CONTENTS

Acknowledgments xi
The Unschooled Mind After Twenty Years xiii

1 Introduction: The Central Puzzles of Learning 1

Intuitive Learning and Scholastic Learning 2
Three Characters in Search of a Framework 6
The Seven Intelligences 12
The Framework Found 14
Human Nature, Institutions, and Values:
The Plan for This Book 16

PART I
THE "NATURAL" LEARNER

2 Conceptualizing the Development of the Mind 25

Early Studies of the Mind 25
Jean Piaget's Pioneering Studies of Cognitive Development 27
The Mind After Piaget 32
Spanning Biology and Culture 39

3 Initial Learnings: Constraints and Possibilities 45

The Philosophical Agenda 45

The Finely Tuned Infant 47
Piaget's Portrait of Infant Cognition 50
Knowing the Social World 53
Five Footnotes to Sensorimotor Knowledge 55

4 Knowing the World Through Symbols 59

Scholars of Symbols 59
Language as a Symbol System 62
Categorizing Objects and Events 69
Play, Imagination, and the Birth of Theory 73
A Study of Early Symbolization 76
Pluralizing and Individualizing the Ways of Knowing 86

5 The Worlds of the Preschooler: The Emergence of Intuitive Understandings 91

The Child's Intuitive Theories 93
Other Early Predispositions 106
Five Constraints on Later Learning 110
A Developmental Forecast 113
The Powers and Limits of the Five-Year-Old Mind 118

PART II
UNDERSTANDING EDUCATIONAL INSTITUTIONS

6 The Values and Traditions of Education 125

Educational Options I: What Is to Be Taught? 125
Aspects of Understanding 127
Educational Options II: How Is Knowledge to Be Taught? 129
An Institution That Educates: The Apprenticeship 131

7 The Institution Called School 137

The Early School 138

The Burdens of School 141
The Three Assignments of Modern Secular Schools 142
Assessing Learning 143
The Effects of School 145
Institutional Constraints 149

8 The Difficulties Posed by School: Misconceptions in the Sciences 155

Varieties of Understanding 157
Misconceptions in Physics 164
Misconceptions in Biology 171
Problems in Mathematics: Rigidly Applied Algorithms 173

9 More Difficulties Posed by School: Stereotypes in the Social Sciences and the Humanities 181

Problems in Economics and Statistics 181
Stereotypes and Simplifications in the Humanistic Disciplines 184
Problems in Historical and Literary Studies 186
Simplifications in the Arts 190
Some Concluding Comments About Misconceptions and Stereotypes 194

PART III
TOWARD EDUCATION FOR UNDERSTANDING

10 The Search for Solutions: Dead Ends and Promising Means 199

The Limits of Basic Skills 200
Cultural Literacy for the Nation 202
A Traditional Strand in Education 203
The Progressive Strand in Education 205
The Limits of Progressive Education 209

11 Education for Understanding During the Early Years 215

Educational Environments for Young Children 216
The Example of Project Spectrum 220
Developing Literacies in the Early School Years 226
Middle Childhood: Apprenticeships and Projects 230
Schooling for Understanding in Middle Childhood 236

12 Education for Understanding During the Adolescent Years 243

Innovations Across the Curriculum 245
The Nurturing of Individual Understanding: Five Entry Points 263

13 Toward National and Global Understandings 269

The Tale So Far 270
The Four Nodes of School Reform 274
Community Versus National Control of Education 275
The Definition and Achievement of National Understandings 278
Constraints and Possibilities: A Developmentally Attuned Education 283

Notes 287
Index 311