Contents

1 Learning from Multimedia: Cognitive Processes and Instructional Support 1
Katharina Scheiter, Anne Schüler, and Alexander Eitel

2 The Physiology of Numerical Learning: From Neural Correlates to Embodied Trainings 21
Ursula Fischer, Elise Klein, Tanja Dackermann, and Korbinian Moeller

3 Digital Pictures, Videos, and Beyond: Knowledge Acquisition with Realistic Images 41
Stephan Schwan

4 Learning and Problem-Solving with Hypermedia in the Twenty-First Century: From Hypertext to Multiple Web Sources and Multimodal Adaptivity 61
Peter Gerjets

5 Knowledge Exchange as a Motivated Social Process 89
Annika Scholl, Florian Landkammer, and Kai Sassenberg

6 A Conceptual Framework of Knowledge Exchange 105
Jürgen Buder

7 The Interrelations of Individual Learning and Collective Knowledge Construction: A Cognitive-Systemic Framework 123
Ulrike Cress and Joachim Kimmerle

8 Digital Design and Learning: Cognitive-Constructivist Perspectives 147
Carmen Zahn

9 Knowledge Networks in Social Media..... 171
Sonja Utz and Ana Levordashka

Afterword..... 187
Hans Spada

Index..... 201