Preface

INTRODUCTION

With the rise of video game play as sport, education and training, entertainment, marketing brand experience, as well as for therapeutic value and clinical intervention, game experiences permeate our lives. In the past, gamification was a big idea, however expectations. Although games have many of the behavioral techniques proven effective as behavioural hooks, many companies are no longer willing to risk their brand value on techniques used in laboratories and mental hospitals to create the form of motivation better known as compliance. we are experiencing Games have been adapted for enhancing productivity tools, customer experiences, marketing, communication, teaching and learning, data collection, and even medical interventions. Games are still games, and thanks to computers and communications infrastructure, we can now experience a wide variety of gaming experiences with a great variety of content, purpose, and participation. Articles in these sections present insight and exploration, extending what we know about games, gamification, and simulations. This collection is drawn from articles selected as enhanced, top-articles published in a leading, peer-reviewed journal.

This preface begins with a brief background about the journal, and then provides an overview and summary of the 10 chapters in this book. The book is organized in three sections by theme: User Research, Learning Applications, and Health Enhancement. Each section is briefly defined, and each chapter is given an overview related to that section theme. This preface concludes with some recommendations and goals for future research, policy, and practice.

IJGCMS

The *International Journal of Games and Computer-Mediated Simulations* (IJGCMS) was launched in 2009 (http://www.igi-global.com/ijgcms). The journal is devoted to the theoretical and empirical understanding of electronic games and computer-

mediated simulations. The journal is interdisciplinary in nature; it publishes research from fields and disciplines that share the goal of improving the foundational knowledge base of games and simulations. The journal publishes critical theoretical manuscripts, qualitative and quantitative research studies, meta-analyses, worked examples, industry post mortems on product research and implementation for development, and methodologically sound case studies.

The journal also includes book reviews to keep readers on the forefront of this continuously evolving field. Occasional special issues from the journal provide deeper investigation into areas of interest within either gaming or simulations.

The main goal of this peer-reviewed, international journal is to promote a deep conceptual and empirical understanding of the roles of electronic games and computer-mediated simulations across multiple disciplines. A second goal is to help build a significant bridge between research and practice on electronic gaming and simulations, supporting the work of researchers, practitioners, and policymakers.

In the following paragraphs, the editorial policy of IJGCMS, and five guiding principles are presented.

Principle 1: Quality and Rigor in Content and Review

IJGCMS follows a double-blind review process to ensure anonymity and a fair review. The review process is intended to be critical, but helpful and instructive. We want the journal to provide high-value function, positive emotional experience, and potentially, transformation, and social impact.

Research articles that are published may contain either quantitative or qualitative data collection & analyses. However, articles using either method must present data to support and justify claims made within the article. Articles that simply summarize data without presenting it or the analytical techniques used, are not considered.

Theoretical manuscripts are also published. However, these theoretical reviews must create new knowledge by synthesizing and critiquing past research. Simple summaries of existing literature without thoughtful and considerate analyses are not considered.

Principle 2: Interdisciplinary Focus

IJGCMS seeks to publish about games and simulations within and across the numerous fields and disciplines that undertake research related to games and simulations. Psychology, Education, History, Journalism, Literature, Computer Science, Engineering, Fine Arts, and Medicine are just a few of the areas where one could find gaming and simulation research. Unfortunately in academia, the notion of standing on the shoulders of giants has implied an historical perspective, but

often only within the well-defined academic fiends. There are often well-defined boundaries, useful for maintaining traditions, and content-domain-specific concepts and methods. The journal seeks to celebrate history and progress. This is an important part of moving the field forward. But the journal is intended to cross traditional boundaries, and include parallel work in other fields to address and explore the complex natures of games and simulations.

IJGCMS publishes articles from any discipline as long as the content of the work is related to games and simulations. Including multiple fields helps researchers recognize their similarities as well as introducing them to colleagues from distinctly different backgrounds.

