

**DEVELOPMENT**  
ACROSS THE  
**LIFESPAN**  
Robert S. Feldman

# DEVELOPMENT ACROSS THE LIFESPAN



ROBERT S. FELDMAN

University of Massachusetts at Amherst



Prentice Hall, Upper Saddle River, New Jersey 07458

Library of Congress Cataloging-in-Publication Data

Feldman, Robert S. (Robert Stephen),  
Development across the life span / Robert S. Feldman.  
p. cm  
Includes bibliographical references and index.  
ISBN 0-13-199522-7  
1. Developmental psychology. I. Title.

BF713.F45 1997  
155—dc20

96-21207  
CIP

*Editor-in-Chief:* Peter Janzow  
*Director of Production and Manufacturing:* Barbara Kittle  
*Managing Editor:* Bonnie Biller  
*Development Editor:* Robert Weiss  
*Editorial/Production Supervision:* Mary Rottino  
*Manufacturing Manager:* Nick Sklitsis  
*Prepress and Manufacturing Buyer:* Trisha Kenny  
*Creative Design Director:* Leslie Osher  
*Interior and Cover Design:* Joseph Rattan Design  
*Electronic Illustrations:* Joseph Rattan Design  
*Photo Researcher:* Eloise Marion  
*Editorial Assistant:* Marilyn Coco

Acknowledgments for copyrighted material may be found beginning on p. 727, which constitutes an extension of this copyright page.

This book was set in Minion and Syntax Black by Black Dot Graphics and was printed by Von Hoffman Company. The cover was printed by Lehigh.



© 1997 by Prentice-Hall, Inc.  
Simon & Schuster/A Viacom Company  
Upper Saddle River, New Jersey 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 0-13-199522-7

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*  
Simon & Schuster Asia Pte. Ltd., *Singapore*  
Editoria Prentice-Hall do Brasil, Ltda., *Rio de Janeiro*

To Mom,  
with love and affection



# Preface

This book tells a story: the story of our lives, and our parents' lives, and the lives of our children. It is the story of human beings, and how they get to be the way they are.

Unlike any other area of study, life-span development speaks to us in a very personal sense. It encompasses the range of human existence from its beginnings at conception to its inevitable ending at death. It is a discipline that deals with ideas and concepts and theories, but one that above all has at its heart people—our fathers and mothers, our friends and acquaintances, our very selves.

This text, *Development Across the Life Span*, seeks to capture the discipline in a way that sparks and nurtures and shapes students' interest. It is meant to excite readers about the field, to draw them into its way of looking at the world, and to mold their understanding of developmental issues. By exposing readers to both the current content and the promise inherent in life-span development, the text is designed to keep interest in the discipline alive long after students' formal study of the field has ended.

## OVERVIEW

*Development Across the Life Span* provides a broad overview of the field of human development. It covers the entire range of human life, from the moment of conception through death. The text furnishes a comprehensive introduction to the field, covering basic theories and research findings and highlighting current applications outside the laboratory. It covers the life span chronologically, encompassing the prenatal period, infancy and toddlerhood, the preschool years, middle childhood, adolescence, early and middle adulthood, and later adulthood. Within these periods, it focuses on physical, cognitive, and social and personality development.

The book seeks to accomplish the following four major goals:

- ◆ First and foremost, the book is designed to provide a broad, balanced overview of the field of life-span development. It introduces readers to the theories, research, and applications that constitute the discipline, examining both the traditional areas of the field as well as more recent innovations. The text pays particular attention to the applications developed by life-span development specialists. Although not slighting theoretical material, the text emphasizes what we know about development across the life span demonstrating how this knowledge may be applied to real-world problems. In sum, the book highlights the interrelationships among theory, research, and application, accentuating the scope and diversity of the field. It also illustrates how life-span developmentalists use theory, research, and applications to help solve significant social problems.
- ◆ The second major goal of the text is to tie development to students' lives. Findings from the study of life-span development have a significant degree of relevance to students, and this text illustrates how these findings can be applied in a meaningful, practical sense. Applications are presented in a contemporaneous framework, including current news items, timely world events, and contemporary uses of life-span development that draw readers into the field. Numerous descriptive scenarios and vignettes reflect everyday situations in people's lives, explaining how they relate to the field. For example, each chapter begins with an opening prologue that provides a real-life situation relating to the chapter subject area. All chapters also have an "Informed Consumer of Development" section, which explicitly suggests ways to apply developmental findings

to students' experience. These sections portray how these findings can be applied, in a practical, hands-on way. Each chapter also includes a feature called "Directions in Development" that discusses ways that developmental research is being used to answer the problems confronting society. For instance, policy issues such as the effects of day care on child development are considered. Finally, every chapter has an interview ("Speaking of Development") with a person working in a profession related to the chapter's topic. These interviews illustrate how a background in life-span development can be beneficial in a variety of vocations.

