation recommendations for preventing youth violence
 - Social policy and adolescent pregnancy
 - Strategies for improving the lives of adolescents
- Chapter 13: Social policy and families with adolescents
 - Social policy, peers, and youth organizations
 - New research on adolescent romantic relationships
 - The Quantum Program and mentoring adolescents from impoverished backgrounds
 - Strategies for supporting adolescents' socioemotional development
- Chapter 14: An immigrant woman with a dream
 - New data on constancy and change in the transition to adulthood
 - Strategies for reducing STD risk
 - Simonton's and Csikszentmihalyi's ideas on creativity
 - Updated, revised discussion of exploring careers
 - Adaptive physical and cognitive skills in early adulthood
- Chapter 15: Adaptive relationship skills
 - Harriet Lerner talks about women and men
 - Deborah Tannen talks about women and men in conversation
- Chapter 16: Some new insights into middle age
 - Updated and revised comments about

- estrogen replacement therapy
- New research on work in the fifties
- Adaptive physical and cognitive skills in midlife
- Chapter 17: New research on restructuring our relationships with and perceptions of our parents
- Adaptive midlife socioemotional competencies
- New research on links among identity, social roles, and generativity
- Chapter 18: Centenarians view life
- Extensively updated and revised discussion of biological theories of aging
- Updated and revised comments about taking supplemental hormones
- New ideas about the aging brain
- New research on the role of sensory functioning in competent everyday living
- Learning how to deal with health-care personnel
- Adaptive physical development in late adulthood
- Chapter 19: The fascinating story of Sister Mary and her robust cognitive skills
- Revised and updated discussion of Baltes's ideas on cognitive mechanics and cognitive pragmatics
- Extensively updated and expanded discussion of memory and aging
- Revised and updated discussion of Baltes's ideas on wisdom
- New research on aging and work
- New ideas about adapting to retirement
- Frontiers of clinical gerontology
- Adaptive cognitive skills in late adulthood
- Chapter 20: New research on gender and aging
- Intergenerational relationships and diversity in family structure and roles
- Adaptive socioemotional competencies in late adulthood
- New section on life goals and personal life investments
- Chapter 21: Updated discussion of Kevorkian's assisted-suicide approach
- New discussion of Kastenbaum's views on children's conception of death
- New research on bereavement and loss
- Coping with death and dying

Explorations in Life-Span Development This new feature, which appears once in each chapter, focuses on some

research or applied aspect of life-span development related to the chapter's content.

Applications

I hope that when students complete this book, they will not only have a much better understanding of the scientific basis of life-span development but also will have increased their wisdom about practical applications to real lives, their own and others'. The following features highlight these applications.

Developing Life-Span Skills New to this edition, this feature describes personal and cognitive skills that are adaptive for the particular age period being discussed. The feature appears one or more times in each chapter. Some examples:

- Chapter 6: Nourishing the Infant's Cognitive Development
- Chapter 9: Improving Young Children's Socioemotional Development
- Chapter 12: Strategies for Improving the Lives of Adolescents
- Chapter 15: Adaptive Skills in Middle Age
- Chapter 19: Adaptive Cognitive Skills in Late Adulthood

Through the Eyes of Children (Youth) (Adults) This new feature appears one or more times in each chapter and gives students insight into the real worlds of children, adolescents, and adults. Most of the entries include actual comments from children, adolescents, or adults about some aspect of life-span development related to the chapter's content. Some examples:

- Chapter 1: Rescuing a rain forest
- Chapter 3: An adopted child's thoughts and feelings
- Chapter 6: Monkeys have tails. Does Canny?
- Chapter 8: The big red flower and 14 knees
- Chapter 9: Amos Bear gets hurt
- Chapter 10: The 8-year-old filmmaker and oozy red goop
- Chapter 14: A poet laureate's, sculptor's, and biologist's most creative moments
- Chapter 17: Bruce Feirstein, Paul Simon, and Art Garfunkel
- Chapter 20: My mother's tree

Life-Span Health and Well-Being This feature continues to appear at the end of each chapter and highlights some aspect of health and well-being related to the chapter's content.

Life-Span Practical Knowledge This chapter-ending feature profiles recommended books, many of which are easy to read, related to the chapter's content.

*S*tudent-Friendliness and Pedagogy

I continue to strive to make this book more student-friendly. I have explored alternative ways of presenting ideas and continue to ask college students of varying ages and ability levels to give me feedback on which strategies are most effective.

Writing The task of producing a well-written, student-friendly text on life-span development is challenging. I extensively edited and fine-tuned many sections of the book in writing the seventh edition. Students tell us that the book is well written and interesting and has great built-in study features. Indeed, some students have told us that the book not only is the best psychology text they have ever read, but the best college text period!

Concept Tables These are a unique feature in life-span texts. Twice each chapter, students come across this hierarchical review before they get to the end-of-chapter overview.

Key Terms These are boldface in the text and their definition follows in italics. The key terms also are page-referenced at the end of the chapter, as well as page-referenced and defined again in the end-of-book glossary.

Images of Life-Span Development These high-interest pieces open each chapter. A number of new ones were written for the seventh edition, including for chapter 4 ("The Story of Abigail and Brittany Hensel, Conjoined Twins"), chapter 10 ("Jessica Dubroff, Child Pilot"), and chapter 14 ("An Immigrant Woman with a Dream").

Adventures for the Mind Once in each chapter this interactive feature stimulates students to think more deeply about an aspect of life-span development related to the chapter's contents.

Outlines, Previews, Overviews, and Reviews Each chapter opens with a Chapter Outline and Preview that provide information about the chapter's main topics. The Overview at the end of each chapter includes a cognitive tree to help students visualize the chapter's main topics. Each of the book's main sections opens with a description of its chapters and their contents. Sections Three ("Infancy") through Nine ("Late Adulthood") end with reviews of the section's main ideas.

The Visual Program I have a strong interest in making *Life-Span Development* a book that is attractive for students. I chose every artwork and photograph in the book, carefully matching the right image to the words in the text. I also extensively participated in the book's design and layout. Visual summary figures appear in every chapter. These summarize some aspect of the text and include a photograph related to the summary. The visual figures

supplement the concept tables in encouraging students to review material before they get to the end of a chapter. Also, because we know that learning works best when students are in a good mood, cartoons appear where appropriate in chapters.

*A*ncillaries

The supplements listed here may accompany Santrock, *Life-Span Development*, 7/e. Please contact your local McGraw-Hill representative for details concerning policies, prices, and availability as some restrictions may apply.

