www.prenholl.com/kail

Robert V. Kail

Chicren

Development

second edition

# Robert V. Kail

Purdue University

# Children and Their Development

second edition



Upper Saddle River, NJ 07458

### Library of Congress Cataloging in Publication Data

Kail, Robert V.

Children and their development / Robert V. Kail.—2nd ed.

p. cm

Includes bibliographical references and index.

ISBN 0-13-086765-9

1. Child development. 2. Child psychology. 3. Memory in children. 4. Cognition in

children. I. Title HQ772.K216 2001

305.231-dc21

00-029348

VP/Editorial Director: Laura Pearson Senior Acquisitions Editor: Jennifer Gilliland

AVP/Director of Production and Manufacturing: Barbara Kittle

Managing Editor: Mary Rottino

Director of Development: Susanna Lesan Development Editor: Harriett Prentiss

Editorial/Production Supervision: Julie Sullivan

Manufacturing Manager: Nick Sklitsis

Prepress and Manufacturing Buyer: Tricia Kenny

Creative Design Director: Leslie Osher

Assistant Creative Director: Carole Anson
Interior and Cover Design: Anne Demarinis
Electronic Illustrations: Joseph Rattan Design;
Dartmouth Publishing; Mirella Signoretto
Production Manager, Formatting and Art: Guy Ruggiero
Director, Image Resource Center: Melinda Reo
Photo Research Supervisor: Beth Boyd
Image Permission Supervisor: Kay Dellosa

Photo Researcher: Kathy Ringrose Cover Photos: nonstøck; DigitalVision

Acknowledgments for copyrighted material may be found beginning on p. 487, which constitutes an extension of this copyright page.

This book was set in 10.5/13 Minion and Gill Sans Bold by TSI Graphics and was printed and bound by Courier Company–Kendallville. The cover was printed by Phoenix.



© 2001, 1998 by Prentice-Hall, Inc. A Division of Pearson Education Upper Saddle River, NJ 07458

All rights reserved. No part of this book may be reproduced, in any form or by any means, without permission in writing from the publisher.

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

### ISBN 0-13-086765-9

Prentice-Hall International (UK) Limited, London

Prentice-Hall of Australia Pty. Limited, Sydney

Prentice-Hall Canada Inc., Toronto

Prentice-Hall Hispanoamericana, S.A., *Mexico* Prentice-Hall of India Private Limited, *New Delhi* 

Prentice-Hall of Japan, Inc., Tokyo

Pearson Education Asia Pte. Ltd., Singapore

Editora Prentice-Hall do Brasil, Ltda., Rio de Janeiro

# Children and Their Development



hen I first taught child development in 1975, I used a brand new textbook written by Mavis Hetherington and Ross Parke. Their book was among the first of the "modern" topically organized child development texts and provided students with an excellent overview of research in child development. In the twenty-five years since, researchers have made incredible progress in understanding children's development (and I'm proud to have been among those contributing). Unfortunately, authors have been overly enthusiastic about the emerging knowledge and textbooks have grown ever larger as more and more complex findings are added. As texts grew, my students complained to me that, with so much information in the book, they had difficulty separating the wheat from the chaff (an appropriate metaphor since I was teaching in the Midwestern United States).

Greater length and complexity was only part of the problem. Most textbook authors avoided effective pedagogy like the plague. They (along with many instructors) seemed to believe that students should be able to learn on their own, without relying on learning aids in the text. As a consequence, although child development texts still presented a valuable overview of the field, they were often ineffective tools for student learning.

In 1993, it seemed to me that a new book was needed—one that would meet instructors' needs for a solid, research-oriented overview of the field but would also emphasize effective pedagogy designed to enhance students' learning. *Children and Their Development*, first published in 1998, is my effort to meet these goals. This book is traditional in its focus on research. The organization, too, is familiar: I begin with theories and methods, move to biological bases of child development, then describe cognitive development and, later, social-emotional development. Where this book begins to differ from the competition is length: it has about 100 fewer pages than most competing texts. To make the truly important child development work stand out for students, I have deliberately omitted some topics and described others relatively briefly.