Principle 3: International Contributions

A third principal of this journal is its international focus. The journal editorial board seeks and recruits scholars to represent different international perspectives on the Editorial Board of IJGCMS. Having diverse, international perspectives provides two interesting opportunities. First, readers are able to see how researchers from various countries conduct and report scientific inquiry, and their interests on games and simulations. For example, what are the current inquiries and interests on games in various countries around the world?

Principle 4: Innovation

Gaming and simulation researchers often create new concepts, new methods, new implementation, and new technologies in their work. IJGCMS is a journal where authors who create new approaches can publish their findings. IJGCMS is also a resource for readers who want to keep up with the latest and most cutting-edge technologies. Special, focused issues with guest editors promote new insights; connect readers with new ideas, new researchers, and new topics for in-depth analyses of conceptual or technological innovations. As part of the journal mission, proposals for special issues are welcomed at any time.

Principle 5: Implication for Practice and Theory

Research should inform theory and application. We seek the betterment of humanity. Our intent to provide some improvement in whatever means possible: entertainment, research methods, our interactions with contributors and readers; we seek to examine and share cultural issues ranging from gender bias and misogyny, cultural diversity, and representation (or the lack thereof) as race, age, and gender. Games and entertainment have much to teach us about our society, and provide a

mirror report on our culture. How we play and what we seek for entertainment can be indicative of our cultural values.

Developing a strong research foundation for games and simulations is important, but only to the extent that the research provides a positive impact. We ask our reviewers directly:

- "What are the implications of this work on other research, policy, and practice?"

Recommended topics for the journal include (but are not limited to) the following:

- User research: Psychological aspects of gamers
- Cognitive, social, and emotional impact of games and simulations
- Critical reviews and meta-analyses of existing game and simulation literature
- Current and future trends, technologies, and strategies related to game, simulation development, and implementation
- Electronic games and simulations in government, business, and the workforce
- Electronic games and simulations in teaching and learning
- Frameworks to understand the societal and cultural impacts of games and simulations
- Impact of game and simulation development use on race and gender game and simulation design
- Innovative and current research methods and methodologies to study electronic games and simulations
- Teaching of games and simulations at multiple age and grade levels
- Medical usage of games for clinical assessment and intervention
- Postmortems on game development.

Additionally, IJGMCS partners with academic and professional conferences. A tremendous amount of cutting-edge research in games and simulations is first presented at conferences. In an attempt to capture these findings, IJGCMS often partners with conferences and organizations to create special issues focused on the leading research from conferences including the Meaningful Play Conference, Serious Games Conference, Ludica Medica, and the American Education Research Association (AERA) Games Special Interest Group.

The IJGCMS' editorial board consists of four separate groups (http://www.igi-global.com/ijgcms).

1. The international advisory board consists of a panel of leading experts from around the world. The advisory board provides insight and helpful recommendations to the editor; they are also available for suggestions and recommendations of future journal goals and special issues.
2. IJGCMS has a panel of associate editors. Each submission goes to one associate editor. Having a smaller number of associate editors has provided a way to maintain consistency in reviews.
3. Each submission receives three double blind, peer reviews. The associate editor and the editorial review board members are matched as closely as possible based on the topic of the submission and the expertise of the reviewer. However, the reviews are double blind. In other words, the authors do not know the identity of the reviewers assigned to their paper, nor do the reviewers know the author.
4. The fourth group is a panel of co-book review editors who help select books, solicit reviewers, and edit reviews. IJGCMS publishes a book review with almost every issue.

Journal special issues are also peer-reviewed. This can be done in a number of different ways. Often, for conference special issues, submissions are reviewed once at the submission stage, where they are accepted or rejected for presentation. Accepted papers are then offered the chance to submit for journal submission, where they are again reviewed either by the conference review panel or IJGCMS' own review board.

The four issues for 2012 and 2013 produced a total of 46 peer-reviewed papers. The editorial board selected fifteen articles as the top articles. Upon selection the authors were given the opportunity to update their paper with new data, new findings, or related articles since the original publication of their paper. The purpose and goal of this book is to highlight the work of those authors, presenting findings that will impact the field of gaming and simulations in multiple ways.

