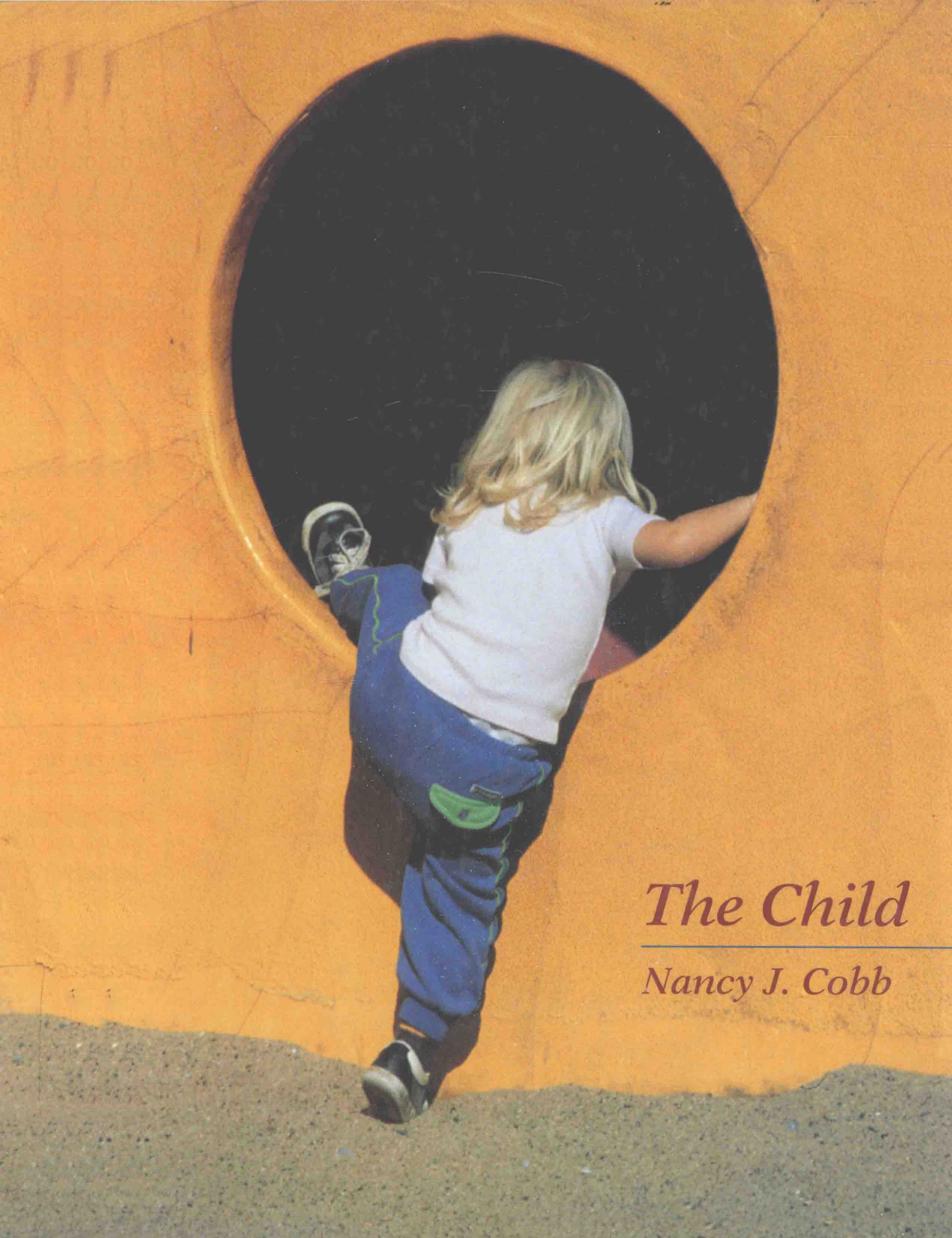


The Child

Nancy J. Cobb

The Child

Infants, Children, and Adolescents

Nancy J. Cobb
California State University, Los Angeles

Mayfield Publishing Company
Mountain View, California
London • Toronto

Copyright © 2001 by Mayfield Publishing Company

All rights reserved. No portion of this book may be reproduced in any form or by any means without written permission of the publisher.