- ◆ The third goal of this book is to highlight both the commonalities and diversity of today's multicultural society. Consequently, every chapter has at least one "Developmental Diversity" section. These features explicitly consider how cultural factors relevant to development both unite and diversify our contemporary, global society. In addition, the book incorporates material relevant to diversity throughout every chapter.
- ◆ Finally, the fourth goal of the text is one that underlies the other three: making the field of life-span development engaging, accessible, and interesting to students. Life-span development is a joy both to study and teach, because so much of it has direct, immediate meaning to our lives. Because all of us are involved in our own developmental paths, we are tied in very personal ways to the content areas covered by the book. *Development Across the Life Span*, then, is meant to engage and nurture this interest, planting a seed that will develop and flourish throughout readers' lifetimes. To accomplish this fourth goal, the book is user-friendly. Written in a direct, conversational voice, it replicates as much as possible a dialogue between author and student. The text is meant to be understood and mastered on its own, without the intervention of an instructor. To that end, it includes a variety of pedagogical features. Each chapter contains a "Looking Ahead" overview that sets the stage for the chapter, a running glossary, a numbered summary, and a list of key terms and concepts. In addition, each chapter has three "Review and Rethink" sections that provide an enumeration of the key concepts, as well as questions that promote and test critical thinking.

*What this text is not.* It is as important to delineate what this book is *not* meant to be as it is to say what it *is* intended to do. It is *not* an applied development book, focused solely on techniques for translating the knowledge base of development into answers to societal problems. Nor is it a theory-oriented volume, focusing primarily on the field's abstract theories. Instead, it blends and integrates theory, research, and applications.

Consequently, the text does not concentrate on a few isolated areas and present them in great depth. Rather, the focus is on the breadth of human development. The strategy of concentrating on the scope of the field permits the text to explore both the traditional core areas of the discipline and evolving, nontraditional areas of development.

The book does not attempt to provide a detailed historical record of the field. Instead, it looks at the here-and-now, drawing on the past where appropriate, but with a view toward delineating the discipline as it now stands and the directions toward which it is evolving. Similarly, although providing descriptions of classic studies, the emphasis is more on current research findings and trends.

Finally, the book seeks to provide a broad overview of the field of life-span development, integrating the theory, research, and applications of the discipline. It is meant to be a text that readers will want to keep in their own personal libraries, one that they will take off the shelf when considering problems related to that most intriguing of questions: How do people get to be the way they are?



## SPECIFIC FEATURES

### PROLOGUE: DOUBLING UP



Identical twins Mark Newman and Gerald Levey.

Capt. Jim Tedesco, a volunteer firefighter from Paramus, N.J., looked across a crowded room at a firefighters' convention and was startled by what he saw. There was Mark Newman, another Paramus firefighter, and that was impossible. Newman, he knew, was back home in Paramus. But how many bald, 6-foot-6, 250-pound-plus New Jersey volunteer firemen are there who wear droopy mustaches, aviator-style eyeglasses, and a key ring on the right side of the belt?

At least two, it turned out. Striking up a conversation, Tedesco found that although the man he was speaking to looked, walked, talked, joked, and gestured just like Newman, his name was Gerald Levey. Then Tedesco learned that Levey had the same birth date as Newman—and that, like Newman, he, too, had been adopted in New York City.

Intrigued, Tedesco hatched a plan. After returning from the convention, he drove his friend Newman to Levey's firehouse in Tinton Falls, N.J., on the pretext of inspecting a new foam unit. When Newman walked in, Levey stared at him and muttered, "I've got to get a beer. That's my brother."

Newman, intent on the equipment he had come to see, walked right by Levey. "This is nothing but a pumper. So what's the big deal?" Newman complained. Tedesco grinned. "Mark, come over here and look at this firefighter," he said. "Doesn't he look familiar?" At last Newman looked at Levey. "You're right. He's big like me. He has a nose like me. He wears glasses like me. He's bald like me . . . I've got to get a beer." (Lang, 1987, p. 63)

### LOOKING — AHEAD

For 31 years, twins Levey and Newman led separate, yet surprisingly parallel, lives. Although they were separated five days after birth and adopted by different families, their similarities go well beyond coincidence. Both are bachelors attracted to tall, slender women with long hair. Both love to fish and hunt. Both enjoy John Wayne movies and Chinese food. Both worked for a time in supermarkets. One got a degree in forestry; the other worked trimming trees. One installed fire alarms; the other installed sprinkler systems. Not only do they drink the same brand of beer but they hold the can the same way, pinkie curled underneath.

Mark Newman and Gerald Levey, and other twins like them, are more than mere curiosities. They also hold part of the key to one of the fundamental puzzles of human development: How do heredity and environment interact to make us the people we are?

In this chapter, we'll examine what life-span developmentalists and other scientists have learned about ways that heredity and the environment work in tandem to shape human behavior. We begin with the basics of heredity, examining how we receive our genetic endowment. We'll consider a burgeoning area of study, behavioral genetics, that specializes in the consequences of heredity on behavior. We'll also discuss what happens when genetic factors cause development to go awry, and how such problems are dealt with through genetic counseling.