*F*or the Instructor

Instructor's Manual **by Laurie Dickson and Susan Harris** **(Northern Arizona State University)**

This extensively revised and expanded manual provides the necessary tools for both the seasoned professor as well as professors new to the life-span development course. The new edition of the Instructor's Manual contains for each chapter, a chapter outline, list of chapter boxed material with topics, a brief chapter overview, and a concise list of targeted learning objectives. Also featured is a list of the key people and terms discussed in the chapter with the appropriate page references included. Complete lecture suggestions are provided with further resource information included for each major chapter concept. Boxed teaching tips are included throughout to help instructors make the most of their time in the classroom. In addition, classroom activities serve to provide hands-on suggestions for applying course material to students' everyday lives in the form of classroom exercises and handouts. These activities are referenced to the main text by chapter and answers are provided within. Research Project Ideas provide instructors with material for out-of-class assignments and include questions for in-class follow-up and discussion. The recently published McGraw-Hill Developmental Psychology Image Database, available as transparencies and as a CD-ROM, has been correlated to each chapter of the Instructor's Manual for easy lecture planning. A list of topical videos with brief content descriptions and running time information is included for each chapter as additional resources. Lastly, each chapter contains website resources that direct instructors to the McGraw-Hill Developmental Web Site where hot links to related sites are available.

Test Bank **by Craig Allen (Iowa State University)**

The Test Bank was extensively revised and expanded to include over 2,400 questions specifically related to the main text. Questions include a wide range of multiple-choice, fill-in the blank, critical thinking, and essay from which instructor's can create their test material. Each item is designated as

factual, conceptual, or applied as defined by Benjamin Bloom's Taxonomy of Educational Objectives (1956).

Computerized Test Bank **by Craig Allen (Iowa State University)**

This computerized test bank contains all of the questions in the print version and is available in both Macintosh and Windows platforms.

The McGraw-Hill Developmental Psychology Image Database Overhead Transparencies and CD-ROM

This set of 200 full-color images was developed using the best selection of our human development art and tables and is available in both a print overhead transparency set as well as in a CD-ROM format with a fully functioning editing feature. Instructors can add their own lecture notes to the CD-ROM as well as organize the images to correspond to their particular classroom needs.

Videocases in Human Development

This four-tape set of videos features spontaneous, unrehearsed interviews on topics in human development. Each videotape features excerpts from real people as they talk about personal issues that have particular significance to them. Videocases in Human Development are the perfect supplement for the professor who wants to expose students to the real-life issues that face people at every developmental stage of life. Video One: Prenatal Issues; Video Two: Childhood Issues; Video Three: Adolescent Issues; Video Four: Adulthood Issues. Topics covered include alternative parenting, biracial adoption, ADD, homelessness, homosexual teens, substance abuse, and aging and sexuality. An Instructor's Manual is included and provides an overview of each tape along with follow-up discussion questions.

Presentation Manager

This CD-ROM is available to faculty to help organize and custom design their lectures. Resources available for instructor editing and presentation development include videos, instructor manual materials, the PowerPoint slide presentation, and the image bank for human development. Instructors have the ability to add their own media materials as well for a completely integrated teaching tool.

Powerpoint Slide Presentation

This set of approximately 250 PowerPoint slides follows the chapter organization of Life-Span Development, 7/e and includes related text images for a more effective lecture presentation.

Web Site

Please visit our developmental web site for additional information on this title as well as text-specific resources and web links for both instructors and students. Our web site address is www.mhhe.com/developmental.

The AIDS Booklet

The fourth edition by Frank D. Cox of Santa Barbara City College is a brief but comprehensive introduction to acquired immune deficiency syndrome, which is caused by HIV (human immunodeficiency virus) and related viruses.

Annual Editions—Human Development 1998/1999

Published by Dushkin/McGraw-Hill, is a collection of 45 articles on topics related to the latest research and thinking in human development. These editions are updated annually and contain helpful features including a topic guide, an annotated table of contents, unit overviews, and a topical index. Instructor's guide containing testing materials is available.

Sources: Notable Selections in Human Development

A collection of over 40 articles, book excerpts, and research studies that have shaped the study of human development and our contemporary understanding of it. The selections are organized topically around major areas of study within human development. Each selection is preceded by a headnote that establishes the relevance of the article or study and provides biographical information on the author.

Taking Sides:

A debate-style reader designed to introduce students to controversial viewpoints on the fields' most crucial issues. Each issue is carefully framed for the student, and the pro and con essays represent the arguments of leading scholars and commentators in their fields. Instructor's guide containing testing materials is available.

For the Student

Student Study Guide **by Anita Rosenfield (Chaffey Community College)**

The revised Study Guide has benefited from the author's experience in teaching courses in Student Success Strategies as well as her efforts to get student feedback on what makes an effective study guide. The Study Guide provides a complete introduction for students in the How to Use this Study Guide and Guide to Academic Success sections. Features include for each chapter, learning objectives from the Instructor's Manual and a guided review for students with highlighted key terms. A self-test section provides an interactive workbook for students to complete the fill-in the blank format which corresponds to the main text chapters and sections. In addition, new to this edition of the Student Study Guide, are research project ideas for students as well as in-text flash cards for more effective student learning.

The Critical Thinker

Richard Mayer and Fiona Goodchild of the University of California, Santa Barbara, use excerpts from introductory psychology textbooks to show students how to think critically about psychology.

Guide to Life-Span Development for Future Educators***Guide to Life-Span Development for Future Nurses***

New course supplements that helps students apply the concepts of human development to education. The supplement contains information, exercises, and sample tests

designed to help students prepare for certification and understand human development from a professional perspective.

Resources for Improving Human Development

This informative booklet provides descriptions and contact information for organizations and agencies that can be contacted for helpful information, advice, and support related to particular problems or issues in life-span development. Recommended books and journals are also described and included. The booklet is divided chronologically corresponding to the life span.

Acknowledgments

The seventh edition of *Life-Span Development* benefitted enormously from a carefully selected board of reviewers, who provided in-depth reviews of material used in various chapters. These individuals are Dante Cicchetti, *University of Rochester*; Nan B. Ratner, *University of Maryland, College Park*; Mary K. Rothbart, *University of Oregon*; Allan Wigfield, *University of Maryland, College Park*; Roger Dixon, *University of Victoria*, and the expert panel listed later in this preface.