Library of Congress Cataloging-in-Publication Data

Cobb, Nancy J.
The Child: infants, children, and adolescents / Nancy J. Cobb.
p. cm.
Includes bibliographical references and indexes.
ISBN 1-55934-633-7
1. Child psychology 2. Child development. I. Title.
BF721.C5622000
305.231—dc21 00-053291

Manufactured in the United States of America
10 9 8 7 6 5 4 3 2

Sponsoring editor, Franklin C. Graham; developmental editor, Barbara Armentrout; production editor, Melissa Williams Kreischer; manuscript editor, Margaret Moore; design manager and cover designer, Susan Breitbard; text designer, Ellen Pettengell; art editor, Robin Mouat; illustrators, Lineworks and John and Judy Waller; manufacturing manager, Randy Hurst; permissions editor, Marty Granahan. Cover photo © Martin Klimek/Jeroboam, Inc. The text was set in 10.5/12 Legacy Serif Book by GTS Graphics, Inc., and printed on acid-free 45# Somerset Matte by R. R. Donnelley and Sons Company.

Photo, text, and illustration credits appear following the References on pages C-1–C-4, which constitute an extension of the copyright page.

Research Focus Boxes

An Experiment: "Who You Pushin', Buddy!"—Perceptions of Aggressiveness 8

Erikson's Psychohistorical Approach: A Clinician's Notebook from the Dakota Prairies 28

Multiple Determinacy: Personality Traits 62

Factor Analysis: Fertility Procedures 74

Descriptive Statistics: How Harmful *Is* Secondhand Smoke? 112

Ethics: Kangaroo Care for Low-Birthweight Infants 124

Science as Self-Correcting: "The Case of the Disappearing Reflex" 154

Operational Definitions: Anything You Can Do, I Can Do Too 162

Cross-Sectional Design—Slices Through Time: Visual Scanning 178

Sampling: Baby Talk in Three Languages 198

The "File Drawer Problem": Day Care and Attachment 224

Ethnographic Field Research: Who's Telling This Story Anyway? 244

Inferential Statistics: Children as Witnesses 260

Within-Subjects Designs: Attention-Deficit Hyperactivity Disorder 266

Formulating Hypotheses: What Does It Mean to Be Rich? 308

The Role of Theory in Research: Children's Memory for Stories 328

Questionnaires: Social Support and the Quality of Parenting 362

Meta-Analysis: Noncustodial Fathers 365

Basic Versus Applied Research: After-School Activities 378

Randomized Versus Quasi-Experimental Designs: What's in a Name? Communication Across the Ages 382

Between-Subjects Design: Tolerance 410

Generative Interview: An Astronomical Joke 420

Coding: "Hey, I'm 10, and I Got a Right to See My Friends!" 469

The Dependent Variable: When Is a Stereotype Simply a Good Guess, and When Is It Bad Judgment? 479

