# Table of Contents

**Preface** .................................................................................................................................................. xx

**Acknowledgment** ............................................................................................................................... xxvii

## Section 1
**Educational Games: Theoretical Perspectives**

**Chapter 1**
What Cognitive Psychology Can Tell Us About Educational Computer Games ........................................ 1
  *Michael K. Gardner, University of Utah, USA*
  *David L. Strayer, University of Utah, USA*

**Chapter 2**
The Role of Metacognition in Learning via Serious Games ..................................................................... 19
  *Douglas J. Hacker, University of Utah, USA*

**Chapter 3**
Learning from Social Collaboration: A Paradigm Shift in Evaluating Game-Based Learning ................. 41
  *Kimmo Oksanen, University of Jyväskylä, Finland*
  *Timo Lainema, University of Turku, Finland*
  *Raija Hämäläinen, University of Jyväskylä, Finland*

**Chapter 4**
A Framework for Promoting Knowledge Transfer in SNS Game-Based Learning ............................... 66
  *Robert Z. Zheng, University of Utah, USA*
  *Thanh N. Truong, University of Utah, USA*

## Section 2
**Educational Games: Cognitive and Psychological Perspectives**

**Chapter 5**
Using Video Games to Improve Spatial Skills ........................................................................................... 93
  *HeeSun Choi, North Carolina State University, USA*
  *Jing Feng, North Carolina State University, USA*
Chapter 6
Dino Lab: Designing and Developing an Educational Game for Critical Thinking
Kirsten R. Butcher, University of Utah, USA
Madlyn Runburg, Natural History Museum of Utah, USA
Roger Altizer, University of Utah, USA

Chapter 7
Designing BioSim: Playfully Encouraging Systems Thinking in Young Children
Naomi Thompson, Indiana University, USA
Kylie Peppler, Indiana University, USA
Joshua Danish, Indiana University, USA

Chapter 8
A Game-Based Approach to Teaching Social Problem-Solving Skills
Rebecca P. Ang, Nanyang Technological University, Singapore
Jean Lee Tan, Ministry of Education, Singapore
Dion H. Goh, Nanyang Technological University, Singapore
Vivien S. Huan, Nanyang Technological University, Singapore
Yoon Phaik Ooi, Nanyang Technological University, Singapore
Jillian S. T. Boon, Institute of Mental Health, Singapore
Daniel S. S. Fung, Institute of Mental Health, Singapore

Section 3
Educational Games: Instructional Design Perspectives

Chapter 9
Design of Fantasy and Their Effect on Learning and Engagement in a Serious Game
Jaejin Lee, University of Seoul, South Korea
Min Liu, The University of Texas at Austin, USA

Chapter 10
Game Design as a Complex Problem Solving Process
Mete Akcaoglu, Georgia Southern University, USA
Antonio P. Gutierrez, Georgia Southern University, USA
Charles B. Hodges, Georgia Southern University, USA
Philipp Sonnleitner, University of Luxembourg, Luxembourg

Chapter 11
Designing Intrinsic Integration of Learning and Gaming Actions in a 3D Architecture Game
Fengfeng Ke, Florida State University, USA
Chapter 12
Designing Engaging Educational Games and Assessing Engagement in Game-Based Learning
Xun Ge, University of Oklahoma, USA
Dirk Ifenthaler, University of Mannheim, Germany

Section 4
Educational Games: Teaching and Learning Perspectives

Chapter 13
Augmented Reality in Informal Learning Settings: Leveraging Technology for the Love of History
Eric G. Poitras, University of Utah, USA
Jason M. Harley, University of Alberta, Canada
Timothy Compeau, Brock University, Canada
Kevin Kee, University of Ottawa, Canada
Susanne P. Lajoie, McGill University, Canada

Chapter 14
Stories, Games, and Learning through Play: The Affordances of Game Narrative for Education
Stephen T. Slota, University of Connecticut, USA
Michael F. Young, University of Connecticut, USA

Chapter 15
Factors That Explain Adolescent and Young Adult Mobile Game Play, Part 1: A Quantitative Examination of the Characteristics Describing the Casual Player
Boaventura DaCosta, Solers Research Group, USA
Soonhwa Seok, Korea University, South Korea

Chapter 16
Factors That Explain Adolescent and Young Adult Mobile Game Play, Part 2: A Quantitative Examination of the Casual Player in the Context of Age and Gender
Boaventura DaCosta, Solers Research Group, USA
Soonhwa Seok, Korea University, South Korea

Chapter 17
Level Up: Multiple Player Professional Development
Oliver Dreon, Millersville University, USA
Greg Szczyrbak, Millersville University, USA