I also remain indebted to the following individuals who reviewed previous editions and whose suggestions have been carried forward into the current edition of the text:

Joanne M. Alegre, *Yavapai College*
 Susan E. Allen, *Baylor University*
 Frank R. Ashbury, *Valdosta State College*
 Daniel R. Bellack, *Trident Technical College*
 Helen E. Benedict, *Baylor University*
 James A. Blackburn, *University of Wisconsin, Madison*
 Belinda Blevin-Knabe, *University of Arkansas, Little Rock*
 Donald Bowers, *Community College of Philadelphia*
 Joan B. Cannon, *University of Lowell*
 Kathleen Crowley-Long, *College of Saint Rose*
 Margaret Sutton Edmonds, *University of Massachusetts, Boston*
 Martha M. Ellis, *Collin County Community College*
 Shirley Feldman, *Stanford University*
 Linda E. Flickinger, *St. Claire Community College*
 Tom Frangicetto, *Northampton Community College*
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 Cathy Furlong, *Tulsa Junior College*
 Duwayne Furman, *Western Illinois University*
 David Goldstein, *Temple University*
 Mary Ann Goodwyn, *Northeast Louisiana University*
 Peter C. Gram, *Pensacola Junior College*
 Michael Green, *University of North Carolina*
 Sharon C. Hott, *Allegheny Community College*
 Stephen Hoyer, *Pittsburgh State University*
 Kathleen Day Hulbert, *University of Lowell*
 Seth Kalichman, *Loyola University*
 Karen Kirkendall, *Sangamon State University*
 Joseph C. LaVoie, *University of Nebraska at Omaha*
 Jean Hill Macht, *Montgomery County Community College*
 Salvador Macias, *University of South Carolina-Sumter*
 Heather E. Metcalfe, *University of Windsor*
 Teri M. Miller-Schwartz, *Milwaukee Area Technical College*
 Martin D. Murphy, *University of Akron*
 Malinda Muzi, *Community College of Philadelphia*
 Gordon K. Nelson, *Pennsylvania State University*
 Richard Pierce, *Pennsylvania State University-Altoona*
 Susan Nakayama Siaw, *California State Polytechnical University*
 Vicki Simmons, *University of Victoria*
 Jon Snodgrass, *California State University-LA*
 Donald Stanley, *North Dallas Community College*
 James Turcott, *Kalamazoo Valley Community College*
 B. D. Whetstone, *Birmingham Southern College*

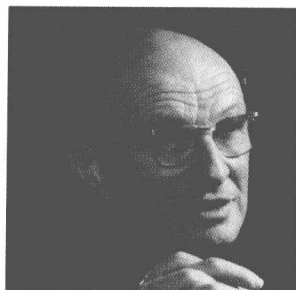
Nancy C. White, *Reynolds Community College*
 Lyn W. Wickelgren, *Metropolitan State College*
 Ann M. Williams, *Luzerne County Community College*

The quality of the text was also improved through the feedback I received over the years from many other colleagues. I would like to thank the following individuals for sharing their thoughts and suggestions for improving *Life-Span Development*.

Berkeley Adams, *Jamestown Community College*
 Jack Busky, *Harrisburg Area Community College*
 Jeri Carter, *Glendale Community College*
 Vincent Castranovo, *Community College of Philadelphia*
 Ginny Chappelleau, *Muskingum Area Technical College*
 M. A. Christenberry, *Augusta College*
 Cynthia Crown, *Xavier University*
 Diane Davis, *Bowie State University*
 Doreen DeSantio, *West Chester University*
 Jill De Villiers, *Smith College*
 Richard Ewy, *Penn State University*
 Roberta Ferra, *University of Kentucky*
 John Gat, *Humboldt State University*
 Marvin Gelman, *Montgomery County College*
 Rebecca J. Glare, *Weber State College*
 Judy Goodell, *National University*
 Robert Heavilin, *Greater Hartford Community College*
 Sharon Holt, *Allegheny Community College*
 Erwin Janek, *Henderson State University*
 James Jasper-Jacobsen, *Indiana University-Purdue*
 Ursula Joyce, *St. Thomas Aquinas College*
 Barbara Kane, *Indiana State University*
 James L. Keeney, *Middle Georgia College*
 Elinor Kinarthy, *Rio Hondo College*
 A. Klingner, *Northwest Community College*
 Jane Krump, *North Dakota State College of Science*
 Joe LaVoie, *University of Nebraska*
 Karen Macrae, *University of South Carolina*
 Robert C. McGinnis, *Ancilla College*
 Clara McKinney, *Barstow College*
 Michael Newton, *Sam Houston State University*
 Beatrice Norrie, *Mount Royal College*
 Jean O'Neil, *Boston College*
 David Pipes, *Caldwell Community College*
 Bob Rainey, *Florida Community College*
 H. Ratner, *Wayne State University*
 Russell Riley, *Lord Fairfax Community College*
 Clarence Romeno, *Riverside Community College*
 Paul Roodin, *SUNY-Oswego*
 Ron Russac, *University of North Florida*
 Cynthia Scheibe, *Ithaca College*
 Robert Schell, *SUNY-Oswego*
 Owen Sharkey, *University of Prince Edward Island*
 Donald Stanley, *North Harris Community College*
 Barbara Thomas, *National University*
 James Turcott, *Kalamazoo Valley Community College*
 Stephen Truhon, *Winston-Salem State University*
 Myron D. Williams, *Great Lakes Bible College*

Expert Consultants for *Life-Span Development*, Seventh Edition

An incredibly talented set of expert consultants advised author John Santrock in his writing of *Life-Span Development*, seventh edition. These individuals are among the leading authorities in the world in their areas of life-span development. Their recommendations and insights have significantly improved the seventh edition of *Life-Span Development*.



Urie Bronfenbrenner

Urie Bronfenbrenner is the Jacob Gould Schurman Professor of Human Development at Cornell University. He is the principal architect of the ecological theory of human development and also is one of the founders of Project Head Start. Urie Bronfenbrenner is widely recognized as one of the world's leading developmental psychologists. He has made major contributions to conceptualizing contextual influences on development, family processes, early childhood education, cultural influences, poverty, and many other domains. His pioneering work has significantly shaped the field of developmental psychology, and his influence continues today with such theoretical writings as his co-authored chapter "The Ecology of Developmental Processes" in *The Handbook of Child Psychology* (Vol. 1) (1998). Bronfenbrenner's work has received recognition from scientific societies and universities in the United States and in many countries around the world.



Tiffany Field

Dr. Tiffany M. Field is director of the Touch Research Institute and the Touch Research Institute Nursery School of the University of Miami School of Medicine, and Professor in the Department of Psychology, Pediatrics, and Psychiatry. She is a recipient of the American Psychological Association Distinguished Young Scientist Award and has had a research scientist award from NIMH for her research career. She is the author of *Infancy, Touch, and Advances in Touch Research*; the editor of a series of volumes entitled *High-Risk Infants and Stress and Coping*; and the author of over 200 journal papers. The mission of the Touch Research Institute is to conduct multidisciplinary and multiuniversity studies on touch as a basic sense, touch as communication, and the use of touch therapies in wellness and medical programs. Tiffany Fields is one of the world's leading experts on prenatal development and infancy.