Next, we'll discuss the interaction of heredity and environment. We'll consider the relative influence of genes and environment on a variety of characteristics, including physical traits, intelligence, and even personality.

Finally, we'll focus on the very first stage of development, tracing prenatal growth and change. We'll talk about the stages of the prenatal period, and how the prenatal environment offers both threats to—and the promise of—future growth.

## CHAPTER-OPENING PROLOGUES

Each chapter begins with a short vignette, describing an individual or situation that is relevant to the basic developmental issues being addressed in the chapter. For instance, the chapter on birth describes several actual births; one of the chapters on adolescence provides an account of Cedric Jennings' life as a student in an inner-city school; and a chapter on late adulthood discusses the lives of Eva and Joseph Solymosi, married for more than seven decades.

## LOOKING AHEAD SECTIONS

These opening sections orient readers to the topics to be covered, bridging the opening prologue with the remainder of the chapter and providing orienting questions.

## Directions in Development

### Genetic Counseling: Predicting the Future from the Genes of the Present

*The last thing Joey Paulowsky needs is another bout with cancer. Only 7 years old, the Dallas native has already fought off leukemia, and now his family worries that Joey could be hit again. The Paulowsky family carries a genetic burden—a rare form of inherited cancer of the thyroid. Deborah, his mother, found a lump in her neck six years ago, and since then one family member has died of the cancer and 10 others have had to have their thyroids removed. "Do I have cancer?" Joey asks his mother. "Will it hurt?" The Paulowskys will know the answer next month, when the results of a genetic test will show whether their son carries the family's fateful mutation. (Brownlee, Cook, & Hardigg, 1994, p. 59)*



In amniocentesis, a sample of fetal cells is withdrawn from the amniotic sac and used to identify a number of genetic defects.

## DIRECTIONS IN DEVELOPMENT

Each chapter includes a section that describes current developmental research or research issues, applied to everyday problems. For instance, these sections include discussions of ways of dealing with violence, training parents, and reversing intellectual declines in the elderly.

## DEVELOPMENTAL DIVERSITY SECTION

Every chapter has at least one "Developmental Diversity" section incorporated into the text. These sections highlight issues relevant to today's multicultural society. Examples of these sections include discussions of cross-cultural differences in relationships, developing racial and ethnic awareness in childhood, adolescent race segregation, and racial differences in IQ and *The Bell Curve* controversy. <None>

### *Developmental Diversity:*

#### Cultural Differences in Physical Arousal: Might a Culture's Philosophical Outlook Be Determined by Genetics?

The Buddhist philosophy, an inherent part of many Asian cultures, emphasizes harmony and peacefulness, and suggests that one should seek the eradication of human desire. In contrast, some of the traditional philosophies of Western civilization, such as those of Martin Luther and John Calvin, accentuate the importance of controlling the anxiety, fear, and guilt that are thought to be basic parts of the human condition.

## INFORMED CONSUMER OF DEVELOPMENT

Every chapter includes information on specific uses that can be derived from research conducted by developmental investigators. For instance, the text provides concrete information on how to optimize the prenatal environment, how to assess language development, how to select a day-care provider, how to use discipline effectively, how to choose a career, and how to care for people with Alzheimer's disease.

### *The Informed Consumer of Development*

#### Optimizing the Prenatal Environment

If you are contemplating ever having a child, by this point in the chapter you may be overwhelmed by the number of things that can go wrong. Don't be. Although the environment and genetics pose their share of risks, in the vast majority of cases, pregnancy and birth proceed without mishap. Moreover, there are several things that women can do to optimize the probability that pregnancy will progress smoothly—both before and during pregnancy. Among them:

- For women who are planning to become pregnant, several precautions are in order. First, women should have nonemergency X-rays only during the first two weeks after their menstrual periods. Second, women should be vaccinated against rubella (German measles) at least three, and preferably six, months before getting pregnant. Finally, women who are planning to become pregnant should avoid the use of birth control pills at least three months before trying to conceive, because of disruptions to hormonal production caused by the pills.
- Eat well, both before and during (and after, for that matter!) pregnancy. Pregnant mothers are, as the old saying goes, eating for two. This means that it is more essential than ever to eat regular, well-balanced meals.

## SPEAKING OF DEVELOPMENT

Each chapter includes an interview with a person working in a field that uses the findings of life-span development. Among those interviewed are a toy designer, the chief of the marriage and family statistics branch of the U.S. Census Bureau, a former U.S. Secretary of Education, a child-care provider, a director of senior citizens programs, and others.

### *Speaking of Development*

#### **Lopa Malkan Wani**

Born: ..... 1965

Education: ..... Cornell University, B.A. in biology, with a concentration in genetics; Sarah Lawrence College, M.S. in genetic counseling

Position: ..... Genetic counselor for Genetrix, Inc.

Home: ..... Sacramento, California

Not only has the field of genetics significantly advanced our understanding of the way we are put together but it has spawned a new occupation: genetic counselor. Genetic counselors help people deal with the potential consequences of the genes they carry.

