Serious Games

Mechanisms and Effects

Edited by
Ute Ritterfeld
Michael Cody
Peter Vorderer
# Contents

*Foreword: From Virtual U to Serious Games to Something Bigger*  
BEN SAWYER  
xi

*Editors*  
 xvii

*Contributors*  
 xviii

*List of Figures and Tables*  
xxi

## PART I  
**Serious Games: Explication of an Oxymoron**  
1 Introduction  
UTE RITTERFELD, MICHAEL CODY, AND PETER VORDERER  
3

2 Classifying Serious Games  
RABINDRA RATAN AND UTE RITTERFELD  
10

3 Enjoyment of Digital Games: What Makes Them “Seriously” Fun?  
HUA WANG, CUIHUA SHEN, AND UTE RITTERFELD  
25

4 Serious Games and Seriously Fun Games: Can They Be One and the Same?  
CUIHUA SHEN, HUA WANG, AND UTE RITTERFELD  
48

## PART II  
**Theories and Mechanisms**  
63

### SECTION I  
**Serious Games For Learning**  
65

5 Deep Learning Properties of Good Digital Games: How Far Can They Go?  
JAMES PAUL GEE  
67
6 Deep Learning and Emotion in Serious Games
ARTHUR GRAESSER, PATRICK CHIPMAN, FRANK LEEMING, AND
SUZANNE BIEDENBACH

7 Psychological and Communicological Theories of Learning and
Emotion Underlying Serious Games
JENNINGS BRYANT AND WES FONDREN

8 Designing Serious Games for Learning and Health in Informal
and Formal Settings
DEBRA A. LIEBERMAN

9 What Do Children Learn from Playing Digital Games?
FRAN C. BLUMBERG AND SABRINA S. ISMAILER

SECTION II
Serious Games for Development

10 The Impact of Serious Games on Childhood Development
JOHN L. SHERRY AND JAYSON L. DIBBLE

11 Designing Serious Games for Children and Adolescents: What
Developmental Psychology Can Teach Us
KAVERI SUBRAHMANYAM AND PATRICIA GREENFIELD

12 Doors to Another Me: Identity Construction Through Digital
Game Play
ELLY A. KONIJN AND MARIJE NIJE BIJVANK

13 Identity Formation and Emotion Regulation in Digital Gaming
UTE RITTERFELD

SECTION III
Serious Games for Social Change

14 Serious Games for Girls? Considering Gender in Learning with
Digital Games
YASMIN B. KAFAI

15 Girls as Serious Gamers: Pitfalls and Possibilities
JEROEN JANSZ AND MIRJAM VOSMEER
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Serious Games and Social Change: Why They (Should) Work</td>
<td>CHRISTOPH KLIMMT</td>
<td>248</td>
</tr>
<tr>
<td>17</td>
<td>Entertainment-Education Through Digital Games</td>
<td>HUA WANG AND ARVIND SINGHAL</td>
<td>271</td>
</tr>
<tr>
<td><strong>PART III</strong></td>
<td><strong>Methodological Challenges</strong></td>
<td></td>
<td>293</td>
</tr>
<tr>
<td>18</td>
<td>Melding the Power of Serious Games and Embedded Assessment to Monitor and Foster Learning: Flow and Grow</td>
<td>VALERIE J. SHUTE, MATTHEW VENTURA, MALCOLM BAUER, AND DIEGO ZAPATA-RIVERA</td>
<td>295</td>
</tr>
<tr>
<td>19</td>
<td>Making the Implicit Explicit: Embedded Measurement in Serious Games</td>
<td>GARY BENTE AND JOHANNES BREUER</td>
<td>322</td>
</tr>
<tr>
<td>20</td>
<td>Evaluating the Potential of Serious Games: What Can We Learn from Previous Research on Media Effects and Educational Intervention?</td>
<td>MARCO ENNEMOSER</td>
<td>344</td>
</tr>
<tr>
<td>21</td>
<td>Improving Methodology in Serious Games Research with Elaborated Theory</td>
<td>JAMES H. WATT</td>
<td>374</td>
</tr>
<tr>
<td>22</td>
<td>Generalizability and Validity in Digital Game Research</td>
<td>MICHAEL A. SHAPIRO AND JORGE PEÑA</td>
<td>389</td>
</tr>
<tr>
<td>23</td>
<td>Designing Game Research: Addressing Questions of Validity</td>
<td>NIKLAS RAVAJA AND MATIAS KIVIKANGAS</td>
<td>404</td>
</tr>
<tr>
<td><strong>PART IV</strong></td>
<td><strong>Applications, Limitations, and Future Directions</strong></td>
<td></td>
<td>411</td>
</tr>
<tr>
<td>24</td>
<td>Three-Dimensional Game Environments for Recovery from Stroke</td>
<td>YOUNBO JUNG, SHIH-CHING YEH, MARGARET MCLAUGHLIN, ALBERT A. RIZZO, AND CAROLEE WINSTEIN</td>
<td>413</td>
</tr>
</tbody>
</table>
25 Reducing Risky Sexual Decision Making in the Virtual and in the Real World: Serious Games, Intelligent Agents, and a SOLVE Approach
LYNN CAROL MILLER, JOHN L. CHRISTENSEN, CARLOS G. GODOY, PAUL ROBERT APPLEBY, CHARISSE CORSBIE-MASSAY, AND STEPHEN J. READ

26 From Serious Games to Serious Gaming
HENRY JENKINS, BRETT CAMPER, ALEX CHISHOLM, NEAL GRIGSBY, ERIC KLOPFER, SCOT OSTERWEIL, JUDY PERRY, PHILIP TAN, MATTHEW WEISE, AND TEO CHOR GUAN

27 Immersive Serious Games for Large Scale Multiplayer Dialogue and Cocreation
STACEY SPIEGEL AND RODNEY HOINKES

28 The Gaming Dispositif: An Analysis of Serious Games from a Humanities Perspective
JOOST RAESSENS

Index