Contents

Foreword
ROBERT J. STERNBERG viii

Preface
Acknowledgement x xi

1 A Growing Sense of “Agency”
DOUGLAS J. HACKER, JOHN DUNLOSKY, AND ARTHUR C. GRAESSER 1

PART I
Comprehension Strategies 5

2 The Role of Metacognition in Understanding and Supporting Reading Comprehension
MARGARET G. McKEOWN AND ISABEL L. BECK 7

3 The Role of Metacognition in Teaching Reading Comprehension to Primary Students
JOANNA P. WILLIAMS AND J. GRANT ATKINS 26

PART II
Metacognitive Strategies 45

4 Question Generation and Anomaly Detection in Texts
JOSE OTERO 47

5 Self-Explanation and Metacognition: The Dynamics of Reading
DANIELLE S. McNAMARA AND JOSEPH P. MAGLIANO 60

PART III
Metacomprehension 83

6 Metacognitive Monitoring During and After Reading
KEITH W. THIEDE, THOMAS D. GRIFFIN, JENNIFER WILEY, AND JOSHUA S. REDFORD 85
The Importance of Knowing What You Know: A Knowledge Monitoring Framework for Studying Metacognition in Education
SIGMUND TOBIAS AND HOWARD T. EVERSON

PART IV
Writing

8 Metacognition and Children's Writing
KAREN R. HARRIS, STEVE GRAHAM, MARY BRINDLE, AND KARIN SANDMEL

9 Writing is Applied Metacognition
DOUGLAS J. HACKER, MATT C. KEENER, AND JOHN C. KIRCHER

PART V
Science and Mathematics

10 The Interplay of Scientific Inquiry and Metacognition: More than a Marriage of Convenience
BARBARA WHITE, JOHN FREDERIKSEN, AND ALLAN COLLINS

11 The Enigma of Mathematical Learning Disabilities: Metacognition or STICORDI, That's the Question
ANNEMIE DESOETE

PART VI
Individual Differences

12 Context Matters: Gender and Cross-Cultural Differences in Confidence
MARY LUNDEBERG AND LINDSEY MOHAN

13 Teachers as Metacognitive Professionals
GERALD G. DUFFY, SAMUEL MILLER, SETH PARSONS, AND MICHAEL MELOTH

PART VII
Self-Regulated Learning

14 Supporting Self-Regulated Learning with Cognitive Tools
PHILIP H. WINNE AND JOHN C. NESBIT

15 Effective Implementation of Metacognition
MICHAEL J. SERRA AND JANET METCALFE

16 Self-Regulation: Where Metacognition and Motivation Intersect
BARRY J. ZIMMERMAN AND ADAM R. MOYLAN
PART VIII
Technology

17 Self-Regulated Learning with Hypermedia
ROGER AZEVEDO AND AMY M. WITHERSPOON

18 Interactive Metacognition: Monitoring and Regulating a Teachable Agent
DANIEL L. SCHWARTZ, CATHERINE CHASE, DORIS B. CHIN, MARILY OPPEZZO, HENRY KWONG, SANDRA OKITA, GAUTAM Biswas, ROD ROSCOE, HOGYEONG JEONG, AND JOHN WAGSTER

PART IX
Tutoring

19 Meta-Knowledge in Tutoring
ARTHUR C. GRAESSER, SIDNEY D'MELLO, AND NATALIE PERSON

20 In Vivo Experiments on Whether Supporting Metacognition in Intelligent Tutoring Systems Yields Robust Learning
KEN KOEDINGER, VINCENT ALEVEN, IDO ROLL, AND RYAN BAKER

PART X
Measurement

21 Measuring Metacognitive Judgments
GREGORY SCHRAW

22 Sins Committed in the Name of Ecological Validity: A Call for Representative Design in Education Science
JOHN DUNLOSKY, SARA BOTTIROLI, AND MARISSA HARTWIG

Index