But the focus on a student-friendly book is really evident in the way I've structured the chapters to help students learn about child development. I describe my approach in detail in Module 1.1, so I'll simply sketch it here. Each chapter consists of three or four modules that provide a clear and well-defined organization to the chapter. Each module begins with a set of learning objectives and a vignette that introduces the topic to be covered. Within each module, all figures, tables, and photos are fully integrated, eliminating the need for students to search for a graphic. Similarly, boxlike feature material that is set off in other textbooks is fully integrated with the main text and identified by a distinctive icon. Each module ends with several questions designed to help students check their understanding of the major ideas in the module.

The end of each chapter includes several additional study aids. "In Perspective" recaps each module, then links the ideas in the chapter to a major developmental theme. "See for Yourself" suggests activities that allow students to observe topics in child development firsthand. "Resources" includes books and Web sites where students can learn more about child development. "Key Terms" is a list of all of the important terms that appeared in the chapter. The "Summary" is organized by module and the primary headings within each module; it reviews the entire chapter.

Each module includes at least one feature where selected issues are highlighted. The four different kinds of features are "Focus on Research," "Making Children's Lives Better," "Cultural Influences," and "Real Children." The features are described

in Module 1.1, but "Focus on Research" warrants extra attention here. Most textbooks describe research methods early on, then ignore them for the rest of the book. Children and Their Development takes a different and unique approach. In Module 1.3, I portray child development research as a dynamic process in which scientists make a series of decisions as they plan their work. In the process, they create a study that has both strengths and weaknesses. Each of the remaining chapters of the book contains a "Focus on Research" feature that illustrates this process by showing—in a question-and-answer format—the different decisions that investigators made in designing a particular study. I trace each of the steps and explain the decisions that were made. Then the results are shown—usually with an annotated figure so that students can learn how to interpret graphs—and the investigators' conclusions are described. Thus, the research methods that are introduced in Chapter 1 reappear in every chapter, in a setting that makes research come alive as a set of decisions that often involve compromises. (In my classes, I encourage students to think how the "Focus on Research" studies could be improved with different methods. At the same time, I ask them why the investigators might have resorted to the methods they did.)

The "Focus on Research" and other pedagogical elements *are* effective; students using the first edition commented that the book is easy to read and presents complex topics in an understandable way. Reading *Children and Their Development*, students come to appreciate both what we know about children's development *and* the research process that produced this knowledge.

# **Changes to the Second Edition**

In writing the second edition, I have included hundreds of new citations to research published in the past few years. I have also made significant additions to every chapter. Of particular note is the following new material:

Chapter 1 includes information on how to study and explains the rationale for the book's organization.

Chapter 2 has material on methods from molecular genetics and two new major sections: one on pathways from genes to behavior and another on nonshared environmental influences.

Chapter 3 contains a new section on postpartum depression and information about the national "Back to Sleep" campaign to combat SIDS.

Chapter 4 now has information on sexual orientation, bulimia, and brain plasticity.

Chapter 5 includes new material on object perception and the development of attention.

Chapter 6 is reorganized to include two new modules, one that evaluates Piaget's theory and another that describes new approaches that complement Piaget's work. The latter module has a new section on "the child as a theorist."

Chapter 7 now describes inhibitory processes, autobiographical memory, infantile amnesia, and writing.

Chapter 8 contains new material on social intelligence and dynamic approaches to intelligence testing.

Chapter 9 now begins with a new section defining different aspects of language and has an expanded section on fast mapping of meaning to words.

Chapter 10 describes research on emotion regulation and work on adults' representations of their attachments with their own parents.

Chapter 11 has a new "Focus on Research" feature on identity in children of transracial adoptions and a new section on the consequences of low self-esteem.

Chapter 12 includes material that relates temperament to self-control, information on Kohlberg's Just Communities, and a new section dealing with victims of aggression.

Chapter 13 describes social class and race differences in gender stereotypes and also includes information on gender differences in physical and relational aggression.