It should be noted that the purpose of this summary is to highlight the main ideas. It is not intended to take away from the rich insights or deep conversations included in each chapter. For instance, one of the goals of IJGCMS is to publish articles that directly impact policy, research, and practice. Each chapter in this book contains a rich description of the 'so what?' for those working in various fields. A thorough reading of each chapter will provide such detailed information.

1. Requirements-Based Design of Serious Games and Learning Software: An Introduction to the Vegas Effect (Dubbels)

In our first chapter, Dr. Dubbels describes a requirements-based game design technique. A serious game can be entertaining and enjoyable, but it is designed to facilitate the acquisition of skills and knowledge performance in the workplace, classroom, or therapeutic context. Claims of improvement can be validated through assessments successful, measurable practice beyond the game experience, the targeted context of the workplace, classroom, or clinical using the same tools as Multiple Traits and Multiple Measure (MTMM) models. A process is presented as Lean Design Thinking, drawing upon generative techniques drawing upon the traditional methodologies of psychological and ethnographic methods.

2. Design Principles for Online Role Play Simulations to Address Groupthink Tendency in Professional Training: An Exploration

In the second chapter, Drs. Leung and Law present a new perspective on crisis management in the context of law enforcement. gamification. The article proposes that a major challenge to the effective handling of crisis situations is the tendency for the personnel involved to ignore alternatives and make irrational decisions as Groupthink. This chapter describes the design of an online Role Play Simulation RPS for crisis management training and its implementation in in-service police training. The interactions of participants recorded during the RPS training were categorized using Bales' Interaction Process Analysis IPA. The results show that participation in the RPS has positive effect on the reduction of Groupthink tendency.

3. Virtual Standardized Patients for Interactive Conversational Training: A Grand Experiment and New Approach

In Chapter 3, Dr. Talbot explores Virtual Standardized Patients (VSPs) as a conversational training tool. Conversational agents have improved with Natural Language Processing technologies, and the chapter provides an overview of VSPs VSPs along with the important technical, practical and pedagogical lessons that resulted from their experience. The implications from this work can inform virtual human / avatar conversational training of all types and applications, p[ushing the boundaries beyond medical education.

4. Investigating Epistemic Stances in Game Play Through Learning Analytics

In Chapter 4, Drs. Garza and Clark applied techniques of statistical computing to data logs to investigate the patterns in students' play of The Fuzzy Chronicles. Analysis explored how game play patterns relate to learning outcomes in Newtonian kinematics. The chapter examines whether students playing the game showed evidence of dichotomous fast/slow modes of solution and the connection between conceptual understanding and performance in conceptual challenges.

5. If the Gear Fits, Spin It Again! Embodied Education, Design Components, and In-Play Assessments

In Chapter 5, Drs. Johnson, Birchfield, and Megan-Romanowicz explored the influence of embodied cognition and learning in video game play. Their research examined two games called Tour de Force and the Winching Game, which were designed to instruct middle schoolers in the concepts associated with gear trains. Learners used the body to map the relatively abstract concept of mechanics in science to physical, kinesthetic sensations. Analysis indicated that significant gains in learning were made. However, the valence and magnitude of the correlations between gear switches varied between the two games. This may be due to the relative perceived and experiential difficulty conveyed by the learners, suggesting that the learner may be understanding the concept and gesturing adroitly in the game, but still not be able to demonstrate that comprehension on a symbolically-oriented assessment measure.

6. *Monster Mischief*: A Game-Based Assessment of Selective Sustained Attention in Young Children

In Chapter 6, Drs. Godwin, Lomas, Koedinger, and Fisher describe an exploration of a design model that calls for extraneous cognitive load to be added to the intrinsic cognitive load of the core task. In the design of the game mechanics, extraneous cognitive load was germane in the assessment of selective sustained attention. Through this model, distracting design elements were a desirable part of the game's design intent. "Extraneous" game elements contributed to game play to provide a richer spectrum of difficulty. This approach to designing games through inclusion of distracting elements as optional and flexible parameters, can be used as a measure of player performance. The model suggests that assessment cognitive skills, such as those associated with inhibiting distraction, may be particularly well-suited for game-based assessment using this model.

