

CONTENTS

Preface	xiii
Acknowledgments	xx
Chapter 1. Introduction to Cognitive Development	1
Basic Concepts in Cognitive Development	3
<i>Cognition</i>	3
<i>Development</i>	4
Six Truths of Cognitive Development	9
<i>Cognitive Development Proceeds as a Result of the Dynamic and Reciprocal Transaction of Internal and External Factors</i>	9
<i>Cognitive Development Is Constructed Within a Social Context</i>	11
<i>Cognitive Development Involves Both Stability and Plasticity Over Time</i>	14
<i>Cognitive Development Involves Changes in the Way Information Is Represented</i>	16
<i>Children Develop Increasing Intentional Control Over Their Behavior and Cognition</i>	17
<i>Cognitive Development Involves Changes in Both Domain-General and Domain-Specific Abilities</i>	19
Goals of Cognitive Developmentalists	21
KEY TERMS AND CONCEPTS	21
SUGGESTED READINGS	22
Chapter 2. Biological Bases of Cognitive Development	23
Evolution and Cognitive Development	25
<i>Evolutionary Theory</i>	25
<i>Evolutionary Developmental Psychology</i>	26
Models of Gene-Environment Interaction	33
<i>Developmental Systems Approach</i>	33
<i>Genotype → Environment Theory</i>	39

Development of the Brain	42
<i>Neuronal Development</i>	44
<i>How Do Young Brains Get Hooked Up?</i>	50
<i>Development of the Neocortex</i>	52
<i>The Brain's Plasticity</i>	54
Developmental Biology and Cognitive Development	60
KEY TERMS AND CONCEPTS	63
SUGGESTED READINGS	63

Chapter 3. Social Construction of Mind: Sociocultural Perspectives on Cognitive Development	65
Role of Culture in Cognitive Development	67
<i>Cognitive Development Is Inseparable From Its Cultural Context</i>	67
<i>Vygotsky's Sociocultural Theory</i>	68
Cognitive Artifacts That Support and Extend Thinking: Tools of Intellectual Adaptation	70
<i>Language Names and Numeracy</i>	71
<i>Age of Digital Natives</i>	73
<i>Sociohistorical Influences</i>	74
Social Origins of Early Cognitive Competencies	76
<i>Studying Children in Natural Settings</i>	76
<i>Zone of Proximal Development</i>	78
<i>Apprenticeship in Thinking and Guided Participation</i>	80
Sociocultural Theory and Cognitive Development	90
KEY TERMS AND CONCEPTS	90
SUGGESTED READINGS	91

Chapter 4. Infant Perception and Cognition	92
Basic Perceptual Abilities of Young Infants	93
Methodologies Used to Assess Infant Perception	95
<i>"This Sucks": Using Infant Sucking to Provide Insight Into Infant Perception</i>	95
<i>Visual Preference Paradigm</i>	96
<i>Habituation/Dishabituation Paradigm</i>	97
Development of Visual Perception	99
<i>Vision in the Newborn</i>	100
<i>Development of Visual Preferences</i>	101
<i>Development of Face Processing</i>	105

Auditory Development	110
<i>Speech Perception</i>	112
<i>Music Perception</i>	114
Combining Senses	115
<i>Intersensory Integration</i>	116
<i>Intersensory Matching</i>	117
Perceptual Narrowing	118
<i>Perceptual Narrowing for Facial Discrimination</i>	118
<i>Perceptual Narrowing in Speech Perception</i>	119
<i>Perceptual Narrowing and Music</i>	121
<i>Perceptual Narrowing Within Intersensory Integration</i>	122
<i>Perceptual Narrowing as an Evolved Social-Cognitive Mechanism</i>	123
How Do We Know What Babies Know? The Violation-of-Expectation Method	124
Core Knowledge	125
<i>Object Representation</i>	127
<i>Early Number Concepts</i>	138
<i>Newborn Statisticians?</i>	141
<i>Arguments Against Core Knowledge</i>	142
What Is Infant Cognition Made Of?	145
KEY TERMS AND CONCEPTS	146
SUGGESTED READINGS	146
Chapter 5. Thinking in Symbols: Development of Representation	147
Learning to Use Symbols	148
<i>Young Children's Interpretation of Pictures and Models</i>	148
<i>Appearance/Reality Distinction</i>	151
Piaget's Theory	154
<i>Some Assumptions of Piaget's Theory</i>	154
<i>Stages of Development</i>	159
<i>Culture and Symbolic Development</i>	174
<i>State of Piaget's Theory Today</i>	176
Everyday Expressions of the Symbolic Function	181
<i>Symbolic Play</i>	181
<i>Distinguishing Between Fantasy and Reality</i>	183
Causal Representation	187
<i>Constructing Causal Maps</i>	187
<i>Role of Play in Causal Learning</i>	191

