Preface

INTRODUCTION

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 as well as qualitative and quantitative research studies, meta-analyses, 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.

This is the third book in a series that sets out to capture the important findings and best practices of the journal articles that were published in IJGMCS over an entire year of publication. This is not meant to be a handbook of everything that has been written about games and simulations. On the contrary, this tome was created to highlight the work that has emerged through a yearlong snapshot of articles published in a leading, peer-reviewed journal. This chapter begins with a brief background about the journal (text that is found in our journal mission), and then provides an overview and summary of the 17 chapters in this book. The chapter concludes with some recommendations and goals for future research, policy, and practice.

IJGCMS

One 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.

There are at five guiding principles supporting this mission as well as the editorial policy of IJGCMS. The first important principle is quality and rigor. IJGCMS follows a double-blind review process to ensure anonymity and a fair review. Research articles that are published may contain either quantitative or qualitative data collection and 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. How-
ever, 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.

A second important principle is the notion of IJGCMS as an interdisciplinary journal. There are 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 often meant taken a historical perspective on one’s line of research. Gaining a historical backing is an important part of moving the field forward; however, failing to consider parallel work in other fields is failure to address and accept 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.

In addition to having an interdisciplinary focus, a third principal of this journal is its international focus. There are over 18 countries represented on the Editorial Board of IJGCMS. There is no justifiable reason why our research should have disciplinary OR geographical boundaries. Drawing on work from international authors provides two interesting opportunities. First, readers are able to see one topic from multiple perspectives. For instance, how are researchers from various countries working on science simulations? Second, readers are able to see variations across countries. For instance, what are the current research topics and sets of expertise in various countries around the world?

Innovation is a fourth principle guiding the work of IJGCMS. Gaming and simulation researchers often create new concepts and technologies in their work. IJGCMS is a journal where authors who create new tools and techniques go to publish their findings; it 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 will also promote in-depth analyses at conceptual or technological innovations (proposals for special issues are welcomed at any time).

Finally, IJGCMS is focused on implications. Developing a strong research foundation for games and simulations is important, but only to the extent that the research impacts others. One of the main items reviewers are asked to consider when reviewing for IJGCMS is: “What are the implications of this work on other research, policy, and practice?” Each article author is asked to include direct implications for others working in similar areas, regardless of whether they be researchers, practitioners, or policymakers.

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

- 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
- Psychological aspects of gaming
- Teaching of games and simulations at multiple age and grade levels
During its third year in press, IJGCMS had two ‘regular’ or general issues and two special issues. Some work in gaming and simulations gets published in journals like IJGCMS. However, a tremendous amount of cutting-edge research in this area 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 the conference. The first special issue for 2011 was from the American Educational Research Association annual conference (http://www.aera.net/), and more specifically papers that were originally accepted to the Applied Research in Virtual Environments for Learning Special Interest Group (ARVEL SIG; http://www.arvelsig.com/). According to the SIG website, the goal of the group is to bring together educators, scholars, and practitioners who are interested in research in and on virtual environments.

The second special issue was from the 2010 Meaningful Play Conference (http://meaningfulplay.msu.edu/) held at Michigan State University. According the website, Meaningful Play “is a conference about theory, research, and game design innovations, principles, and practices. Meaningful Play brings scholars and industry professionals together to understand and improve upon games to entertain, inform, educate, and persuade in meaningful ways. The conference will include thought-provoking keynotes from leaders in academia and industry, peer-reviewed paper presentations, panel sessions (including academic and industry discussions), innovative workshops, roundtable discussions, and exhibitions of games and prototypes.”

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. Submissions also then go to two editorial review board members. As such, 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. Finally, IJGCMS publishes a book review with almost every issue. The fourth group is a panel of co-book review editors who help select books, solicit reviewers, and edit reviews.

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 2011 produced a total of 17 peer-reviewed papers. 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.
CHAPTER HIGHLIGHTS

The work that has been published on games and simulations in IJGCMS is continuing to advance research, policy, and practice. In conclusion, one could ask, what can we learn about the current state of the field from these 17 publications? Listed below are some of the key findings from each of these studies (by chapter number).