Chapter 14 begins with a new section devoted to a systems approach to the study of the family and contains an expanded section on parental behaviors (with new material on direct instruction and coaching).

Chapter 15 has much expanded coverage of peer relations, material on cross-sex friendships and factors that contribute to long-lasting friendships, a new section about TV as a medium (in addition to material about TV content), a largely new section on schools (organized around factors that make schools effective), and brand new material about adolescents' part-time employment.

## **Support Materials**

*Children and Their Development* is accompanied by a superb set of materials. They include the following:

### For Instructors

**Instructor's Resource Manual,** prepared by Dale Grubb of Baldwin Wallace College. This IRM contains a wealth of material for new and experienced instructors alike. Each chapter includes chapter organizers, learning objectives, a detailed lecture outline with suggestions, classroom demonstrations and learning activities, critical thinking questions and exercises, assignment ideas, journal exercises, suggested films and videos, and classroom handouts.

**Test Item File,** prepared by Terri T. Combs of Indiana University-Purdue University. This test bank contains over 3,000 multiple choice, true/false, short-answer and essay questions that test factual, applied, and conceptual knowledge.

**Prentice Hall Test Manager.** One of the best-selling test-generating software programs on the market, Test Manager is available in Windows and Macintosh formats and contains a Gradebook, Online Network Testing, and many tools to help you edit and create tests. The program comes with full Technical Support and telephone "Request a Test" service.

**Prentice Hall's Color Transparencies for Developmental Psychology.** Designed in large-type format for lecture settings, these full color overhead transparencies add visual appeal to your lectures by augmenting the visuals in the text with a variety of new illustrations.

**PowerPoint Slides and Online Graphics Archive.** Available in the Faculty Module of the Companion Website at **www.prenhall.com/kail**, each chapter's art has been

digitized and is available for download into any presentation software. PowerPoint lectures for each chapter are also available for download.

**Prentice Hall Video Libraries.** Prentice Hall has assembled a superior collection of video materials which range from short lecture launchers to full-length detailed features for use in the Developmental Psychology course. The videos below are available to qualified adopters.

- **Films for the Humanities and Sciences.** A wealth of videos from the extensive library of Films for the Humanities and Sciences, on a variety of topics in developmental psychology, are available to qualified adopters. Contact your local Prentice Hall representative for a list of videos.
- **ABC News Videos for Developmental Psychology.** These videos consist of segments from ABC Nightly News with Peter Jennings, Nightline, 20/20, Prime Time Live, and The Health Show.

Media Support for *Children and Their Development*, Second Edition. Both instructors and students will find many useful resources in the media program to accompany this text.

www.prenhall.com/kail Companion Website. Prepared by Larry Jenkins of Tidewater Community College, this *free* online Study Guide allows students to review each chapter's material, take practice tests, research topics for course projects, and more. Professors should visit the Faculty Module of the site to download electronic versions of the Instructor's Resource Manual, Powerpoint Slides for each chapter, and an Online Graphics Archive.

On-Line Course Management. For professors interested in using the Internet and on-line course management in their courses, Prentice Hall offers fully customizable on-line courses in WebCT, BlackBoard, and eCollege to accompany this textbook. Contact your local Prentice Hall representative or visit www.prenhall.com/demo for more information.

### For Students

**Study Guide,** written by Dea DeWolff. This attractive, highly visual Study Guide reinforces the key pedagogical features of the textbook. The author incorporates both illustrations and design elements from the text. Each of the fifteen chapters follows the same modular organization as the text. Each of the modules in every chapter includes learning objectives, matching exercises to review key theories, definitions, terms and concepts, practice true/false questions, cumulative fill-in-the-blank chapter summaries, multiple choice questions, and essay questions.

**Psychology on the Internet.** This "hands-on" Internet tutorial features Web sites related to psychology and general information about using the Internet for research. This supplement is available *free* when packaged with the text and helps students capitalize on all the resources that the World Wide Web has to offer.