Fuzzy-Trace Theory	193
<i>Assumptions of Fuzzy-Trace Theory</i>	193
<i>Developmental Differences</i>	195
The Symbolic Species	196
KEY TERMS AND CONCEPTS	197
SUGGESTED READINGS	197

Chapter 6. Development of Folk Knowledge 199

Theory Theories of Cognitive Development	200
Folk Psychology: Developing a Theory of Mind	202
<i>Basic Social-Cognitive Skills Underlying Theory of Mind</i>	203
<i>Development of Mind Reading</i>	205
<i>Theory of Mind, Evolved Modules, and Autism</i>	213
<i>Extending Theory of Mind</i>	216
<i>Final Reflections on Theory of Mind</i>	218
Folk Biology: Understanding the Biological World	220
<i>Is It Alive?</i>	220
<i>What Young Children Know and Don't Know About Biology</i>	222
<i>Where Do Babies Come From?</i>	224
Folk Physics: Understanding the Physical World	226
<i>Development of Spatial Cognition</i>	226
<i>Object-Oriented Play and Tool Use</i>	233
<i>Tool Innovation</i>	239
<i>Children's Understanding of Time</i>	240
<i>Final Reflections on Children's Understanding of the Physical World</i>	243
KEY TERMS AND CONCEPTS	245
SUGGESTED READINGS	245

Chapter 7. Learning to Think on Their Own: Executive Function, Strategies, and Problem Solving 246

Assumptions of Information-Processing Approaches	247
Development of Basic-Level Processes: Executive Function	250
<i>Speed of Processing</i>	251
<i>Memory Span and Working Memory</i>	251
<i>Learning How Not to Respond: Inhibition and Resistance to Interference</i>	256
<i>Cognitive Flexibility</i>	260

<i>Executive Function, Self-Control, and “Hot” EF</i>	261
<i>Executive Functioning and Brain Development</i>	261
<i>Final Thoughts on Executive Function</i>	264
Development of Strategies	266
<i>Increases in Strategy Use, Improvements in Performance</i>	266
<i>Utilization Deficiencies</i>	267
<i>How Do Children’s Strategies Develop?</i>	269
<i>Development of Memory Strategies</i>	271
<i>Factors That Influence Children’s Strategy Use and Effectiveness</i>	274
<i>Culture and Strategies in the Classroom</i>	283
Learning to Solve Problems	286
<i>Development of Problem Solving</i>	287
<i>Reasoning</i>	289
KEY TERMS AND CONCEPTS	298
SUGGESTED READINGS	298
Chapter 8. Memory Development	300
Representation of Knowledge	301
Memory Development in Infancy	303
<i>Preference for Novelty as an Indication of Memory</i>	304
<i>Kicking Up Their Heels</i>	305
<i>Deferred Imitation as a Measure of Memory</i>	308
<i>Neurological Basis of Infant Memory</i>	310
Infantile Amnesia	313
<i>Why Can’t We Remember Events From Infancy and Early Childhood?</i>	314
<i>Infantile Amnesia and Hypnotic Age Regression</i>	317
Implicit Memory	318
Development of Event Memory	320
<i>Script-Based Memory</i>	321
<i>Role of Parents in “Teaching” Children to Remember</i>	323
Children as Eyewitnesses	327
<i>Age Differences in Children’s Eyewitness Memories</i>	328
<i>Age Differences in Suggestibility</i>	334
<i>Final Thoughts on Children as Eyewitnesses</i>	340
Remembering to Remember	342
KEY TERMS AND CONCEPTS	344
SUGGESTED READINGS	344

