# Table of Contents

Foreword ........................................................................................................................................... xiv

Preface ................................................................................................................................................ xvi

Acknowledgment .............................................................................................................................. xxiv

## Section 1
**Historical Perspectives**

**Chapter 1**
Video Games Revisited ......................................................................................................................... 1

*Patricia M. Greenfield, University of California - Los Angeles, USA*

**Chapter 2**
Distinctions Between Games and Learning: A Review of Current Literature on Games in Education .............................................................................................................................. 22

*Katrin Becker, Simon Fraser University, Canada*

**Chapter 3**
MMORPGs in Support of Learning: Current Trends and Future Uses .............................................. 55

*Bodi Anderson, Northern Arizona University, USA*

## Section 2
**New Theories and Models**

**Chapter 4**
Elemental Learning and the Pyramid of Fidelity .................................................................................. 82

*J. V. Dempsey, University of South Alabama, USA*

**Chapter 5**
Feedforward as an Essential Active Principle of Engagement in Computer Games .......................... 108

*Richard H. Swan, BYU Center for Teaching & Learning, USA*
Chapter 6
Cognitive Load and Empathy in Serious Games: A Conceptual Framework ........................................... 137
Wen-Hao David Huang, University of Illinois, Urban-Champaign, USA
Sharon Tettegah, University of Illinois, Urban-Champaign, USA

Section 3
Theory Into Practice

Chapter 7
Effective Knowledge Development in Game-Based Learning Environments:
Considering Research in Cognitive Processes and Simulation Design ........................................... 152
Amy B. Adcock, Old Dominion University, USA
Ginger S. Watson, Old Dominion University, USA
Gary R. Morrison Old Dominion University, USA
Lee A. Belfore, Old Dominion University, USA

Chapter 8
Learners’ Cognitive Load When Using Educational Technology ...................................................... 169
Renae Low, University of New South Wales, Australia
Putai Jin, University of New South Wales, Australia
John Sweller, University of New South Wales, Australia

Chapter 9
Making a Connection: Game Genres, Game Characteristics, and Teaching Structures ................. 189
Dennis Charsky, Ithaca College, USA

Chapter 10
Activity-Based Scenario Design, Development, and Assessment in Serious Games .......................... 213
Tim Marsh, National University of Singapore, Singapore

Section 4
Research and Design

Chapter 11
Introducing Flowometer: A CyGaMEs Assessment Suite Tool ......................................................... 227
Debbie Denise Reese, Wheeling Jesuit University, USA

Chapter 12
Different Strokes for Different Folks: Tapping Into the Hidden Potential of Serious Games ............. 255
Brian Magerko, Georgia Institute of Technology, USA
Carrie Heeter, Michigan State University, USA
Ben Medler, Georgia Institute of Technology, USA
Section 5
Practitioner Perspectives

Chapter 13
Developing Serious Games for Learning Language-in-Culture ......................................................... 281
K. A. Barrett, University of New Mexico, USA
W. Lewis Johnson, Alelo, Inc., USA

Chapter 14
Principles and Signatures in Serious Games for Science Education .................................................. 312
Otto Borchert, North Dakota State University, USA
Lisa Brandt, North Dakota State University, USA
Guy Hokanson, North Dakota State University, USA
Brian M. Slator, North Dakota State University, USA
Bradley Vender, North Dakota State University, USA
Eric J. Gutierrez, Northern Arizona University, USA

Top Interdisciplinary Game Texts ............................................................................................................. 339

Compilation of References ..................................................................................................................... 350

About the Contributors ........................................................................................................................... 390

Index .......................................................................................................................................................... 397