K. Warner Schaie

K. Warner Schaie is the Evan Pugh Professor of Human Development and Psychology, and Director of the Gerontology Center, at Pennsylvania State University. He previously held professorial appointments at the University of Nebraska, West Virginia University, and the University of Southern California. He is the author or editor of 24 books and over 250 journal articles and book chapters, primarily in the adult development and aging literature. He has been honored with the Distinguished Scientific Contributions Award of the American Psychological Association, the Kleemeier award of the Gerontological Society of America, and an honorary doctorate from Friedrich Schiller University of Jena, Germany. He has been one of the major investigators of cognitive development over the adult life span, work that has recently been summarized in his *Intellectual Development in Adulthood: The Seattle Longitudinal Study* (1996). K. Warner Schaie is one of the pioneers who created the life-span perspective of development.



Cigdem Kagitcibasi

Cigdem Kagitcibasi is a professor of psychology at Koc University in Istanbul, Turkey. She received her B.A. at Wellesley College and her Ph.D. at the University of California, Berkeley. She is Vice President of the International Union of Psychological Science, a past president of the International Association for Cross-Cultural Psychology, and a member of the Turkish Academy of Sciences. She holds several honors and awards, including the American Psychological Association 1993 Distinguished Contributions to the International Advancement of Psychology Award, the Wellesley Alumnae Achievement Award, and Phi Beta Kappa. Her publications include more than 100 journal articles or book chapters and 17 books, including *Family and Human Development Across Cultures* (1996) and *Handbook of Cross-Cultural Psychology* (1997). She is involved in both theoretical and applied work with family, parenting, and human development in cultural contexts.



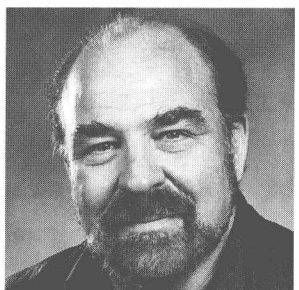
Sue Bredekamp

Sue Bredekamp is Director of Professional Development of the National Association for the Education of Young Children. Her major contributions to the work of NAEYC have been developing and directing a national, voluntary accreditation system for early childhood programs. Dr. Bredekamp also authored NAEYC's influential position statements on early childhood teacher education, developmentally appropriate practice, and appropriate curriculum and assessment. Dr. Bredekamp's professional experience includes teaching and directing early childhood programs, serving on a four-year college faculty, and serving in the Head Start Bureau at the Administration for Children, Youth, and Families.



Algea Harrison

Dr. Algea Harrison is a leading expert in the area of ethnic minority children and families and Professor of Psychology at Oakland University, Rochester, Michigan. She received her Ph.D. from the University of Michigan and has been a visiting professor and scholar at the University of Zimbabwe; the Free University of Amsterdam; and Nanjing University, Peoples Republic of China. Dr. Harrison's research interests center on perceptions and behaviors of adolescents and working women that emerge from cultural contexts of development. The conceptual framework for her work is to illustrate the interaction between ethnicity and environment and its impact on social cognition, which subsequently has implications for developmental outcomes. She has been collaborating with international colleagues in a series of cross-cultural studies of adolescents' perceptions of support from their social networks. Dr. Harrison has published in leading journals and authored numerous book chapters.



James Marcia

James Marcia is a Professor of Psychology (Clinical/Developmental) at Simon Fraser University. He received his Ph.D. in clinical psychology from Ohio State University and has directed the psychological training clinics at the State University of New York at Binghamton and at Simon Fraser University. He was both an intern and a visiting associate professor in psychiatry at Massachusetts Mental Health Center. His clinical interests are in psychotherapy and community mental health. His research interests are in construct validation of psychosocial developmental theory, with an initial emphasis on ego identity and a more recent focus on the adult stages of generativity and integrity. He co-authored the book *Ego Identity: A Handbook for Psychosocial Development* (1993). James Marcia developed the concept of identity status and is recognized as one of the world's leading experts on adolescent development.



Carole Beal

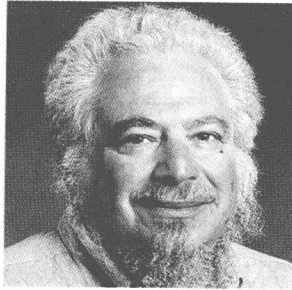
Dr. Carole Beal is Professor of Psychology at the University of Massachusetts at Amherst, where she teaches courses in developmental psychology and the psychology of gender. She is the author of *Boys and Girls: The Development of Gender Roles* (1994), a textbook on gender-role development, and is the associate editor of the *Journal of Educational Psychology*. Her research interests focus on the intersection of educational psychology and cognitive development, including studies of children's writing and reading comprehension. With her colleague Dr. Beverly Woolf, Professor of Computer Science at the University of Massachusetts, Dr. Beal is currently investigating how computer-based instruction can improve children's mathematics learning and how to design instructional, multimedia technology so that it will be effective with both male and female students.



Jan Sinnott

Jan Sinnott is Professor of Psychology at Towson State University in Baltimore. As a grant recipient and a Postdoctoral Fellow at the National Institute on Aging, her research in life-span cognitive development led to her theory of the development of postformal complex thought in adults. This theory has been usefully applied in her teaching, humanistic psychology private practice, social activism, and consulting.

Sinnott's books include *The Development of Logic in Adulthood*, *Reinventing the University: A Radical Proposal for a Problem-Focused University* (with Lynn Johnson), *Interdisciplinary Handbook of Adult Lifespan Learning*, *Bridging Paradigms: Positive Development in Adulthood and Cognitive Aging* (with John Cavanaugh), *Everyday Problem Solving*, *Everyday Memory and Aging* (with Robin West), *Sex Roles and Aging*.



Robert Kastenbaum

Dr. Robert Kastenbaum, Professor of Gerontology at Arizona State University, has for many years focused on the limits of human understanding, endurance, and creativity, especially in life-threatening situations. In addition to his research, clinical, and educational activities, he has served as director of a geriatric hospital and co-founder of the National Caucus on Black Aging. Dr. Kastenbaum is editor of *The International Journal of Aging and Human Development* and *Omega: Journal of Death and Dying*. His books include *Death, Society, and Human Experience*; *The Psychology of Death*; *Defining Acts: Aging as Drama*; and *Dorian, Graying: Is Youth the Only Thing Worth Having?* His theater pieces often deal with themes of aging and death, as in the opera *Dorian* (premiered New York 1995; music by Herbert Deutsch). Robert Kastenbaum is widely recognized as one of the world's leading experts on death and dying.

TO THE STUDENT

This book contains a number of learning devices, each of which presents the field of life-span development in a meaningful way. The learning devices in *Life-Span Development* will help you learn the material more effectively.

Chapter Outlines

Each chapter begins with an outline, showing the organization of topics by heading levels. The outline functions as an overview to the arrangement and structure of the chapter.

Images of Life-Span Development

Opening each chapter is an imaginative, high-interest piece, focusing on a topic related to the chapter's content.