Longitudinal Designs: Body Image and Gender 516

Bias and Blind Controls: Eating Disorders 520

Factorial Designs: Expectations and Perception of Ambiguous Situations 550

Internal and External Validity: "Tuning Out" Powerless Adults 563

Nonprobability Sampling: Adolescent-Parent Conflict 574

Correlational Research: Hangin' Out on a Friday Night 592

Social Policy Focus Boxes

The Declining Fortunes of Children: How Best to Help 30

Genetic Testing and the Human Genome Project 68

Drinking While Pregnant: Who Should Protect the Unborn? 109

Supplemental Food Programs 164

Early Intervention Programs: Money Well Spent? 201

The Importance of Fathers: Child Support Versus Emotional Support 222

Immunization Programs 279

Schooling Children Not Proficient in English 322

Building Social Capital 368

"D" Is for "Disorder": Medicating Young Children 395

Educational Equality and School Choice 442

Conflict Resolution in the School System 457

Abortion and Judicial Review: Rights of Parents Versus Adolescents 512

Job Training for Youth—When Social Policy Fails 564

Shooting Deaths Among Children 611

Narratives

Chapter 1

Ursula Hegi, *Salt Dancers,* a 4-year-old's father teaches her to dance 2

Margaret Donaldson, *Children's Minds,* Laurie Lee describes his first day of school 3

Toni Morrison, *Sula,* two girls' different reactions to an accidental drowning 3

Robert Kegan, *The Evolving Self,* a 4-year-old's and a 10-year-old's different understandings of quantity 5

Chapter 2

Louise Erdrich, *The Blue Jay's Dance,* musings about the act of conception 74

此为试读,需要完整PDF请访问: www.ertongbook.com

Chapter 3

Louise Erdrich, *The Blue Jay's Dance,* a pregnant woman's thoughts before going into labor 101

Michael Dorris, *The Broken Cord,* a father's realization that his adopted son has fetal alcohol syndrome 106

Louise Erdrich, *The Blue Jay's Dance,* a woman's experience of labor 115

Nancy Caldwell Sorel, *Ever Since Eve,* an older mother's efforts to prevent early labor 119

T. Berry Brazelton & Bertrand Cramer, "The Development of Premature Infants," a premature infant at birth and after 18 months 120

Chapter 4

Anne Lamott, *Operating Instructions,* a new mother's response to the reality of her newborn 136

Anne Lamott, *Operating Instructions,* a newborn's lack of motor coordination 146

Louise Erdrich, *The Blue Jay's Dance,* "flow" in an infant's single-minded attempts to move about on her own 159

Anne Lamott, *Operating Instructions,* a mother's attempt to feed her infant son carrots 163

Chapter 5

Anne Lamott, *Operating Instructions,* an infant's systematic investigation of the physical world 174

Anne Lamott, *Operating Instructions,* an infant's new reactions to a dropped toy 176

Anne Lamott, *Operating Instructions,* an infant begins to remember 187

John Holt, *How Children Learn,* two young infants listen to adults conversing 197

Chapter 6

Anne Lamott, *Operating Instructions,* a 6-month-old laughs at the cat's antics 238

Chapter 7

Ursula Hegi, *Salt Dancers,* a young girl's certainty that she will always be a child 250

Sam Keen, "Reflections on a Peach-Seed Monkey," a father keeping an old promise to his son 268

Scott Peck, *All American Boy: A Memoir,* living in fear of an abusive stepfather 282

Edgar Bledsoe, "Out of a Jam," childhood memories of poverty and self-definition 291

Chapter 8

Vivian Paley, *Mollie Is Three,* a 3-year-old's creation of a story during imaginative play 297

Margery Williams, *Velveteen Rabbit*, Skin Horse and Rabbit talk about what makes a toy real 299

Chapter 9

Maxine Hong Kingston, *Woman Warrior*, a Chinese first-grader's reluctance to talk in school 348

Alex Kotlowitz, *There Are No Children Here*, two young friends in a Chicago housing project try to help each other avoid gangs 356

Chapter 10

Annie Dillard, *An American Childhood*, a young girl's energetic attempt to run fast enough to fly 374

Gerald Haslam, "The Horned Toad," unsupervised play in middle childhood alone and with friends 376

Stephen King, "The Body," a conversation among four friends hanging out in a treehouse, playing cards 379

Charles Baxter, "Gryphon," a young boy being asked to do a chore 387

Sandra Cisneros, *Woman Hollering Creek*, an 11-year-old's thoughts on her birthday 394

Annie Dillard, *An American Childhood*, a child's bedtime fears 396

Dick Gregory, *Nigger: An Autobiography*, memories of the humiliations of growing up poor 401