Lopa Wani works in two major areas of the field. "The role of the genetic counselor is a dual one," she explains. "We are concerned with prenatal genetics and pediatric genetics, which deal with different issues."

"Prenatal genetics is concerned with both the period before conception, when we focus on planned pregnancies, and the period preceding birth, when we mostly offer counseling about the risks that might be present, tests for genetic conditions, and explain the options that are available."





## Review and Rethink

### REVIEW

- Developmental specialists divide the prenatal period into three stages: germinal, embryonic, and fetal.
- The prenatal environment significantly influences the development of the baby. The diet, age, and illnesses of mothers can affect their babies' health and growth.
- Mothers who use drugs, alcohol, and tobacco can adversely affect the health and development of the unborn child. Fathers' and others' behaviors (e.g., smoking) can also affect the health of the unborn child.
- The vast majority of pregnancies and births proceed without mishap, and pregnant mothers can take positive steps to optimize their babies' chances for normal, healthy development.

### RETHINK

- Based on your knowledge of prenatal development, do you think there is any truth in the opinion that pregnant women should avoid anger in order to spare their children from entering the world angry? Why or why not?
- Studies show that crack babies who are now entering school have significant difficulty dealing with multiple stimuli and forming close attachments. How might both genetic and environmental influences have combined to produce these results?
- In addition to avoiding smoking, do you think there are other steps fathers might take to help their unborn children develop normally in the womb? What are they and how might they affect the environment of the unborn child?
- Based on your knowledge of environmental influences on unborn children, what are some steps parents can take to give the fetus a healthy prenatal environment?



## REVIEW AND RETHINK SECTIONS

Interspersed throughout each chapter are three short recaps of the chapters' main points, followed by questions designed to provoke critical thinking.

**gametes** *the sex cells from the mother and father that form a new cell at conception*

**fertilization** *the process by which a sperm and an ovum—the male and female gametes, respectively—join to form a single new cell*

**zygote** *the new cell formed by the process of fertilization*

## RUNNING GLOSSARY

Key terms are defined in the margins of the page on which the term is presented.

LOOKING  
BACK

### What is our basic genetic endowment, and how do we receive it from our parents?

1. In humans, the adult female and male sex cells, or gametes, contain 23 chromosomes each. At fertilization, ovum and sperm unite to form a single new cell, called a zygote, in the female's uterus. The zygote receives a total of 46 chromosomes from its parents. Within the 46 chromosomes is the genetic blueprint—carried in some 100,000 genes—that will guide cell activity for the rest of the individual's life.
2. Gregor Mendel discovered an important genetic mechanism. In alleles, where two competing traits are present but only one can be expressed, the offspring may receive either similar or dissimilar genes from each parent. If the offspring receives dissimilar genes (one dominant and one recessive), the dominant gene will be expressed. If the offspring receives similar genes (two dominant or two recessive genes), that gene will be expressed. Traits such as hair and eye color and the presence of phenylketonuria (PKU) are alleles and follow this pattern, but relatively few inherited traits are governed by a single pair of genes in this way.

## END-OF-CHAPTER MATERIAL

Each chapter ends with a numbered summary and a list of key terms and concepts. This material is designed to help students study and retain the information in the chapter.

## KEY TERMS AND CONCEPTS

gametes (p. 42)  
fertilization (p. 42)  
zygote (p. 42)  
genes (p. 43)

chromosomes (p. 43)  
monozygotic twins (p. 44)  
dizygotic twins (p. 44)  
genotype (p. 47)

## ANCILLARIES

*Development Across the Life Span* is accompanied by a superb set of ancillary teaching materials. They include the following:

### Instructor Supplements

**Instructor's Resource Manual**, by Gayla Preisser and Susan Horton of Mesa Community College. The 3-hole-punched IRM contains a wealth of teaching tips and creative ideas for new and experienced instructors alike. Each chapter includes: Learning Objectives; Key Terms/Concepts; Chapter Outline; Lecture Suggestions; Cooperative Learning Activities; Critical Thinking Questions/Exercises; Assignment Ideas; Reflective Journal Exercise; PH Transparencies; Suggested Films and Videos; and Handouts that can be reproduced and distributed to students.

**Teaching Transparencies for Human Development.** A full set of color transparencies add visual impact to the study of child development. Designed in large format for use in lecture hall settings, many of these high-quality images are not found in the text.

**Test Item File**, by Lynne Blesz Vestal, contains over 1900 questions and a wide range of multiple-choice items of differing levels of difficulty. Also contains Short Answer/Essay and True/False questions.

**Prentice Hall Custom Tests for Windows, Macintosh, and DOS.** Prentice Hall's exclusive computerized testing software supports a full range of editing and graphics options, network test administration capabilities, and greater ease-of-use than ever before.

**"800-Number" Telephone Test Preparation Service.** A toll-free test preparation service is also available. Instructors may call an 800-number and select up to 200 questions from the Test Item File available with the text. Prentice Hall will format the test and provide an alternate version (if requested) and answer key(s), then mail it back within 48 hours, ready for duplication.