Chapter 9. Language Development	346
What Is Language?	347
Describing Children's Language Development	349
<i>Phonological Development</i>	349
<i>Morphological Development</i>	352
<i>Syntactic Development</i>	353
<i>Semantic Development</i>	357
<i>Pragmatics</i>	361
Some Theoretical Perspectives of Language Development	368
<i>Nativist Perspectives on Language Development</i>	371
<i>Social-Interactionist Perspectives of Language Development</i>	380
Bilingualism and Second-Language Learning	389
Sex Differences in Language Acquisition	391
Language and Thought	393
KEY TERMS AND CONCEPTS	396
SUGGESTED READINGS	396
Chapter 10. Social Cognition	398
Social Learning	400
<i>Bandura's Social Cognitive Theory</i>	401
<i>Forms of Social Learning</i>	403
<i>Age Differences in Social Learning</i>	405
<i>Mirror Neurons: The Foundation of Social Learning?</i>	414
Social Information Processing	417
Development of a Concept of Self	420
<i>Beginning of Self-Awareness</i>	421
<i>Development of Self-Efficacy</i>	423
Cognitive Bases of Gender Identity	426
<i>Gender Constancy</i>	426
<i>Gender Schemas</i>	429
<i>Gender Cognition in Transgender Children</i>	434
<i>Children's Theories of Gender</i>	437
How Special Is Social Cognition?	438
KEY TERMS AND CONCEPTS	439
SUGGESTED READINGS	439

Chapter 11. Schooling and Cognitive Development	440
Development of Reading Skills	441
<i>Overview of Learning to Read</i>	441
<i>Cognitive Development and Reading</i>	445
<i>Sex Differences in Reading and Verbal Abilities</i>	451
Children's Number and Arithmetic Concepts	456
<i>Integrative Theory of Numerical Development</i>	457
<i>Development of Conceptual and Procedural Mathematical Knowledge</i>	459
<i>Variations in Developing Mathematical Proficiency:</i> <i>Math Disabilities, Cultural Differences, and Sex Differences</i>	468
Schooling and Cognitive Development	478
<i>Schooling Versus Age Effects on Intelligence</i>	478
<i>Effect of Schooling on IQ</i>	480
Evolutionary Educational Psychology	481
<i>Principles of Evolutionary Educational Psychology</i>	482
<i>Costs and Benefits of Academic Preschools</i>	484
<i>"Educational" DVDs and Videos for Infants</i>	487
<i>Physical Activity</i>	489
KEY TERMS AND CONCEPTS	491
SUGGESTED READINGS	491
Chapter 12. Approaches to the Study of Intelligence	493
Psychometric Approach to the Study of Intelligence	495
<i>Factors of Intelligence</i>	495
<i>IQ Tests</i>	498
Information-Processing Approaches to the Study of Intelligence	508
<i>Basic-Level Processes</i>	509
<i>Higher-Order Cognitive Abilities</i>	511
Sternberg's Theory of Successful Intelligence	517
<i>Sternberg's Contextual Subtheory, or Practical Intelligence</i>	517
<i>Sternberg's Experiential Subtheory, or Creative Intelligence</i>	519
<i>Sternberg's Componential Subtheory, or Analytic Intelligence</i>	520
Gardner's Theory of Multiple Intelligences	524
<i>Criteria of an Intelligence</i>	527
<i>Multiple Intelligences and Education</i>	529
KEY TERMS AND CONCEPTS	532
SUGGESTED READINGS	532

Chapter 13. Origins, Modification, and Stability of Intellectual Differences	534
Transactional Approach to the Study of Intelligence	536
Behavioral Genetics and the Heritability of Intelligence	539
<i>Concept of Heritability</i>	540
<i>Elementary Cognitive Tasks and Intelligence</i>	542
<i>Familial Studies of Intelligence</i>	543
<i>Role of the Environment in Behavioral Genetics Analyses</i>	545
Experience and Intelligence	550
<i>Establishing Intellectual Competence</i>	550
<i>Modification and Maintenance of Intellectual Functioning</i>	557
<i>How Modifiable Is Human Intelligence?</i>	565
Stability of Intelligence	566
<i>Defining Stability</i>	566
<i>Predicting Later Intelligence From Tests in Infancy</i>	567
<i>Stability of IQ Scores During Childhood</i>	572
<i>Patterns of IQ Change During Childhood</i>	572
<i>Are People Getting Smarter? The Flynn Effect</i>	575
KEY TERMS AND CONCEPTS	579
SUGGESTED READINGS	579
Glossary	G-1
References	R-1
Index	I-1