Chapter 11

Richard Rodriguez, *Hunger of Memory*, a Mexican American boy has to speak English in school 419

John Dixon, "The Spatial Child," memories of being a gifted child with learning disabilities 436

Chapter 12

Maxine Hong Kingston, *The Woman Warrior*, a Chinese American girl's difficulty with the English word "I" 451

Charles Baxter, "Gryphon," grade-school boys whisper about an eccentric substitute teacher 453

Nora Ephron, *Crazy Salad*, an 11-year-old is left behind by her earlier-maturing friend 454

Nancy Samalin, *Loving Each One Best*, a 9- and a 10-year-old girl talk about their older brothers 474

Chapter 13

D. H. (Doug Hanauer), "Dying to Be Bigger," a high-school sophomore's experiment with steroids 515

Sydney Lewis, *A Totally Alien Life Form—Teenagers*, an adolescent girl's troubled relationship with food 518

Chapter 14

Curtis Sittenfeld, "Your Life as a Girl," obstacles a girl faces in math class 547

Edward Martin, "Reflections on the Early Adolescent in School," a junior-high teacher's attempt to teach with concrete examples 549

Anne Dillard, *Pilgrim at Tinker Creek,* adolescents appreciate irony 559

Chapter 15

Erik Erikson, *Identity, Youth, and Crisis,* a competitive tomboy finds her identity on a ranch taking care of newborn colts 577

Gordon Parks, *Voices in the Mirror: An Autobiography,* an African American boy goes to the white side of town with a light-skinned cousin—an ethnic identity crisis 589

Susan Allen Toth, *Blooming,* the first high-school romance 598

Preface

What do you remember of your own childhood or the games you played? Imagine yourself sitting on a park bench watching children at play. Over next to the trees, you notice a few school-age children taking turns on the swings. Close by, you can make out four young children playing contentedly by themselves in a sandpit, one with a shovel and the others with various toys. In the distance is a skateboard park seemingly used only by boys, each doing their own thing on the ramps or clustered in small knots around the perimeter. A number of girls their age are walking through the park by two's and three's, involved intensely in conversation. You continue watching. Have you ever really looked at children playing before? Is there more than meets the eye in the way children of different ages play?

What is play, you wonder? Do toddlers usually play alone, even if they are right next to each other? When do children learn to take turns? Why were only boys at the skateboard park? Is the scene at this park typical for children of these ages? You were a child once, presumably much like these children. But, you're surprised to find you don't have answers to these questions. And then you wonder what makes some children aggressive and others shy? What brought aggression to mind? You remember seeing a news story on TV only this morning about a school shooting. Several experts in child development talked about possible signs of disturbance that could have told the parents or teachers that something was going wrong, or already had gone wrong, in the lives of those children. Others commented that many times there are no reliable signs to distinguish children who are truly troubled from those who are not. They also said that troubled children can come from homes that are just as loving and supportive as those of other children.

Last Sunday's newspaper profiled a very different child. The Teen Life section described the day-to-day life of a teenage boy—active in 4-H, a merit scholar bound for the university next fall—whose favorite activity is serving as a volunteer at an after-school day care center near his home. Three days a week, for 3 years now, he has helped children with their homework, played games with them, and just kept them company. What makes children so different? How much of a difference is there to begin with from one child to the next? How do circumstances change life outcomes, you wonder? As a casual observer you may never discover the answers to these questions. But, as a student of child development, some questions may be answered and others that you never imagined may come to mind.

This book introduces you to ordinary children, such as those in the park, with the hope that you will see things about them that you previously never noticed or thought about. Instead of simply talking about children, as many textbooks do, this book will let children talk to you as well. This textbook relies on the use of narrative, using children's own words as well as stories about children and their families, to help you understand developmental concepts. In addition, three

features distinguish this textbook's approach: This book will emphasize a constructive perspective to development, it will highlight ethnic and gender diversity, and it will stress continuity of development.