PREVIEW

Children's achievement requires a delicate balancing act on the part of parents. Parents need to encourage their children's success, but some children, like Jessica Dubroff, whom you will read about in the following "Images" section, grow up too fast. Later in this chapter, we will further discuss children's achievement. We begin the chapter by examining children's physical development in middle and late childhood, then explore their cognitive development in this period, which sometimes is referred to as the elementary school years.

IMAGES OF LIFE-SPAN DEVELOPMENT

Jessica Dubroff, Child Pilot

In 1996, Jessica Dubroff took off in cold rain and died when her single-engine Cessna nosedived into a highway. Seven-year-old Jessica was only 4 feet, 2 inches tall and weighed just 55 pounds. What was she doing flying on airplanes, especially in quest of being the youngest person ever to fly across the continent?

Jessica had been urged on by overzealous parents, by a media drawn to a natural human-interest story, and by a Federal Aviation Administration that looked the other way. Jessica's feet did not even reach the rudder pedals. Overnight Jessica's death resulted in her becoming the poster child of parental and media exploitation. Some thought she had been granted too much freedom and had not been allowed to be a child.

Jessica's parents seemed determined to give their daughter independence from the beginning. She was delivered in a birthing tub without the benefit of a doctor or midwife. Her parents' philosophy was that real life is the best tutor, experience the best preparation for life. As a result, they kept Jessica and her brother (age 9) and sister (age 1) at home without filing a home-schooling plan with local authorities. Jessica had no dolls, only books. Instead of studying grammar, she did chores and sought what her mother called "mastery." Jessica had few, if any, boundaries. Parenting ministry consisted of cheerleading. Jessica became interested in flying after her parents gave her an airplane ride for her sixth birthday, only 21 months before her fatal crash. Her father admitted that the cross-country flight was his idea, but claimed that he had presented it to Jessica as a choice. The father became her press agent, courting TV, radio, and newspapers to publicize her flight.

After the crash, TV viewers were treated to a spectacle almost as disturbing as the accident itself. Jessica's mother said that if she had it to do over again, she would have done nothing differently. She also commented that she did everything she could to give Jessica freedom and choice. Developmental psychologists would counter that children should be given freedom and choice, but within the bounds of responsibility (Stengel, 1996).

Jessica's story is rare and tragic. However, the dangers of overachieving, of growing up too soon, of intensely focusing on a single activity often show up in many different ways. The child actor grows up without an education. The adolescent tennis star mysteriously drops off the circuit to become a teenager. The young figure skater plans to club an opponent. Child athletes might ruin their bodies. Bullfighters develop morocia, teenage football players take steroids. Too many children have lives that are overbooked, moving from one lesson to the next. They are being

robbed of the time to develop coping skills that they need to deal with life's realities. A vicious cycle has been set in motion. Parents who live vicariously through their children produce children who grow up feeling they have missed out on childhood, a time when play and its unstructured freedom should be prominent. Children should be allowed to have a well-rounded life, one that is not focused on achievement in a single domain.

Some critics argue that Jessica Dubroff was not allowed to be a child. Was she given too much freedom and choice? Did her parents act irresponsibly?



Some critics argue that Jessica Dubroff was not allowed to be a child. Was she given too much freedom and choice? Did her parents act irresponsibly?

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Through the Eyes of Children (Youth) (Adults)

These boxes feature first person accounts of various aspects of life-span development.

Key Term Definitions

Key terms appear in boldface type. Their definitions immediately follow in italic type. This provides you with a clear understanding of important concepts.

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Physical Change 338

Psychological Development of Physical Change 338

Physical Effects 339

Engagement 339

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CHAPTER 12

Physical and Cognitive Development in Adolescence

Chapter Boxes

EXPLORATIONS IN LIFE-SPAN DEVELOPMENT

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DEVELOPMENTAL LITERATURE

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LIFE-SPAN PRACTICE AND WELL-BEING

Some Guidelines for Seeking Therapy When an Adolescent Shows Problem Behaviors 355

What is formed for long duration serves slowly to its maturity.

—Samuel Johnson

English language, 18th Century

William H. Johnson

Old or Green Trees, detail

Preview

This brief introductory section describes the chapter's main themes.

THROUGH THE EYES OF CHILDREN

"Tell Me How Great I Am"

T. Berry Brazelton, the well-known pediatrician, often, two blocks to a 4-month-old. Then he shows the baby how he wants her to put the two blocks together. Brazelton says that a baby who is hopeful about life will pick up one block, mouth it in her hand, then drop it over the side of the crib and watch whether you retrieve it for her. When you do, she completes the requested task by putting the two blocks together. Then she looks up at you with a bright-eyed look of expectancy that says, "Tell me how great I am!" (Brazelton, 1992).

Brazelton says that babies like this little girl have gotten a good dose of approval and encouragement from their caregivers. They expect to succeed in life's little challenges. By contrast, babies from homes that are bleak, chaotic, or neglectful go about the same task of putting the two blocks together in a way that signals they already expect to fail. Then when they bring the two blocks together, their demeanor often includes a drooped head that says, "I'm not good. See, I've failed." Brazelton believes that the two outlooks—one optimistic, the other pessimistic—begin to take shape in infancy (Goleman, 1995).

Chapter 5: Physical Development in Infancy 133

The new view of motor development emphasizes the importance of exploration and selection in finding solutions to new task demands. This means that infants need to assemble adaptive patterns by modifying their current movement patterns. The first step is to get the infant into the "tollbooth" of the task demands—a tentative crawl or several stumbling steps. Then, the infant has to "tune" these configurations to make them more smooth and effective. Such tuning is achieved through repeated cycles of action and perception of the consequences of that action in relation to the goal.

The developmental biodynamics view contrasts with the traditional maturational view by proposing that even the universal milestones like crawling, reaching, and walking are learned through a process of adaptation. Infants modulate their movement patterns to fit a new task by exploring and selecting various possible configurations. The assumption is that the infant is motivated by the new challenge—a desire to get a new toy into one's mouth or to cross the room to join other family members. It is the new task, the challenge of the context, and not preordained genetic instructions, that is the driving force for change.

Consider the challenging task the infant faces when placed in an infant bouncer (see Figure 5.4). The task for the infant is to first assemble the right movements to drive the spring and then to tune the spring to discover the "best bounce for the corner." In one study involving the infant bouncer, infants began with only a few tentative bounces that varied considerably (Goldfield, Kay, & Warren, 1993). As weeks passed, they increased their bounces

Shirley, 1933). In the last decade, advances in a number of domains have generated a new perspective on the infant's motor development. Rather than describing the ages at which various motor achievements are reached and explaining them as a result of brain and nervous-system maturation, the new perspective—**developmental biodynamics**—seeks to explain how motor behaviors are assembled for perceiving and acting. This new perspective is an outgrowth of developments in the neurosciences, biomechanics, and behavioral sciences (Lockman & Thelen, 1993). The research of Rachel Clifton and her colleagues (1993) that was described earlier illustrates the new developmental biodynamics view. Recall that they found that proprioceptive cues play an important role in early guided reaching. Their research shows how perception and action are linked in early manual skill development.

