

GUEST EDITORIAL PREFACE

Special Issue on Ludica Medica

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INTRODUCTION

This Ludica Medica Special Issue is the second annual issue in a continuing series at IJGCMS. Through this special issue we present research, reviews, and theoretical papers in the use of agents, avatars, and interactive software for medical training as well as therapeutic and medical interventions, and data collection.

This special issue of the International Journal of Games and Computer-Mediated Simulations extends the Ludica Medica theme, and furthers the discussion on videogames, simulations, modeling, and role-play as they are used by medical professionals and care recipients.

We begin this issue of IJGCMS, with “Lost in Translation”. In the article, Geoff Kaufman and Mary Flannagan from Tiltfactor lab of Dartmouth College, examine whether transferring a board game from an analog to a digital format would impact players’ perceptions of the game and still be as effective in changing player beliefs about the role of vaccines. Small changes in game presentation were accounted for, yet players reported that playing the same game, when the game board was presented on a digital tablet made the game more complex. Studies of how small changes can yield mark-

edly different user experience are important for understanding development and design issues in the creation and implementation of games.

The second article, Bruce Wexler of Yale University examines academic and cognitive outcomes in a study of C8 games, which were developed to examine the use of video games for improvements in attention, executive function, and their relationship to the academic performance of elementary school children. The article, “Integrated Brain and Body Exercises” presents the neuroscience foundation for understanding and enhancing performance. In the article, Wexler describes an integrated set of computer-mediated and physical exercises, used for training and improved performance of the neurocognitive function of children. Outcomes of the study offer insight into cognitive training, diagnostic feedback, and the value of informing each child of their cognitive strengths and weaknesses. The training outcomes were then related to improved academic outcomes for elementary children in two schools.

Jacki Morie & Eric Chance of the Institute for Creative Technologies at the University of Southern California offer a review of current applications for the use of virtual worlds for eHealth. Based upon this review, several use cases are presented on topics of weight

management, teen substance abuse, along with anxiety, stress reduction, mindfulness, traumatic brain injury, and amputee support. These program descriptions provide a starting point for exploration of potential uses of virtual worlds for treatment, and projects currently under development.

Alexandra Holloway of the University of California Santa Cruz offers an in depth look at the development of two games for soon-to-be parents: Prepared Partner, and Digital Birth. This paper provides a rigorous review, explanation of the development process with the research methods and the implementation of the two games for preparation of new parents for childbirth. Prepared Partner was developed as an online Flash game; and Digital Birth, was developed as a free iPhone application. Both games are described as tools to help birth parents prepare for supportive actions and behavior in labor in birthing. Outcomes in the analysis indicated that the games were effective in helping players meet learning goals for birth preparation, and players reported enjoyment in playing the games.

In contrast to Holloway's paper, Elizabeth Zelinski of the Davis School of Gerontology at the University of Southern California presents a review offering insight into how games may be used to help older populations maintain independence and autonomy through improving cognition. This article makes a case for games and exercises as interventions for healthy aging. Specifically, she suggests that there is great potential for games to improve performance on untrained tasks, remediating observed cognitive declines, and ensuring preservation of functional ability. She makes a case for the development of methodologically strong psychometric functional outcomes for preservation of autonomy and independence through games and virtual worlds.

"How much fidelity is really necessary in a medical simulation?" asks, Thomas Talbot of the Telemedicine and Advanced Technology Research Center (TATRC) and Institute of Creative Technologies at the University of Southern California. Talbot addresses this question by presenting a rich review of physiology

engines, complex state models, and simple state machines to offer best case scenarios for efficacy of realism, immersion, and narrative.

Two developmental case studies of games for health are presented by Elena Bertozzi of Quinnipiac University, Leonard Krilov of the Stony Brook School of Medicine, and Dilys Walker of the University of Washington. In "*Successful Game Development Partnerships between Academics and Physicians*", Bertozzi, Krilov, & Walker describe their process of how they came together as a team of game developers and health care professionals. They report their process on how they came together to produce compelling, fun games that met specific health-related goals. The two games: *Flu Busters* and *Emergency Birth!* are presented as case studies, describing the process, benefits, and complexities involved in game development partnerships between developers and subject matter experts.

Veronika Litinski, from the MaRS Discovery District, and the COO of Cognicity presents the process for developing a business model for the development for game-based application for healthcare. In the paper, Litinski describes processes, parameters and methodologies to help potential developers and customers understand the complexity of building a case for software development in the health and education sectors.

William Bart of the University of Minnesota Twin-Cities provides a book review of *Chess is Child's Play: Teaching Techniques That Work*, written by authors Laura Sherman and Bill Kilpatrick. Bart reports that the book has many strengths; a myriad of exercises and solutions that can be used to teach and assess chess knowledge, techniques, and rules to beginners.

As the guest editor of this second annual issue on the topic of games for medical training and clinical interventions, we return to the question: *So, what is the importance of this area—how have things changed?*

Enter the term gamiceuticals. More games, conferences, companies, funding opportunities, and laboratories as researching the use of games for cognitive enhancement, psychological interventions, for affect, memory, and processing. The exploration of neuroplasticity is opening

new frontiers. Over the last year the FDA has begun clinical trials of games for a range of psychological treatment for diagnoses such as schizophrenia. These new adaptations of game usage, neuroplasticity research, and game development stretch our conception of software, and offer the new category: gamiceuticals.

We may soon find ourselves with software prescriptions. We may use our game consoles or handheld devices for therapeutic gaming and clinical diagnosis, as well as for operating complex tools and equipment such as robots for surgical procedures and medical training. These advances offer new horizons, inspiration, and new questions.

Will games become a prescription for better living? Will games and virtual worlds provide greater access to mental and physical health?

Will we use game platforms, high fidelity 3d cameras, and health apps to monitor and suggest health interventions—perhaps setting a time with a telephysician?

Please enjoy this second annual collection of Ludica Medica articles. This issue offers an introduction to a rapidly expanding field, where games are being studied for medical education and training, diagnostic assessment tools, as well as devices for delivering medical interventions and therapeutic treatment. Ludica Medica will be a continuing annual special issue series in IJGCMS. I hope you enjoy.

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Guest Editor
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