A Narrative Approach

As you read this text, you will be invited to see things from the perspective of the children as well as from that of the researchers who study them. The things children say and do, as well as narrative accounts of their experiences by others, provide a rich database from which to study development. You will be encouraged to analyze and make sense of children, as developmentalists do, by observing them and their families firsthand through these narrative accounts. Instead of simply presenting you with various theories or research findings, you will be included in the process of discovery itself by being introduced to the developmental issues, in the form of narrative accounts, that research and theory were designed to address.

A Constructive Perspective

As you begin to look at things from the vantage point of children, you will see that they frequently see things differently than do adults. The constructive perspective assumes that individuals actively "construct" reality rather than passively react to events. In doing so, they organize experience in meaningful ways that change predictably with age. Individuals continually interpret the events they experience. As a consequence, a single event can mean different things to different people. Perceiving the world, whether listening to someone talk or making sense of what we are seeing, is an active process. Reality does not come at us packaged for passive absorption. In order to experience a coherent, meaningful world, a person must construct or assemble it from the moment, from less coherent raw material. This view of perception as an active, constructive process is termed the constructive perspective and will inform the pages of this text.

Gender and Ethnic Diversity

In reading this book, you will discover how differences of gender and ethnicity contribute to the way children construct their reality. Few differences are as important to children, or to individuals of any age, for that matter, as those associated with their gender. Some differences are biologically based, whereas others are socially determined and reflect what a particular culture expects of children depending on gender. Culture contributes to development in even more general ways, affecting everything from which foods children like (preferences that may be established even before birth) to which language they use when talking to a grandparent. The very rituals, beliefs, and rhythms to life that a culture provides furnish the perspective from which children learn to view the world. Culture, whether this is provided by children's sex or their ethnicity, provides the interpretive lens through which they look when constructing the events they experience.

Continuity of Development

You may be surprised to discover yourself in the experiences of the children you are reading about. Development brings many changes—in size, skills, maturity and understanding—but each of us still carries within us the self we were at different points in our lives. Continuity of development assumes that within every adult there lurks an adolescent and an even younger child. Issues of intimacy, for instance, are salient not only in early adulthood but also in infancy. A concern with autonomy is central not only to adolescence, but also to toddlerhood, and emerges again as an issue in later adulthood. As you discover how children at different ages deal with various issues, you may discover new things about yourself as well.

Continuity exists in yet another way. Despite obvious differences between groups of children defined by factors such as ethnicity or gender, the differences *among* children within any group are greater than the differences *between* those groups. Underlying commonalities may suggest ways of conceptualizing solutions to some of the social ills that affect children's lives. With respect to this point, each chapter contains a social policy box that highlights a policy related to some aspect of children's well-being. Issues covered in these policy boxes include substance abuse in pregnancy and how to balance the rights and responsibilities of the individual with those of the community, genetic testing and the human genome project, and how best to teach schoolchildren who are not proficient in English.

Additional Features

What else distinguishes this book? One of the most important features of this text is one that you may *not* notice at first. The writing style of this book is designed to be "reader friendly" and conversational. The text is intended to read much the way someone would sound when speaking to you—informal and personal. When this approach is successful, you, the reader, become aware only of the concepts you are asked to think about and not the process of reading about them. Don't be misled by the informal tone to the text; you will be getting a sophisticated analysis of developmental concepts, research, and theory.

In addition to boxes highlighting social policy, this book contains boxes highlighting research. The study of child development involves two quite different types of knowledge. One of these describes *what* we know about children's development, the ways they change with age and the factors that are responsible for those changes. The other describes *how* we know what we know, the research methods that generate the findings you'll be reading about. The Research Focus boxes introduce you to this second type of knowledge: the basic methods of developmental research. These boxes are important because they provide you with the tools you will need to actively analyze what you're reading rather than simply taking in the facts. Each box begins with a practical problem and then illustrates how researchers used a particular approach to solve it. Some examples are "Descriptive Statistics: How harmful *Is* Secondhand Smoke?" "Ethics: Kangaroo Care for Low-Birthweight Infants," and "Internal and External Validity: 'Tuning Out' Powerless Adults." All together, the boxes cover all of the basic topics important for understanding the methodologies used by developmental researchers.