# **Acknowledgments**

Textbook authors do not produce books on their own. I want to thank the many reviewers who generously gave their time and effort to help sharpen my thinking about child development and shape the development of this text. I am especially grateful to the following people who reviewed various aspects of the manuscript: Jack Meacham,



University of Buffalo; Lesa Rae Vartanian, Purdue University; Adam Winsler, George Mason University; Tony Simon, Furman University; K. Robert Bridges, Pennsylvania State University; Frank Manis, University of Southern California; Marianne Taylor, University of Puget Sound; Karen Rudolph, University of Illinois; Cynthia Stifter, Pennsylvania State University; James Black, University of Illinois; Laura Hess, Purdue University; Lisa Oakes, University of Iowa; Jacquelyn Mice, Auburn University; Amy Weiss, University of Iowa; Brad Pillow, Northern Illinois University; Janet DiPietro, Johns Hopkins University; Lee Ann Thompson, Case Western Reserve University; Gary Ladd, University of Illinois. Thank you, as well, to those who reviewed the first edition of the manuscript: Susan McClure, Westmoreland County Community College; Rebecca Bigler, University of Texas-Austin; Kathleen Fox, Salisbury State University; Rick Medlin, Stetson University; Joan Cook, County College of Morris; Elizabeth Lemerise, Western Kentucky University; Jim Dannemiller, University of Wisconsin-Madison; Mark B. Alcorn, University of Northern Colorado; Vernon C. Hall, Syracuse University; and May X. Wang, Metropolitan State College of Denver. Without their thoughtful comments, this book would be less complete, less accurate, and less interesting.

I also owe a debt of thanks to many people who helped take this project from a first draft to a bound book. Jennifer Gilliland has supported this book enthusiastically and served as a savvy guide to its revision. As she did for the first edition, Harriett Prentiss labored long to make my writing clear and inviting. Laura Curry helped to compile the many new references that were added to this edition. Anne Demarinis, under the direction of Carole Anson, designed a book that is both beautiful and functional. Julie Sullivan skillfully orchestrated the many activities that were involved in actually producing the book. Kathy Ringrose found the marvelous photographs that appear throughout the book. To all these people, many, many thanks.

-Robert V. Kail



**Robert V. Kail** is Professor of Psychological Sciences at Purdue University. His undergraduate degree is from Ohio Wesleyan University, and he received his Ph. D. from the University of Michigan. Kail is currently Associate Editor of the *Journal of Experimental Child Psychology* and coeditor of *Advances in Child Development and Behavior*. He received the McCandless Young Scientist Award from the American Psychological Association, was named the Distinguished Sesquicentennial Alumnus in Psychology by Ohio Wesleyan University, and is a fellow in the American Psychological Society. His research interests are in the area of cognitive development and focus on the causes and consequences of developmental change in the speed of information processing. Kail has also written *The Development of Memory in Children* and, with John C. Cavanaugh, *Human Development: A Lifespan View.* Away from the office, he enjoys flying, working out, playing soccer with his daughter, and watching his young adult sons on stage.

Preface	xvii
The Science of Child Developmen	t 2
2 Genetic Bases of Child Development	34
3 Prenatal Development, Birth, and the Newborn	56
4 Physical and Motor Development	90
5 Sensory and Perceptual Development	122
6 Piaget's Theory of Cognitive Development	148
Information-Processing Approaches to Cognitive Development	180
8 Intelligence and Individual Differences in Cognition	212
9 Language and Communication	240
10 Emotional Development	270
1 1 Understanding Self and Others	296
12 Moral Understanding and Behavior	324
13 Gender and Development	360
14 Family Relationships	388
15 Influences Beyond the Family	420

ero.		
Pre	face	XVI

The	Science	of	Child	Deve	lopment	2

1 12

Using This Book 4
The Modular Format 4
Terminology 7
Organization 8

Themes and Theories 8

Themes in Child Development Research 9
Theories of Child Development 11

3 Doing Developmental Research

Measurement in Child Development Research 22
General Designs for Research 25
Designs for Studying Development 27
Ethical Responsibilities 29
Communicating Research Results 30
See for Yourself, Resources, Key Terms 32
SUMMARY 33

