Table of Contents

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

Acknowledgment .................................................................................................................................. xx

Section 1
Virtual Immersive Spaces and their Popularization

Chapter 1
Assessing the Application of 3D Collaborative Interfaces within an Immersive Virtual University ........................................................................................................................................... 1
   Gavin McArdle, University College Dublin, Ireland
   Bianca Schön, University College Dublin, Ireland
   Michela Bertolotto, University College Dublin, Ireland

Chapter 2
Virtual Worlds: Corporate Early Adopters Pave the Way ................................................................. 25
   Catherine M. J. Lithgow, University of Maryland Baltimore County, USA
   Judi L. Davidson Wolf, University of Maryland Baltimore County, USA
   Zane L. Berge, University of Maryland Baltimore County, USA

Section 2
Immersive Learning Strategies

Chapter 3
Practice What You Preach: Experiences with Teaching Virtual World Concepts in a Virtual World ............................................................................................................................................. 45
   Laura Benvenuti, Dutch Open University, The Netherlands
   Gerrit C. Van Der Veer, Dutch Open University, The Netherlands
Chapter 4
Learning Assignments in Virtual Worlds: Theoretical Systematization and Didactical Requirements
Tanja Adamus, University Duisburg-Essen, Germany
Nadine Ojstersek, University Duisburg-Essen, Germany
Axel Nattland, University Duisburg-Essen, Germany
Michael Kerres, University Duisburg-Essen, Germany

Chapter 5
Immersive Language Learning in Collaborative Virtual Environments: The Current Status and Possible Trends
Ya-Chun Shih, National Dong Hwa University, Taiwan

Chapter 6
Unpacking Strong vs. Weak Presence in Second Life Enactive Role Play
Caroline M. L. Ho, Nanyang Technological University, Singapore

Section 3
The Design of 3D Immersive Spaces

Chapter 7
Collaborating to Learn: Designing and Building 3D Immersive Virtual Learning Environments for Exploring STEM Concepts in Middle School
Nita J. Matzen, Appalachian State University, USA
William Edward Roberts, Appalachian State University, USA
Penny Barker, Ashe County Schools, USA
Julie Marklin, Davie County Schools, USA

Chapter 8
Scaffolding Discovery Learning in 3D Virtual Environments: Challenges and Considerations for Instructional Design
Mark J.W. Lee, Charles Sturt University, Australia
Barney Dalgarno, Charles Sturt University, Australia

Chapter 9
Legal and Ethical Aspects of Teaching in Selected Social Virtual Worlds: A Review of the Literature
Rosemary S. Talab, Kansas State University, USA
Hope R. Botterbusch, Kansas State University, USA
Chapter 10
JavaMOO Virtual Cells in Science Learning
Bradley Vender, North Dakota State University, USA
Otto Borchert, North Dakota State University, USA
Ben Dischinger, North Dakota State University, USA
Guy Hokanson, North Dakota State University, USA
Phillip E. McClean, North Dakota State University, USA
Brian M. Slator, North Dakota State University, USA

Chapter 11
Capitalizing on Immersive Persistence as an Emergent Design Concept (A Position Paper)
Shalin Hai-Jew, Kansas State University, USA

Section 4
Technological Accessibility Functionalities

Chapter 12
A Computational Model of Non-Visual Spatial Learning
Kanubhai K. Patel, Ahmedabad University, India
Sanjay Kumar Vij, SVIT, India

Chapter 13
Signing Avatars
Nicoletta Adamo-Villani, Purdue University, USA
Kyle Hayward, Purdue University, USA

Section 5
Risks in the Immersive Learning

Chapter 14
Crouching Tangents, Hidden Danger: Assessing Development of Dangerous Misconceptions within Serious Games for Healthcare Education
Miguel A. Garcia-Ruiz, University of Colima, Mexico
Jayshiro Tashiro, University of Ontario Institute of Technology, Canada
Bill Kapralos, University of Ontario Institute of Technology, Canada
Miguel Vargas Martin, University of Ontario Institute of Technology, Canada

Chapter 15
Mitigating Negative Learning in Immersive Spaces and Simulations
Shalin Hai-Jew, Kansas State University, USA
Appendix
Unintended Negative Learning with an Industrial Simulation .................................................. 330
   Roger W. McHaney, Kansas State University, USA

Appendix
Negative Learning and its Mitigation in Army Simulations................................................... 333
   Brent A. Anders, Kansas State University, USA

Compilation of References ......................................................................................................... 336

About the Contributors ............................................................................................................. 374

Index........................................................................................................................................ 383