### Videotape Support Materials

**Speaking of Development Videos.** This exclusive videotape program features interviews with eleven of the professionals highlighted within this text. Each segment visits the individual's workplace, and discusses their background in developmental issues and how it relates to their current job. The video may also provide students with some background information about future job opportunities.

#### *ABC News/Prentice Hall Video Libraries*

**Lifespan Development, 1996**

**Child Development, 1995**

**Human Development, 1993**

Three video libraries consisting of feature segments from award-winning programs such as *Nightline*, *20/20*, *PrimeTime Live*, and *The Health Show* are available to qualified adopters of *Development Across the Life Span*.

### Student Supplements

**Study Guide**, by Joyce Bishop, Golden West College. The entire Study Guide is written and designed with a unique, visual format to encourage active student involvement in the study process and to reinforce the text's pedagogical features. Each chapter includes the following: Class and Text Notes Study Outline; Learning Objectives; Critical Thinking and Workplace Application Questions; a wide range of practice multiple-choice questions with explanations for the correct answers; language-based activities to facilitate learning for non-native speakers; flash cards with key vocabulary terms and definitions; and labeling exercises based on graphics from the text.

**The New York Times Supplement for Human Development.** When you adopt *Development Across the Life Span*, Prentice Hall and the New York Times will provide you



with a complimentary student newspaper in quantities for your class. This collection of articles is designed to supplement classroom lectures and improve student access to current real-world issues and research.

## ACKNOWLEDGMENTS

I am grateful to the following reviewers who provided a wealth of comments, criticism, and encouragement:

Martin W. Berkowitz, Marquette University; Peter J. Brady, Clark State Community College; Henri Sue Bynum, Indian River Community College; Craig Cowden, Northern Virginia Community College; Robin DesJardin, John Tyler Community College; Robert Frank, Oakton Community College; Robert Hensley, Kirkwood Community College; Russell Isabella, University of Utah; Robert D. Johnson, Arkansas State University; Elaine M. Justice, Old Dominion University; Albert A. Maisto, University of North Carolina at Charlotte; Cynthia Jones Neal, Wheaton College; Sherri Addis Palmer, Northeast Missouri State University; Robert F. Schultz, Fulton-Montgomery Community College; Ralph G. Soney, Western Piedmont Community College; Mary Helen C. Spear, Prince George's Community College; Linda Q. Thede, Kent State University; Frank Vitro, Texas Woman's University; Fred W. Vondracek, Penn State University.

Many others deserve a great deal of thanks. I am indebted to the many people who provided me with a superb education, first at Wesleyan University and later at the University of Wisconsin. Specifically, Karl Scheibe played a pivotal role in my undergraduate education, and the late Vernon Allen acted as mentor and guide through my graduate years. It was in graduate school that I learned about development, being exposed to such experts as Ross Parke, John Balling, Joel Levin, Herb Klausmeier, Frank Hooper, and many others.

My education continued when I became a professor. I am especially grateful to my colleagues at the University of Massachusetts, who make the university such a wonderful place in which to teach and do research.

Several people played central roles in the development of this book. Edward Murphy brought a keen intelligence and editorial eye to the process, and the book has been greatly strengthened by his considerable input. Lucy Rinehart and Erik Coats provided research assistance, and I am thankful for their help. Most of all, John Graiff was essential in juggling and coordinating the multiple aspects of writing a book, and I am very grateful for the substantial role he played.

I am also grateful to the superb Prentice Hall team that was instrumental in the inception and development of this text. Pete Janzow oversaw the project, always demonstrating his wisdom, caniness, and creativity. Phil Miller stood behind the project, and I am grateful for his continuing support. Barbara Muller, development editor, and Bob Weiss, head of development for psychology, provided expertise and uncommon guidance. On the production end of things, Mary Rottino, assistant managing editor, and Eloise Marion, photo researcher, helped in giving the book its distinctive look. Finally, thanks to Heidi Freund, who provided moral support with her infectious enthusiasm.

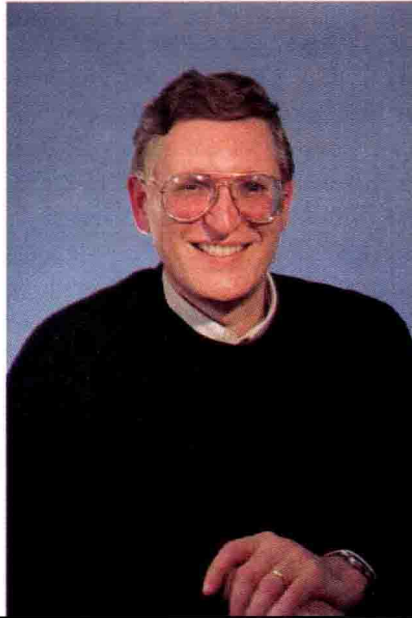
I also wish to acknowledge members of my family, who play such a pivotal role in my life. My brother, Michael, my sisters- and brothers-in-law, my nieces and nephews, all make up an important part of my life. In addition, I am always indebted to the older generation of my family, who led the way in a manner I can only hope to emulate. I will always be obligated to Ethel Radler, Harry Brochstein, and the late Mary Vorwerk. Most of all, the list is headed by my father, the late Saul Feldman, and my mother, Leah Brochstein.