# Genetic Bases of Child Development 34

2 2.1

# Mechanisms of Heredity 36

The Biology of Heredity 36
Single Gene Inheritance 38
Behavioral Genetics 40

**Genetic Disorders** 46
Inherited Disorders 46
Abnormal Chromosomes

2.3

Heredity Is Not Destiny 49
Paths from Genes to Behavior 49

Reaction Range 50
Changing Relations Between Nature and Nurture 51
The Nature of Nurture 52

Genetic Bases of Child Development IN PERSPECTIVE 53 See for Yourself, Resources, Key Terms 54 SUMMARY 55

47

# Prenatal Development, Birth, and the Newborn 56

3.1

# From Conception to Birth 58

Period of the Zygote (Weeks 1–2) 58
Period of the Embryo (Weeks 3–8) 59
Period of the Fetus (Weeks 9–38) 61

# Influences on Prenatal Development 64

General Risk Factors 64
Teratogens: Diseases, Drugs, and Environmental Hazards 67
How Teratogens Influence Prenatal Development 71
Prenatal Diagnosis and Treatment 73

3.3

Happy Birthday! 75
Labor and Delivery 76
Approaches to Childbirth 7
Postpartum Depression 78
Birth Complications 79

		See for Yourself, Resources, Key Terms 87 SUMMARY 89
sical d	and N	Notor Development 90
1	4.1	Physical Growth 92 Features of Human Growth 92 Variations on the Average Profile 94 Mechanisms of Physical Growth 95 The Adolescent Growth Spurt and Puberty 97
	4.2	Problems of Physical Growth Malnutrition 101 Anorexia and Bulimia 102 Obesity 103
	4.3	The Developing Nervous System 104 Organization of the Mature Brain 105 The Developing Brain 106  Motor Development 111 Locomotion 112
	4.4	Motor Development 111 Locomotion 112 Fine-Motor Skills 115 Maturation, Experience, and Motor Skill 117
		Physical and Motor Development IN PERSPECTIVE 119 See for Yourself, Resources, Key Terms 120 SUMMARY 121
sory	and Pe	erceptual Development 122
	5.1	Approaches to Perceptual Development The Empirical Approach 124 The Cognitive Approach 125 Gibson's Differentiation Theory 127
J	5.2	Basic Sensory and Perceptual Processes 129 Smell, Taste, and Touch 129 Hearing 130 Seeing 132 Integrating Sensory Information 133
	5.3	Complex Perceptual and Attentional Processes 136 Perceiving Objects 136 Attention 141 Attention Deficit Hyperactivity Disorder 143
		Sensory and Perceptual Development IN PERSPECTIVE 145 See for Yourself, Resources, Key Terms 146 SUMMARY 147

**The Newborn 82**Assessing the Newborn

The Newborn's Reflexes Newborn States 84 82

Prenatal Development, Birth, and the Newborn IN PERSPECTIVE 87

Newborn States 84
Perception and Learning in the Newborn

Plagers	Theory	of Cognitive Development 148
6	6.1	General Principles of Piaget's Theory 150 Schemes 150 Assimilation and Accommodation 151 Equilibration and Stages of Cognitive Development 151
O	6.2	Piaget's Four Stages of Cognitive Development The Sensorimotor Stage 153 The Preoperational Stage 155 The Concrete Operational Stage 160 The Formal Operational Stage 161
	6.3	Evaluating Piaget's Theory 164 Applying Piaget's Theory 164 Criticisms of the Theory 165
	6.4	Beyond Piaget's Theory 169  Neo-Piagetian Approaches to Cognitive Development 169  The Child as Theorist 170  Vygotsky's Theory of Cognitive Development 173
		Piaget's Theory of Cognitive Development IN PERSPECTIVE 177 See for Yourself, Resources, Key Terms 177 SUMMARY 179
Informati	ion-Pro	cessing Approaches to Cognitive Development 180
7	7.1	An Introduction to Information Processing 182  Basic Features of the Information-Processing Approach How Information Processing Changes with Development Comparing Information Processing and Piaget's Theory 186
	7.2	Memory 188 Origins of Memory 188 Strategies for Remembering 189 Knowledge and Memory 191
	7.3	Academic Skills 197 Reading 197 Writing 201 Knowing and Using Numbers 203
		Information-Processing Approaches to Cognitive Development IN PERSPECTIVE 209 See for Yourself, Resources, Key Terms 210 SUMMARY 211
Intellige	nce an	d Individual Differences in Cognition 212
Q	8.1	What Is Intelligence? 214 Psychometric Theories 214 Gardner's Theory of Multiple Intelligences 215 Sternberg's Triarchic Theory 217
O	8.2	Measuring Intelligence 220 Binet and the Development of Intelligence Testing 220 Do Tests Work? 224 Hereditary and Environmental Factors 226