此为试读，需要完整PDF请访问：www.ertongbook.com

Organization of This Text

The book is divided into five parts: Foundations, Infancy and Toddlerhood, Early Childhood, Middle Childhood, and Adolescence. Each part contains three chapters: physical development, cognitive development, and psychosocial development. All chapters begin with an outline of the material that is to be covered. Each chapter begins with a brief vignette or opening section designed to draw you into the chapter, and ends with a summary that describes the major points of the chapter. Key terms appear in a running glossary in the margins of the text, to highlight developmental concepts as you read. Also, each chapter contains Stop-and-Think questions that are designed to engage you with the material as you read.

Teaching and Learning Tools

- *Instructor's Manual and Test Bank.* This is a comprehensive resource for instructors. Part One of the manual includes, for each chapter: chapter outlines, summaries, and learning objectives; lecture organizers (the text of the PowerPoint slides available on the Instructor's CD and *The Child* Web site); lecture suggestions; discussion and critical thinking questions; suggested answers to the text's Stop-and-Think questions; activities; and student worksheets. Part Two offers Internet Resources, with suggested Web sites and worksheets to guide students through Internet-related assignments. Part Three, Video Resources, gives detailed descriptions and reviews of suggested videos for each chapter. The Test Bank contains over 1,500 questions in multiple choice, true-false, short answer, and essay formats. Answers with page references and topic identification are provided.
- *Computerized Test Bank.* MicroTest III, developed by Chariot Software Group, contains the complete test bank, including answers, topic identification and page references. MicroTest allows you to design tests using the questions included with *The Child* and/or to incorporate your own questions. The testing program is available in both Windows and Macintosh formats.
- *Transparency Acetates.* Provided to enhance lectures, the 50 acetates, many in full-color, include selected art and other images from the text. They are also available on the Instructor's CD and the Web site.
- The Child *Web Site (http://www.mayfieldpub.com/cobb).* Instructor's resources on the site include a syllabus builder (which allows instructors to customize a syllabus and post it at a unique Web address), the Instructor's Resource Guide, PowerPoint slides, an image bank, electronic transparencies, and Internet links. The entire instructor's section is password-protected. Student's resources on the site include an interactive study guide, Internet activities, and a Web tutorial.
- *The Mayfield Child and Adolescent Development Custom Video.* This video, developed to accompany *The Child,* contains more than 15 video clips ranging from 5 to 10 minutes in length. With at least one clip per chapter, the video is a valuable resource for encouraging class discussion. Topics include classical and operant conditioning, pediatric brain development, the diagnosis and treatment of Attention Deficit Disorder, differences between the sexes, memory, and depression in children and adolescents.
- *Instructor's CD-ROM.* This CD contains PowerPoint slides, electronic transparencies, an image bank of images from the text, and the Instructor's Resource Guide. The PowerPoint slides, as shown in the lecture organizers

section of the Instructor's Manual, provide a lecture outline for each chapter and can be combined with the electronic transparencies for an integrated classroom presentation. The Instructor's Manual can be downloaded from the CD and materials customized to fit any course organization. This complete package of presentation resources can be used with both IBM-compatible and Macintosh computers.

- *Study Guide.* Written to coordinate with the materials found in the Instructor's Manual and Test Bank, this guide uses the SQ4R method and offers for each chapter: chapter outline, summary, and learning objectives; flash cards; questions for reflection and application; activities and observations; worksheets; and practice quizzes.