In the end, it is my immediate family who deserve the greatest thanks. My three terrific kids, Jonathan, Joshua, and Sarah, not only are nice, smart, and good-looking, but also my pride and joy. And ultimately my wife, Katherine Vorwerk, provides the love and grounding that makes everything worthwhile. I thank them, with love.

*Robert S. Feldman*



# About the Author



Robert S. Feldman is professor of psychology at the University of Massachusetts in Amherst, where he is Director of Undergraduate Studies. He was educated as an undergraduate at Wesleyan University, from where he graduated with High Honors, and received an M.S. and Ph.D. from the University of Wisconsin in Madison, specializing in social and developmental psychology.

His research on the development of nonverbal behavior in children has been published in more than 100 books, chapters, articles, and presentations. He has edited *Development of Nonverbal Behavior in Children* (Springer-Verlag), *Applications of Nonverbal Behavioral Theory and Research* (Erlbaum), and co-edited *Fundamentals of Nonverbal Behavior* (Cambridge University Press), and his research has been published in such journals as *Child Development*, *Journal of Early Intervention*, *Exceptional Children*, and the *Journal of Educational Psychology*. He is the recipient of grants from the National Institute of Mental Health and the National Institute of Disabilities and Rehabilitation Research. A past Fulbright lecturer and research scholar, he is a Fellow of the American Psychological Association and American Psychological Society.

During the course of nearly two decades as a college instructor, he has taught both undergraduate and graduate courses at Mount Holyoke College, Wesleyan University, and Virginia Commonwealth University, in addition to the University of Massachusetts.

Professor Feldman is an avid—if not particularly accomplished—pianist, and an excellent cook, despite his children's aversion to his experimentation with exotic cuisines. He lives with his three children and wife, a psychologist, in Amherst, Massachusetts, in a home overlooking the Holyoke mountain range.

# Brief Contents

Preface

xxi

## **PART 1   ★   BEGINNINGS**

Chapter 1	An Introduction to Life-span Development	4
Chapter 2	The Start of Life: Prenatal Development	40
Chapter 3	Birth and the Newborn Infant	78

## **PART 2   ★   INFANCY: FORMING THE FOUNDATIONS OF LIFE**

Chapter 4	Physical Development	112
Chapter 5	Cognitive Development	146
Chapter 6	Social and Personality Development	180

## **PART 3   ★   THE PRESCHOOL YEARS**

Chapter 7	Physical and Cognitive Development	214
Chapter 8	Social and Personality Development	254

## **PART 4   ★   THE MIDDLE CHILDHOOD YEARS**

Chapter 9	Physical and Cognitive Development	292
Chapter 10	Social and Personality Development	336

## **PART 5   ★   ADOLESCENCE**

Chapter 11	Physical and Cognitive Development	374
Chapter 12	Social and Personality Development	406

## **PART 6   ★   EARLY ADULthood**

Chapter 13	Physical and Cognitive Development	442
Chapter 14	Social and Personality Development	476

## **PART 7   ★   MIDDLE ADULthood**

Chapter 15	Physical and Cognitive Development	512
Chapter 16	Social and Personality Development	542

## **PART 8   ★   LATE ADULthood**

Chapter 17	Physical and Cognitive Development	576
Chapter 18	Social and Personality Development	608

## **PART 9   ★   ENDINGS**

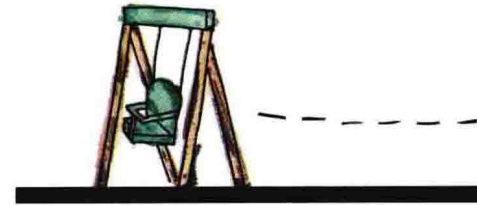
Chapter 19	Death and Dying	644
------------	-----------------	-----

Glossary	671
References	681
Acknowledgments	727
Name Index	731
Subject Index	745

# Contents

Preface      xxi

## PART 1 BEGINNINGS



### Chapter 1    An Introduction to Life-span Development      4

Prologue: From Terrorism to Heroism      5

Looking Ahead      5

#### AN ORIENTATION TO LIFE-SPAN DEVELOPMENT      6

CHARACTERIZING LIFE-SPAN DEVELOPMENT: The Scope of the Field      7

THE CONTEXT OF DEVELOPMENT: Taking a Broad Perspective      9

KEY ISSUES AND QUESTIONS: Determining the Nature—and Nurture—of Life-span Development      11

#### DIRECTIONS IN DEVELOPMENT

Violence: Dealing With a Modern-day Plague Through Developmental Psychology      14