Impact of Ethnicity and Social Class 229

Special Children, Special Needs 232
Gifted and Creative Children 232
Children with Mental Retardation 234
Children with Learning Disabilities 235
Intelligence and Individual Differences in Cognition IN PERSPECTIVE 237
See for Yourself, Resources, Key Terms 237
SUMMARY 239

# Language and Communication 240

9.1

### The Road to Speech 242

Elements of Language 242
Perceiving Speech 243
Public Speaking in a Few Easy Steps 245

### Learning the Meanings of Words 247

Understanding Words as Symbols 248
Styles of Learning Language 248
Fast Mapping Meanings to Words 249
Encouraging Word Learning 251

## Speaking in Sentences 254

From Two-Word Speech to Complex Sentences 255 How Children Acquire Grammar 257

# 9.4

### Using Language to Communicate 261

Taking Turns 262 Speaking Effectively 262 Listening Well 265

Language and Communication IN PERSPECTIVE 267
See for Yourself, Resources, Key Terms 268
SUMMARY 269

# Emotional Development 270

10

### **Emerging Emotions** 272

Basic Emotions 272
Complex Emotions 275
Recognizing and Using Others' Emotions 276
Regulating Emotions 278

# Temperament 280

What Is Temperament? 280
Hereditary and Environmental Contributions to Temperament 282
Stability of Temperament 283
Temperament and Other Aspects of Development 285

# 10.3

## Attachment 287

The Growth of Attachment 287 Quality of Attachment 289

Emotional Development IN PERSPECTIVE 293
See for Yourself, Resources, Key Terms 294
SUMMARY 295

# Understanding Self and Others Who Am I? Self-Concept Origins of Self-Recognition The Evolving Self-Concept 300 The Search for Identity 301 Self-Esteem 308 Measuring Self-Esteem 308 Change and Stability in Self-Esteem 311 Sources of Self-Esteem 313 Consequences of Low Self-Esteem 314 **Understanding Others** 316 Describing Others 316 Understanding What Others Think 318 Prejudice 320 Understanding Self and Others IN PERSPECTIVE 321 See for Yourself, Resources, Key Terms 322 SUMMARY 323 Moral Understanding and Behavior Self-Control 326 Beginnings of Self-Control 326 Parental Influences 329 Temperamental Influences on Self-Control 330 Improving Self-Control 332 Reasoning About Moral Issues 333 Piaget's Views 334 Kohlberg's Theory 335 Beyond Kohlberg's Theory 339 **Helping Others** 343 Development of Prosocial Behavior 343 Skills Underlying Prosocial Behavior 344 Situational Influences 345 Socializing Prosocial Behavior 346 Aggression 348 Change and Stability 349 Roots of Aggressive Behavior 350 Victims of Aggression 355 Moral Understanding and Behavior IN PERSPECTIVE 357 See for Yourself, Resources, Key Terms SUMMARY 359 Gender and Development Gender Stereotypes 362 How Do We View Men and Women? Learning Gender Stereotypes 364 Differences Related to Gender 366 Differences in Physical Development and Behavior 367 Differences in Intellectual Abilities and Achievement 368 Differences in Personality and Social Behavior 371

Frank Talk About Gender Differences