

Contents

<i>List of Figures</i>	page	viii
<i>List of Tables</i>		xiii
<i>List of Contributors</i>		xv
How Cognitive Psychology Can Inform Evidence-Based Education Reform: An Overview of <i>The Cambridge Handbook of Cognition and Education</i>		1
JOHN DUNLOSKY AND KATHERINE A. RAWSON		
Part I Foundations		15
1 How the Learning Sciences Can Inform Cognitive Psychology		17
KEITH SAWYER AND JOHN DUNLOSKY		
2 Quackery in Educational Research		35
DANIEL H. ROBINSON AND JOEL R. LEVIN		
Part II Science and Math		49
3 Teaching Critical Thinking as if Our Future Depends on It, Because It Does		51
DIANE F. HALPERN AND HEATHER A. BUTLER		
4 Improving Students' Scientific Thinking		67
DAVID KLAHR, CORINNE ZIMMERMAN, AND BRYAN J. MATLEN		
5 Spatial Skills, Reasoning, and Mathematics		100
NORA S. NEWCOMBE, JULIE L. BOOTH, AND ELIZABETH A. GUNDERSON		
6 Iterative Development of Conceptual and Procedural Knowledge in Mathematics Learning and Instruction		124
BETHANY RITTLE-JOHNSON		
7 Development of Fraction Understanding		148
POOJA G. SIDNEY, CLARISSA A. THOMPSON, AND JOHN E. OPFER		

vi	Contents	
	8 Learning How to Solve Problems by Studying Examples	183
	TAMARA VAN GOG, NIKOL RUMMEL, AND ALEXANDER RENKL	
	9 Harnessing Our Hands to Teach Mathematics: How Gesture Can Be Used as a Teaching Tool in the Classroom	209
	ELIZABETH M. WAKEFIELD AND SUSAN GOLDIN-MEADOW	
	Part III Reading and Writing	235
	10 Fundamental Components of Reading Comprehension	237
	ANNE E. COOK AND EDWARD J. O'BRIEN	
	11 Writing as a Learning Activity	266
	PERRY D. KLEIN AND AARTJE VAN DIJK	
	12 Bilingualism and Education: Bridging Cognitive Science Research to Language Learning	292
	GIGI LUK AND JUDITH F. KROLL	
	13 Note-Taking	320
	STEPHEN T. PEVERLY AND AMIE D. WOLF	
	14 Multiple-Text Comprehension	356
	JEAN-FRANÇOIS ROUET, M. ANNE BRITT, AND ANNA POTOCKI	
	15 Interventions to Promote Reading for Understanding: Current Evidence and Future Directions	381
	ELIZABETH A. STEVENS AND SHARON VAUGHN	
	Part IV General Learning Strategies	409
	16 When Does Interleaving Practice Improve Learning?	411
	PAULO F. CARVALHO AND ROBERT L. GOLDSTONE	
	17 Correcting Student Errors and Misconceptions	437
	ELIZABETH J. MARSH AND EMMALINE DREW ELISEEV	
	18 How Multimedia Can Improve Learning and Instruction	460
	RICHARD E. MAYER	
	19 Multiple-Choice and Short-Answer Quizzing on Equal Footing in the Classroom: Potential Indirect Effects of Testing	480
	MARK A. MCDANIEL AND JERI L. LITTLE	
	20 Collaborative Learning: The Benefits and Costs	500
	TIMOTHY J. NOKES-MALACH, CRISTINA D. ZEPEDA, J. ELIZABETH RICHEY, AND SONIYA GADGIL	
	21 Self-Explaining: Learning About Principles and Their Application	528
	ALEXANDER RENKL AND ALEXANDER EITEL	

	Contents	vii
22	Enhancing the Quality of Student Learning Using Distributed Practice MELODY WISEHEART, CAROLINA E. KÜPPER-TETZEL, TINA WESTON, ALICE S. N. KIM, IRINA V. KAPLER, AND VANESSA FOOT-SEYMOUR	550
	Part V Metacognition	585
23	Self-Regulation in Computer-Assisted Learning Systems ROGER AZEVEDO, NICHOLAS V. MUDRICK, MICHELLE TAUB, AND AMANDA E. BRADBURY	587
24	Improving Students' Metacomprehension Accuracy THOMAS D. GRIFFIN, MARTA K. MIELICKI, AND JENNIFER WILEY	619
25	Calibration and Self-Regulated Learning: Making the Connections DOUGLAS J. HACKER AND LINDA BOL	647
26	Teachers' Judgments of Student Learning of Mathematics KEITH W. THIEDE, STEVEN OSWALT, JONATHAN L. BRENDEFUR, MICHELE B. CARNEY, AND RICHARD D. OSGUTHORPE	678
27	Learning Strategies and Self-Regulated Learning PHILIP H. WINNE AND ZAHIA MARZOUK	696
	<i>Index</i>	716