REVIEW AND RETHINK      16

#### THEORETICAL PERSPECTIVES      16

THE PSYCHODYNAMIC PERSPECTIVE: Focusing on the Inner Person      17

THE BEHAVIORAL PERSPECTIVE: Considering the Outer Person      20

THE COGNITIVE PERSPECTIVE: Examining the Roots of Understanding      22

WHICH APPROACH IS RIGHT? The Wrong Question      24

#### DEVELOPMENTAL DIVERSITY

How Culture, Ethnicity, and Race Influence Development      25

REVIEW AND RETHINK      26

#### RESEARCH METHODS      26

THEORIES AND HYPOTHESES: Posing Developmental Questions      27

CHOOSING A RESEARCH STRATEGY: Answering Questions      28

CONDUCTING DEVELOPMENTAL RESEARCH: Choosing a Proper Strategy to

Measure Change      31

#### SPEAKING OF DEVELOPMENT

Donald J. Hernandez      32

ETHICS AND RESEARCH: The Morality of Research      34

#### THE INFORMED CONSUMER OF DEVELOPMENT

Assessing Information on Development      35

REVIEW AND RETHINK      36

Looking Back      37

Key Terms and Concepts      39

### Chapter 2    The Start of Life: Prenatal Development      40

Prologue: Doubling up      41

Looking Ahead      41

#### HEREDITY      42

FERTILIZATION: The Moment of Conception      42

GENES AND CHROMOSOMES: The Code of Life      43

THE BASICS OF GENETICS: The Mixing and Matching of Heredity      46

INHERITED AND GENETIC DISORDERS: When Development Goes Awry      50



THE ROLE OF THE ENVIRONMENT IN DETERMINING THE EXPRESSION OF GENES: From Genotypes to Phenotypes	51
<i>DIRECTIONS IN DEVELOPMENT</i>	
Genetic Counseling: Predicting the Future from the Genes of the Present	52
ALTERNATE ROUTES TO PREGNANCY: Giving Nature a Boost	54
REVIEW AND RETHINK	55
<i>SPEAKING OF DEVELOPMENT</i>	
Lopa Malkan Wani	56
<b>THE INTERACTION OF HEREDITY AND ENVIRONMENT</b>	<b>56</b>
ANSWERING THE NATURE–NURTURE RIDDLE	57
PHYSICAL TRAITS: Family Resemblances	59
INTELLIGENCE	60
GENETIC AND ENVIRONMENTAL INFLUENCES ON PERSONALITY: Born to be Outgoing?	61
<i>DEVELOPMENTAL DIVERSITY</i>	
Cultural Differences in Physical Arousal: Might a Culture’s Philosophical Outlook Be Determined by Genetics?	62
PSYCHOLOGICAL DISORDERS: The Role of Genetics and Environment	64
REVIEW AND RETHINK	66
<b>PRENATAL GROWTH AND CHANGE</b>	<b>66</b>
THE STAGES OF THE PRENATAL PERIOD: The Onset of Development	67
THE PRENATAL ENVIRONMENT: Threats to Development	69
<i>THE INFORMED CONSUMER OF DEVELOPMENT</i>	
Optimizing the Prenatal Environment	74
REVIEW AND RETHINK	75
Looking Back	75
Key Terms and Concepts	77
<b>Chapter 3 Birth and the Newborn Infant</b>	<b>78</b>
Prologue: Labor of Love	79
Looking Ahead	79
<b>BIRTH</b>	<b>80</b>
LABOR: The Process of Birth Begins	80
BIRTH: From Fetus to Neonate	82
APPROACHES TO CHILDBIRTH: Where Medicine and Attitudes Meet	84
<i>SPEAKING OF DEVELOPMENT</i>	
Kathy McCain	88
<i>THE INFORMED CONSUMER OF DEVELOPMENT</i>	
Dealing With Labor	90
REVIEW AND RETHINK	91
<b>BIRTH COMPLICATIONS</b>	<b>91</b>
PRETERM INFANTS: Too Soon, Too Small	92
<i>DIRECTIONS IN DEVELOPMENT</i>	
Treating Preterm Infants: Effective Interventions	95
POSTMATURE BABIES: Too Late, Too Large	94
CESAREAN DELIVERY: Intervening in the Process of Birth	94
INFANT MORTALITY AND STILLBIRTH	97
<i>DEVELOPMENTAL DIVERSITY</i>	
Overcoming Racial and Cultural Differences in Infant Mortality	98
REVIEW AND RETHINK	101
<b>THE COMPETENT NEWBORN</b>	<b>102</b>
PHYSICAL COMPETENCE: Meeting the Demands of a New Environment	102

THE NEWBORN'S SENSORY CAPABILITIES: Experiencing the World	103
FOUNDATIONS OF SOCIAL COMPETENCE: Responding to Others	104
<b>THE INFORMED CONSUMER OF DEVELOPMENT</b>	
First Encounters: Interacting with a Newborn	106
REVIEW AND RETHINK	107
Looking Back	108
Key Terms and Concepts	109