Acknowledgments

I would like to thank all of those who have helped with the writing of this book. To all of you at Mayfield who have been involved in this project, my sincerest thanks. This book would not have come into being without the work that you have contributed to it. I am deeply thankful for this, as I am for the opportunity to have worked with you. My sincere thanks go to Barbara Armentrout, the developmental editor for this project, who helped to flesh out and develop the manuscript at every stage of the writing. Your contributions have enriched this text in ways that are too numerous to mention. To Melissa Williams, the production editor, many thanks for your creative touch and your attentiveness to detail as you shepherded this project through to completion. Your efforts in its production have resulted in a beautiful book. Thanks also go to Joan Pendleton for your expert and careful reading and copyediting of the manuscript. Finally, I am especially thankful for the opportunity of working once again with Frank Graham, the sponsoring editor for this project. For your vision for this project, your integrity as an editor and a person, for your good spirits, and for being a friend, Frank, I thank you.

Thanks also to talented and creative students past and present, and to their supportive spouses, to Jennie Euler, who found references when I could not, and to Larry Albinski, who dropped these off at all hours of the day and night. Thank you, thank you! To Anita Rosenfield and Andrea Weyermann, for doing an outstanding job on the ancillaries, my sincere thanks for making this book a more meaningful experience for those who will use it.

To my prayer partners, Roberta Veit, Monteene Ivey, and Holly Tone, my deepest thanks for your friendship, prayers, and encouragement. To Bill Cobb, for your humor, CDs, and nostalgia, thank you; these made writing, not to mention my life, so much easier. To Joshua and Jenny, I thank you for the brave way you live your lives; you have been my tie to what is real as a parent and as a person. To Michael, if one can thank another for wisdom and love, I thank you for these, and for your courageous honesty and generosity of spirit, for always taking the time to listen to ideas and read pages of manuscript, even when this was time that you took from your writing. I could not have written this, nor done much else, without you—nor would I want to.

My thanks also go to those colleagues who have reviewed the manuscript and offered both helpful suggestions and informed criticism: Nancy Ahlander, Ricks College; Eric Ansel, Weber State University; Daniel R. Bellack, Trident Technical College; Kenneth S. Bordens, Indiana University, Purdue University at Fort Wayne; Kathleen W. Brown, California State University, Fullerton; Joan B. Cannon, University of Massachusetts–Lowell; Elaine Cassel, Marymount University; Melonye

Curtis, Amarillo College; Denise Davidson, Loyola University of Chicago; Deborah Davis, Chaffey College; Nancy E. Dye, Humboldt State University; Diane Widmeyer Eyer, Cañada College; William J. Gnagey, Illinois State University; Dale Goldhaber, University of Vermont; Janet Gonzalez-Mena, Napa Valley College; Mary Jo Graham, Marshall University; Allen Keniston, University of Wisconsin–Eau Claire; Kina Leitner, New York University; Terry F. McNabb, Coe College; Philip J. Mohan, University of Idaho; Linda C. Monahon, Simmons College; Marilyn Moore, Illinois State University; David L. Morgan, Spalding University; Peggy Perkins, University of Nevada, Las Vegas; Jay B. Pozner, Jackson Community College; Joe Price, San Diego State University; Wanda L. Ruffin, Hood College; Jane A. Rysberg, California State University, Chico; Marie Saracino, Stephen F. Austin State University; Rochelle Robinson Warm, Palm Beach Community College; and Valjean Whitlow, Belmont University.