The developmental biodynamics view of infant motor development has especially been advanced by the theorizing and research of Esther Thelen (1995; Thelen & Smith, 1998). Following are some of the main concepts in her developmental biodynamics perspective:



Esther Thelen is shown conducting an experiment to discover how infants learn to control their arms to reach and grasp for objects. A computer device is used to monitor the infants' arm movements and track muscle patterns.

Adventures for the Mind

This feature appears twice in each chapter and encourages you to think more deeply about life-span issues.

Developing Life-Span Skills

Immediate applications for the text material describe personal and cognitive skills adaptive for a specific age group.

Chapter 11: Sociocultural Development in Middle and Late Childhood 311

SOCIOCULTURAL WORLDS OF DEVELOPMENT

The Global Lab and Other Technology Connections with Students Around the World

Traditionally, students have learned within the walls of their classroom and interacted with their teacher and other students in the class. With advances in telecommunications, students can learn from and with teachers and students around the world. The teachers and students might be from schools in such diverse locations as Warsaw, Tokyo, Istanbul, and a small village in Israel.

The Global Laboratory Project is one example that has capitalized on advances in telecommunications (Schram & Beretoff, 1997). The students conducted science investigations that involved environmental monitoring, sharing data via telecommunication linkups, and placing local findings into a global context. In an initial telecommunication meeting, students introduced themselves and described their schools, communities, and study locations. The locations included Moscow, Warsaw, Kamohia, Wisconsin, San Antonio,

Texas, Pueblo, Colorado, and Aiken, South Carolina. This initial phase was designed to help students develop a sense of community and to become familiar with their collaborators from around the world. As their data collection and evaluation ensued, students continued to communicate with their peers worldwide and to learn more not only about science but also about the global community.

Classrooms or schools can also use fax machines to link students from around the country and world (Chabner, McClelland, & Safford, 1996). This lets students transfer artwork, poetry, essays, and other materials to other students in locations as diverse as Europe, Asia, Africa, and South America. Students also can communicate the same day with people through e-mail, where once it took weeks for a letter to reach people in faraway places. An increasing number of schools also use videophone technology in foreign language instruction. Instead of simulating a French café in a typical French language class, American students might talk with French students who have placed a videophone in a café in their country.

Such global technology projects can go a long way toward reducing American students' ethnocentric beliefs. The active building of connections with diverse others around the world through telecommunication gives American students the opportunity to experience others' perspectives, better understand other cultures, and reduce prejudice.

and management team that develops a comprehensive school plan, assessment strategy, and staff development plan; (2) a mental health or school support team; and (3) a parents' program (Goldberg, 1997). Corner believes the entire school community should have a cooperative rather than an adversarial attitude. The Corner program is currently operating in more than 600 schools in 26 states.

Be a competent cultural mediator. Teachers can play a powerful role as a cultural mediator by being sensitive to racist content in materials and classroom interactions, learning more about different ethnic groups, being sensitive to children's ethnic attitudes, viewing students of color positively, and thinking of positive ways to get parents of color more involved as partners with teachers in educating children (Runkle, 1997).

Thus far, we have discussed many ideas about families, peers, and schools in middle and late childhood. These ideas are summarized in concept table 11.1.

Sociocultural Development

In chapter 9, we discussed the development of the self, gender, and moral development in early childhood. Here we focus on these important dimensions of children's development in middle and late childhood. And we also will

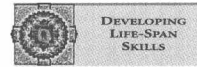


James Comer (left) is shown with some of the inner-city African American children who attend a school that became a better learning environment because of Comer's intervention. Comer is convinced that a strong community/team approach is a key to improving the quality of inner-city schools.

Visual Figures and Tables

These include both a description of important content information and photographs that illustrate the content. Some are summaries of important ideas contained in the text.

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Strategies for Improving the Lives of Adolescents

What are some strategies for helping adolescents competently make the transition from childhood to adulthood? They include these:

- Develop more positive expectations for adolescents. There are too many negative stereotypes of adolescents. These negative expectations have a way of being self-fulfilling prophecies and harming communication between adults and adolescents. Don't view adolescence as a time of rebellion and crisis. View it as a time of evaluation, decision making, commitment, and carving out a place in the world.
- Create better schools for adolescents. Schools for youth need to emphasize sociocultural development as well as cognitive development, take individual variation in adolescents seriously, not simply make middle schools downward versions of high schools, develop curricula that not only involve high expectations for success but provide students the support to attain that success, develop smaller communities in schools, and involve parents and community leaders more in schools. We also need to do a better job of breaking down the barrier between school and work to reduce the high school dropout rate.
- Reduce the adolescent pregnancy rate and provide better coordination of services for mothers and children. Adolescents, especially younger adolescents, need to be encouraged to abstain from sexual intercourse or to use contraception. To help reduce the high adolescent pregnancy rate, adolescents need better educational and occupational opportunities, improved sex education and family planning, and broad community support.
- Expand successful programs for high-risk youth. The two most important ingredients of successful programs for adolescents at risk are (1) providing individual attention and (2) developing coordinated community-wide services.

today's adolescents face the temptations of drugs, as well as sexual activity, at increasingly young ages.

The above discussion underscores an important point about adolescents: They are not a homogeneous group of individuals. The majority of adolescents negotiate the lengthy path to adult maturity successfully, but too large a minority do not. Ethnic, cultural, gender, socioeconomic, age, and lifestyle differences influence the actual life trajectory of each adolescent. In sum, different potentials of adolescence often emerge, depending on the particular group of adolescents being described.

ADVENTURES FOR THE MIND

Why Is a Course of Risk Taking in Adolescence Likely to Have More Serious Consequences Today Than in the Past?

The world is dangerous and growing even less so many of America's teenagers, especially those who live in low-income families, neighborhoods, and schools. Many adolescents are resilient and cope with the challenges of adolescence without too many setbacks. Others struggle unsuccessfully to find jobs, are written off as losers by their schools, become pregnant before they are ready to become parents, or risk their health through drug abuse. In virtually every era, adolescents have been risk takers, testing limits and making shrewd judgments. But why might the consequences of choosing a course of risk taking be more serious today than they have ever been?