## PART 2

# INFANCY: FORMING THE FOUNDATIONS OF LIFE



## Chapter 4 Physical Development in Infancy 112

Prologue: First Steps	113
Looking Ahead	113

### GROWTH AND STABILITY 114

PHYSICAL GROWTH: The Rapid Advances of Infancy	114
THE NERVOUS SYSTEM AND BRAIN: The Foundations of Development	116
INTEGRATING THE BODILY SYSTEMS: The Life Cycles of Infancy	117
REVIEW AND RETHINK	121

### MOTOR DEVELOPMENT 122

REFLEXES: Our Inborn Physical Skills	122
MOTOR DEVELOPMENT IN INFANCY: Landmarks of Physical Achievement	125
<b>DEVELOPMENTAL DIVERSITY</b>	
The Cultural Dimensions of Motor Development	127
NUTRITION IN INFANCY: Fueling Motor Development	129
<b>SPEAKING OF DEVELOPMENT</b>	
J. Kenneth Whitt	132
<b>DIRECTIONS IN DEVELOPMENT</b>	
Understanding the Benefits of Breast-feeding	134
REVIEW AND RETHINK	135

### THE DEVELOPMENT OF THE SENSES 136

VISUAL PERCEPTION: Seeing the World	136
AUDITORY PERCEPTION: The World of Sound	138
SMELL AND TASTE	139
SENSITIVITY TO PAIN AND TOUCH	140
MULTIMODAL PERCEPTION: Combining Individual Sensory Inputs	141
<b>THE INFORMED CONSUMER OF DEVELOPMENT</b>	
Exercising Your Infant's Body and Senses	142
REVIEW AND RETHINK	143

Looking Back	143
Key Terms and Concepts	145

## Chapter 5 Cognitive Development in Infancy 146

Prologue: What's New Orleans?	147
Looking Ahead	147

### PIAGET'S APPROACH TO COGNITIVE DEVELOPMENT 148

THE SENSORIMOTOR PERIOD: Charting the Course of Early Cognitive Growth	149
APPRAISING PIAGET: Support and Challenges	153
<b>DIRECTIONS IN DEVELOPMENT</b>	
Mathematical Skills: The Pluses and Minuses of Infancy	155
REVIEW AND RETHINK	155

## **INFORMATION-PROCESSING APPROACHES TO COGNITIVE DEVELOPMENT 156**

THE BASICS OF LEARNING: Starting Simply	157
MEMORY DURING INFANCY: They Must Remember This . . .	159
INDIVIDUAL DIFFERENCES IN INTELLIGENCE:	
Is One Infant Smarter than Another?	161
<b>THE INFORMED CONSUMER OF DEVELOPMENT</b>	
What Can You Do to Promote Infants' Cognitive Development?	163
<b>SPEAKING OF DEVELOPMENT</b>	
Ellen Sackoff	164
REVIEW AND RETHINK	166

## **THE ROOTS OF LANGUAGE 167**

THE FUNDAMENTALS OF LANGUAGE: From Sounds to Symbols	167
SPEAKING TO CHILDREN: The Language of Motherese	172
<b>DEVELOPMENTAL DIVERSITY</b>	
Is Infant-directed Speech Similar Across All Cultures?	174
<b>THE INFORMED CONSUMER OF DEVELOPMENT</b>	
Assessing Language Development	176
REVIEW AND RETHINK	176
Looking Back	177
Key Terms	179

## **Chapter 6 Social and Personality Development in Infancy 180**

Prologue: The Velcro Chronicles	181
Looking Ahead	181

### **FORMING THE ROOTS OF SOCIABILITY 182**

EMOTIONS IN INFANCY: Do Infants Experience Emotional Highs and Lows?	182
SOCIAL REFERENCING: Feeling What Others Feel	184
THE DEVELOPMENT OF SELF: Do Infants Know Who They Are?	186
THEORY OF MIND: Infants' Perspectives on the Mental Lives of Others— and Themselves	187
REVIEW AND RETHINK	187

### **FORGING RELATIONSHIPS 188**

ATTACHMENT: Forming Social Bond	189
<b>DEVELOPMENTAL DIVERSITY</b>	
Are There Cross-cultural Differences in Attachment?	191
PRODUCING ATTACHMENT: The Roles of the Mother, Father, and Infant	192
INFANT INTERACTIONS: Developing a Working Relationship	195
INFANTS' SOCIABILITY WITH THEIR PEERS: Infant-Infant Interaction	196
<b>DIRECTIONS IN DEVELOPMENT</b>	
Infants Teaching Infants When Babies Become Experts	197
REVIEW AND RETHINK	198

### **DIFFERENCES AMONG INFANTS 199**

PERSONALITY DEVELOPMENT: The Characteristics that Make Infants Unique	199
TEMPERAMENT: Stabilities in Infant Behavior	199
GENDER: Why Do Boys Wear Blue and Girls Wear Pink?	201
FAMILY LIFE IN THE 1990s: Ozzie and Harriet Go the Way of the Dinosaurs	203
INFANT DAY CARE	204
<b>SPEAKING OF DEVELOPMENT</b>	
Melinda Rauch	206
<b>THE INFORMED CONSUMER OF DEVELOPMENT</b>	
Choosing the Right Infant Care Provider	208