Brief Contents

chapterone Introduction and Theories of Development 1

PART ONE Foundations

chaptertwo The Context of Development: *Genetic Action and Environmental Influences* 45

chapterthree Prenatal Development 81

PART TWO Infancy and Toddlerhood

chapterfour Infancy and Toddlerhood: *Physical Development* 131

chapterfive Infancy and Toddlerhood: *Cognitive Development* 169

chaptersix Infancy and Toddlerhood: *Psychosocial Development* 213

PART THREE Early Childhood

chapterseven Early Childhood: *Physical Development* 249

chaptereight Early Childhood: *Cognitive Development* 295

chapternine Early Childhood: *Psychosocial Development* 333

PART FOUR Middle Childhood

chapterten Middle Childhood: *Physical Development* 373

chaptereleven Middle Childhood: *Cognitive Development* 407

chaptertwelve Middle Childhood: *Psychosocial Development* 447

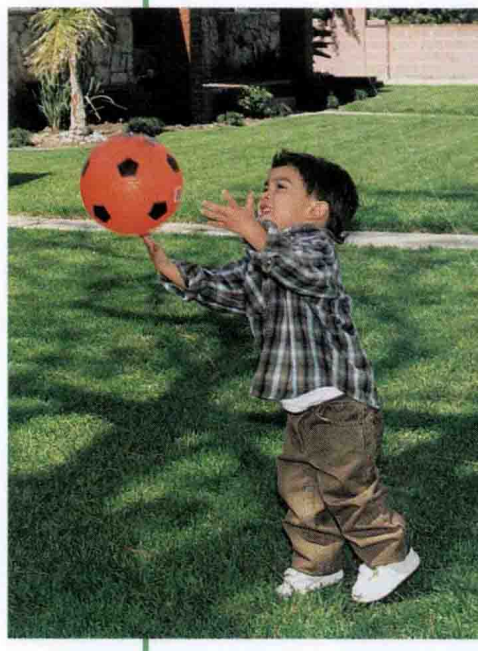
PART FIVE Adolescence

chapterthirteen Adolescence: *Physical Development* 495

chapterfourteen Adolescence: *Cognitive Development* 531

chapterfifteen Adolescence: *Psychosocial Development* 569

Contents



Preface xxv

chapterone Introduction and Theories of Development 1

THE CONSTRUCTIVE PERSPECTIVE ON DEVELOPMENT 4

Research Focus An Experiment: "Who You Pushin', Buddy!"—Perceptions of Aggressiveness 8

Diversity 8

Continuity 10

DEFINING DEVELOPMENT 11

DESCRIBING DEVELOPMENT 12

MODELS AND THEORIES 13

A Model Defined 13

A Theory Defined 15

Developmental Questions 15

The Environmental Model 17

The Organismic Model 18

The Psychodynamic Model 20

ENVIRONMENTAL THEORIES 21

Ivan Pavlov 22

B. F. Skinner 22

Albert Bandura 24

PSYCHODYNAMIC THEORIES 25

Sigmund Freud 25

Erik Erikson 26

Research Focus Erikson's Psychohistorical Approach: A Clinician's Notebook from the Dakota Prairies 28

Nancy Chodorow 29

Social Policy Focus The Declining Fortunes of Children: How Best to Help? 30

ORGANISMIC THEORIES 30

Jean Piaget 31

Lev Vygotsky 33

Barbara Rogoff 35

Carol Gilligan 36

Robert Kegan 40

A Concluding Note 41

SUMMARY 42

PART ONE FOUNDATIONS

chaptertwo The Context of Development
Genetic Action and Environmental Influences 45

THE BEGINNINGS: DNA AND LIFE 46

Genes 48

Chromosomes 49

Gametes: The Ovum and Sperm 50

Genetic Diversity 53

Twins 53

Fertilization 55

PATTERNS OF GENETIC ACTION 58

Research Focus Multiple Determinacy: Personality Traits 62

Sex-Linked Inheritance 62

Exceptions to Mendel's Laws 63

GENETIC AND CHROMOSOMAL DISORDERS 65

Genetic Disorders 65

Chromosomal Disorders 66

Sex Chromosome Disorders 66

DETECTING BIRTH DEFECTS 67

Social Policy Focus Genetic Testing and the Human Genome Project 68

Ultrasound Imaging 69

Amniocentesis 69

此为试读，需要完整PDF请访问：www.ertongbook.com