At-Risk Youth

Adolescence is best viewed as a time of decision making and commitment rather than a time of crisis and pathology. However, a large subset of adolescents are at risk because their likelihood of becoming productive adults is limited. Four areas of special concern that make up a large portion of at-risk youth are delinquency, substance abuse, adolescent pregnancy, and school-related problems (Dryfoos, 1990, 1995). Earlier in the chapter, we considered each of these problems separately. However, there is a growing awareness that these high-risk behaviors often overlap with many adolescents showing problems in more than one area.

An analysis of successful programs focused on at-risk youth, conducted for the Carnegie Foundation, by Dryfoos (1990, 1993) found that two approaches had the widest application: providing individual attention to at-risk children and adolescents, and developing broad community-wide interventions. In successful programs, at-risk youth are attached to a responsible adult who pays attention to the adolescent's specific needs. For example, in substance abuse programs, a student assistance counselor might be available full-time for individual counseling. In delinquency prevention, a family worker might give "intensive" support to a preadolescent and the family as they will make the necessary changes to avoid repeated delinquent acts. In pregnancy prevention, a full-time social worker might be placed in the school system for individual counseling. In school remediation, a prevention specialist might work with at-risk adolescents and their families to improve school attendance.

Sociocultural Worlds of Development

Life-Span Development gives special attention to cultural, ethnic, and gender worlds of individuals. Each chapter has one or more boxes that highlight the sociocultural dimensions of life-span development.

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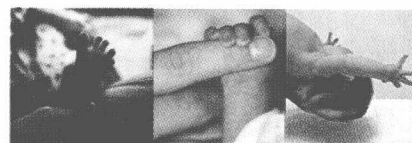
The experiences of the first three years of life are almost entirely lost to us, and when we attempt to enter into a small child's world, we come as foreigners who have forgotten the landscape and no longer speak the native tongue.

—Developmentalist and Child Advocate, 20th Century

An overview of the main reflexes we have discussed, along with others, is given in figure 5.6. Sucking is an especially important reflex. It is the

infant's route to nourishment. The sucking capabilities of newborns vary considerably. Some newborns are efficient at forceful sucking and obtaining milk. Others are not so adept and get tired before they are full. Most newborns take several weeks to establish a sucking style that is coordinated with the way the mother is holding the infant, the way milk is coming out of the breast or breast, and the infant's sucking speed and temperament.

A study by pediatrician T. Berry Brazelton (1956) involved observations of infants for more than a year to determine the incidence of their sucking when they were



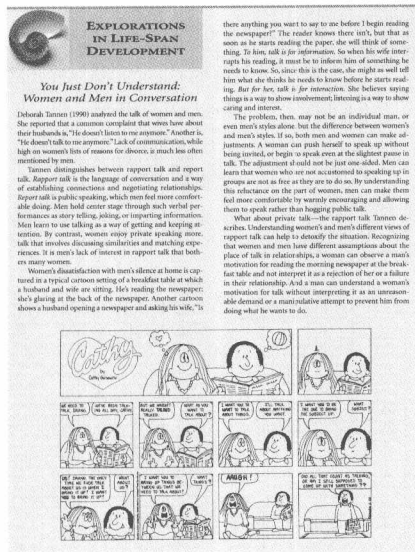
Babinski reflex

Grooping reflex

Moro reflex

Reflex	Stimulation	Infant's Response	Developmental Pattern
Blinking	Flash of light, puff of air	Closes both eyes	Persistent
Babinski	Stole of foot stroked	Fans out toes, turns foot in	Disappears after 9 months to 1 year
Grooping	Palms touched	Crawls tightly	Weakens after 3 months, disappears after 1 year
Moro (startle)	Sudden stimulation, such as hearing loud noise or being dropped	Startles, arches back, throws head back, flings out arms and legs and then rapidly brings them to center of body	Disappears after 3 to 4 months
Rooting	Check stroked in side of mouth touched	Turns head, opens mouth, begins sucking	Disappears after 3 to 4 months
Stepping	Infant held above surface and feet lowered to touch surface	Moves feet as if to walk	Disappears after 3 to 4 months
Sucking	Object touching mouth	Sucks automatically	Disappears after 3 to 4 months
Swimming	Infant put face down in water	Makes coordinated swimming movements	Disappears after 6 to 7 months
Tonic neck	Infant placed on back	Points head with both hands and usually turns head to the right (sometimes called the "Tennis-ball" position because the infant holds his or her head in a tennis-ball position)	Disappears after 2 months

FIGURE 5.6 Infant Reflexes



You Just Don't Understand: Women and Men in Conversation

Deborah Tannen (1990) analyzed the talk of women and men. She reported that a common complaint that men have about their husbands is "He doesn't listen to me anymore." Another is, "He doesn't talk to me anymore." Lack of communication, while high in women's lists of reasons for divorce, is much less often mentioned by men.

Tannen distinguishes between rapport talk and report talk. Rapport talk is the language of conversation and a way of establishing connections and negotiating relationships. Report talk is public speaking, which men find more comfortable doing. Men hold center stage through such verbal performance as story telling, joking, or imparting information. Men learn to use talking as a way of getting and keeping attention. By contrast, women enjoy private speaking more, talk that involves discussing similarities and matching experiences. It is men's lack of interest in rapport talk that bothers many women.

Women's dissatisfaction with men's silence at home is captured in a typical cartoon setting of a breakfast table at which a husband and wife are sitting. He's reading the newspaper; she's glaring at the back of the newspaper. Another cartoon shows a husband opening a newspaper and asking his wife, "Is

there anything you want to say to me before I begin reading the newspaper?" The reader knows there isn't, but that as soon as he starts reading the paper, she will think of something. To him, talk is for information; to whom his wife interrupts his reading, it must be to inform him of something he needs to know. So, since this is the case, she might as well tell him what she thinks he needs to know before he starts reading. But for her, talk is for interaction. The before saying things is a way to show involvement, listening is a way to show caring and interest.

The problem, then, may not be an individual man, or even men's style alone, but the difference between women's and men's styles. If so, both men and women can make adjustments. A woman can push herself to speak up without being invited, or begin to speak even at the slightest pause in talk. The adjustment should not be just one-sided. Men can learn that women who are not accustomed to speaking up in groups are not as free as they are to do so. By understanding this reluctance on the part of women, men can make them feel more comfortable by warmly encouraging and allowing them to speak rather than hogging public talk.

What about private talk—the rapport talk Tannen describes. Understanding women's and men's different views of rapport talk can help to demystify the situation. Recognizing that women and men have different assumptions about the place of talk in relationships, a woman can observe a man's motivation for reading the morning newspaper at the breakfast table and not interpret it as a rejection of her or a failure in their relationship. And a man can understand a woman's motivation for talk without interpreting it as an unreasonable demand or a manipulative attempt to prevent him from doing what he wants to do.



Photographs and Legends

Special attention was given to the selection of photographs for *Life-Span Development*. Many experts on life-span development sent photographs to be included in the text. Legends were carefully written to clarify and elaborate concepts.