7. A Digital Game for Undergraduate Calculus: Immersion, Calculation, and Conceptual Understanding

In Chapter 7, the team of Lee, Dunbar, Kornelson, Wilson, Ralston, Savic, Stewart, Thompson, and Elizondo compare the use of a digital game to a traditional methods for teaching university-level calculus for solving practice questions. Additionally, they investigate and describe differences in goal affordances to promote student conceptual understanding.

8. "Nervousness and Maybe Even Some Regret": Videogames and the Cognitive-Affective Model of Historical Empathy

In Chapter 8, researcher Owens Boltz examines whether games can be used to raise awareness in players that diverse and contradictory viewpoints existed within past societies just as they do today. This approach explores Russell's (2011) assertion that historical empathy can encourage students to examine how their own values have been shaped by societal and historical context. The researcher observed children playing a videogame that allows game play from multiple perspectives to examine whether particular types of game play tend to elicit historical empathy more often than others.

9. Using Notions of "Play" Over the Life Course to Inform Game Design for Older Populations

In Chapter 9, Drs. Brown and De Schutter provides insight into the characteristics and distinctions among older age cohorts of gamers. Current recommendations for the design of games for older adults do not fully capture the nuances that are unique to older generations and have often been built on the analysis of contemporary context and the issues that older adults face when trying to play games.

10. An Extended Study on Training and Physical Exercise in E-Sports

In Chapter 10, the authors Kari, Karhlahti, and Siutila explore the training routines of professional and high-level eSport players with added focus on their physical exercise. explore the training routines of professional and high-level e-sport players with added focus on their physical exercise. This paper extends their earlier work, with supplementary data and insights via qualitative interviews of five professional e-sport players.

CONCLUSION

The work that has been published on games and simulations in IJGCMS is continuing to advance research, policy, practice, and improve people's lives. In conclusion, one could ask, what can we learn about the current state of the field from these 16 publications? Listed below are some of the key findings from each of these studies:

1. User experience research is essential in game development. Developers need research data to understanding the user for the design, development, and implementation of software as games and simulations.
2. Digital games and simulations exist in many forms, but those that provide high-value experiences to the user are more likely to lead to optimal experience. These experiences are built upon delivering intuitive functionality, positive emotional tone, and personal transformation, resulting in trust and loyalty in customers, leading to social impact.
3. There is a difference between making a difficult game, and a challenging game. Challenging games have activities that can be overcome in the flow of game play, difficult activities must be over powered – to do this the player leaves the focus and flow of the game.
4. Software, products, and services should look beyond enhancing tedious activities with parts of games, and consider how to deliver the best experiences that games offer.
5. Avatar creation and play creates self-exploration and provides the potential for life-changing experience.
6. Gamification require an abundance of context-sensitive and descriptive empirical research that identifies the boundaries of their use and replicates findings.
7. Small differences in game presentation can alter the beliefs and approach to a game experience. Platform and presentation provide a demonstrable difference in response in basic cognitive processes between digital and non-digital game play experience and impact.
8. Games can increase contact and accessibility for sharing important information, and learning about life transitions.
9. Games for medical education and training should be planned based upon how much fidelity is necessary.
10. Game and simulation designers can improve learning outcomes by considering the interaction and representation– not just the content. In well-designed games and gamification, the interaction is the content.

11. Consistency, feedback, and the appropriate use of representations through game interfaces can positively impact user learning and cognitive development.
12. Games and game-play can be used as hooks to help students then help students understand and explore real-world rites of passage.
13. Play is an important part of learning content in simulations and gaming. The ability to practice and explore can be signaled through design and provide a playful approach. Play can increase motivation in academic learning.
14. Games have the potential to provide complex experiences to present a new frontier in cognitive aging and quality of life.
15. Physical behavior aligned with digital game play can be motivating, and potentially lead to cognitive enhancement, improved academic learning, and improved well-being.

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