CONCEPT TABLE 20.1
The Social Worlds of Older Adults, and Ethnicity, Gender, and Culture

Concept	Processes/Related Ideas	Characteristics/Description
The Social and Cultural Worlds of Older Adults	Social secrets of aging	Three prominent theories are disengagement theory, activity theory, and social exchange theory. Each theory has its own assumptions about the social worlds of older adults. Disengagement theory argues that older adults' capabilities are less than what was acknowledged in the past.
	Shaping of older adults	Ageism is prejudice against older adults. No many negative stereotypes of older adults still exist.
	Policy issues in aging society	According to Neugarten, some of the important policy issues in an aging society of the United States are the status of the economy and the viability of the Social Security system, the provision of health care, education, and generational equity.
	Income	A special concern is the elderly poor. Poverty rates are especially high for elderly women who live alone and the ethnic minority elderly.
	Living arrangements	A characteristic of older adults is that they often live in institutions, but almost 90 percent live in the community. The majority of older adults living alone are widowed. The older adults become, the more likely they are to live in an institution (23 percent of adults 65 and over, for example). Almost two-thirds of older adults live with family members.
Ethnicity, Gender, and Culture	Ethnicity and gender	The ethnic minority elderly have special burdens, having to cope with the possible double jeopardy of ageism and racism. Many older women also face a possible double jeopardy—ageism and sexism. Only recently have women and political interests focused on the aging women. Older ethnic minority women face a possible triple jeopardy—the burdens of ageism, racism, and sexism. Nonetheless, despite the ethnic and discrimination elderly ethnic minority persons face, many of these older adults have developed coping mechanisms that allow them to survive in the dominant White American culture.
	Gender roles	There is stronger evidence that men become more "feminine" (nurturant, sensitive) as older adults than there is for women become more "masculine" (assertive, dominant) as older adults.
	Culture	For many generations the elderly in China and Japan have experienced higher status than the elderly in the United States. Today, respect for the elderly in Japan has diminished because of the rapid economic growth that occurred there in the United States. The factors that predict high status for the elderly are (a) the elderly's contribution to the welfare of the community, (b) the elderly's economic resources, (c) the elderly's ability to perform useful functions, and (d) the elderly's age-related changes that involve greater responsibility, integration in an extended family, and a collectivist rather than an individualistic cultural orientation.

Now we turn our attention to the nature of families and social relationships in late adulthood.

Families and Social Relationships

What is the nature of marital relationships in older adults? What is the nature of their friendships and social networks? What is the grandparent's role? These are some of the important questions to ask about the families and social relationships of older adults.

The Aging Couple and Friendship

The time from retirement until death is sometimes referred to as the "final stage in the marriage process." Retirement alters a couple's lifestyle, requiring adaptation. The greatest changes occur in the traditional family, in

which the husband works and the wife is a homemaker. The husband may not know what to do with his time, and the wife may feel uneasy having him around the house all of the time. In traditional families, both partners may need to move toward more expressive roles. The husband must adjust from being the good provider to being a helper around the house; the wife must change from being only a good homemaker to being even more loving and understanding. Marital happiness as an older adult is also affected by each partner's ability to deal with personal conflicts, including aging, illness, and eventual death (Field, 1996).

Individuals who are married in late adulthood are usually happier than those who are single (Lee, 1978). Marital satisfaction is greater for women than for men, possibly because women place more emphasis on attaining

Explorations in Life-Span Development

Provide a focus on a research or application related to life-span development.

LIFE-SPAN HEALTH AND WELL-BEING

A Model School Health Program: Heart Smart

Exercise is an important component in the Bogalusa Heart Study, a large-scale investigation of children's health that involves an ongoing evaluation of 8,000 boys and girls in Bogalusa, Louisiana (Berenson, 1989; Nicklas & others, 1993). Observations show that the precursors of heart disease begin at a young age, with many children already possessing one or more clinical risk factors, such as hypertension or obesity. Based on the Bogalusa Heart Study, a cardiovascular health intervention model for children has been developed. The model is called "Heart Smart."

The school is the focus of the Heart Smart intervention. Since 90 percent of children and adolescents aged 5 to 18 are in school, schools are a good context in which to educate individuals about health. Special attention is given to teachers, who serve as role models. Teachers who value the role of health in life and who engage in health-enhancing behavior present children with positive models for health. Teacher in-service education is conducted by an interdisciplinary team of specialists, including physicians, psychologists, nutritionists, physical educators, and exercise physiologists. The school staff is introduced to heart health education, the nature of cardiovascular disease, and risk factors for heart disease. Coping behavior, exercise behavior, and eating behavior are discussed with the staff, and a Heart Smart curriculum is explained. For example, the Heart Smart curriculum for grade 5 includes the content areas of cardiovascular health (such as risk factors associated with heart disease), behavior skills (for example, self-assessment and monitoring), eating behavior (for example, the effects of food on health), and exercise behavior (for example, the effects of exercise on the heart).

The physical education component of Heart Smart involves two to four class periods each week to incorporate "Superkids-Superfit" exercise programs. The physical education instructor teaches skills required by the school system plus aerobic activities aimed at cardiovascular conditioning, including jogging, rowing, interval workouts, rope jumping, circuit training, aerobic dance, and games. Classes begin and end with 5 minutes of walking and stretching. The school health program serves as an intervention, where sodium, fat, and sugar levels are decreased.

Children are given reasons why they should eat healthy foods, such as a banana sandwich, and why they should not eat unhealthy foods, such as a hot dog with chili. The school lunch program includes a salad bar, where children and adolescents can serve themselves. The amount and type of snack foods sold on the school premises are monitored.

High-risk children—those with elevated blood pressure, cholesterol, and weight—are identified as part of Heart Smart. A multidisciplinary team of physicians, nutritionists, nurses, and behavioral counselors work with the high-risk boys and girls and their parents through group-oriented activities and in individual-based family counseling. High-risk boys and girls and their parents receive diet, exercise, and relaxation prescriptions in an intensive 2-session program, followed by long-term monthly evaluations. Extensive assessment is a part of this ongoing program. Short-term and long-term changes in children's knowledge about cardiovascular disease and changes in their behavior are assessed.

Other school health programs that are currently being evaluated include the Minnesota Heart Health Program (Keller & others, 1995) and the Southeast Cardiovascular Curriculum Project (Davis & others, 1995).



A gymnastics class for third and fourth graders at the Grissell School in Austin, Texas. One of the most important components of heart disease prevention programs is regular vigorous exercise.

Life-Span Health and Well-Being

At the end of each chapter, this feature explores health and well-being across the life span.

Concept Tables

Two times in each chapter we review what has been discussed so far in that chapter by displaying the information in Concept Tables. This learning device helps you get a handle on material several times a chapter.

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