It should be noted that the purpose of this summary is to highlight some of the main ideas identified in each chapter. 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.

Chapter 1: “Issues and Concerns of K-12 Educators on 3-D Multi-User Virtual Environments in Formal Classroom Settings” (Greg Jones and Scott Warren)

- **MUVEs today can be classified into two broad categories: Direct Instruction MUVEs and Social Constructivist MUVEs. As will be discussed, each type has inherent design approaches that impact how it would be used in a classroom or curriculum** (p. 2).
- **Effectiveness of the technology will be one of the continued barriers for educational use, especially in formal classroom settings where time and effectiveness are highly stressed. More specific issues and concerns related to security/access, bandwidth, technology access, and technology stability can be addressed by future MUVE developers** (p. 9).
- **By the end of this study, out of the nine investigating participants, only one had been able to move forward to getting a class(es) into a virtual environment (11%), three more were still investigating (33%), and the remaining five had stopped investigating (55%), but planned to keep up to date on the technology in the future. Of the three in the using group, one had discontinued the use in the classroom because of a security or access incident. One of the current using participants was not sure about the future of their MUVE use because of concern over the test scores of students using the MUVE in their class. Of the two not using participants, at the end of this study, one was about to try again with a different MUVE** (pp. 9-10).

Chapter 2: “Digital Dome vs. Desktop Display in an Educational Game: Gates of Horus” (Jeffrey Jacobson)

- **The purpose of this case study is to contribute data to the debate by showing one way that visually immersive display can support learning in game-like educational virtual reality. Visually immersive displays provide the user with the ability to look in most directions and see the virtual environment** (p. 13).
- **In our study, all students played Gates of Horus (Jacobson, 2009), a solitary-player educational game based on the Virtual Egyptian Temple (Troche, 2010). Afterward, each student produced a videotaped tour of the temple, describing its features and meaning in the student’s own words. Three independent evaluators rated the completeness and accuracy of each video, yielding a composite measure of student performance on our Video Test. Some students played the game in a visually immersive display, the Earth Theater, an all-digital partial-dome display (Figure 1); and**
others played it on a standard desktop computer. Students who used the visually immersive display recited more facts in their Video Test than those using a desktop \((P = 0.0458)\) \(\text{(p. 25)}\).

- The Written Test showed that students who played the game on a desktop showed more knowledge of the temple than a no-treatment control group \((\text{Jacobson, 2009})\) at \(P=0.0044\). Also, there appeared to be an interaction effect between students’ performance on the Video Test and their visual reasoning ability as measured by Raven’s Progressive Matrices \((\text{Raven, 1958})\) \(\text{(p. 25)}\).

Chapter 3: “Virtual Learning Environments – The oLTECx: A Study of Participant Attitudes and Experiences” \((\text{Adriana D’Alba, Anjum Najmi, Jonathan Gratch, and Chris Bigenho})\)

- Taking into consideration the innovations in technology being developed within the department, the researchers decided to adapt a two-dimensional “virtual tour” environment for undergraduate students seeking to continue their studies in the Department of Learning Technologies, in an attempt to make them more aware of layout of the new location, as well as to give them information about the different programs and research projects being offered \(\text{(p. 36)}\).

- We believe the pilot study (two-part) supplies evidence to warrant further study related to using Virtual Learning Environments (VLEs) as orientation tools for potential students in university programs \(\text{(p. 45)}\).

- The importance of game design was linked to engagement indicating the importance of considering the level to which a virtual environment for orientation purposes might need to be developed to reach satisfactory levels of engagement. This is not a surprise, as quality of game design would indicate the quality of the environment, and game design relates to satisfaction with the environment or what might be considered engagement \(\text{(p. 46)}\).

Chapter 4: “Virtual Tutor Training: Learning to Teach in a Multi-User Virtual Environment” \((\text{Lee L. Mason, Tae K. Jeon, Peter Blair, and Nancy Glomb})\)

- In this study, the experiences of volunteer tutors using a MUVE to teach literacy instruction were examined to get a better understanding of the benefits and challenges of learning in a MUVE \(\text{(p. 55)}\).

- In this study, the experiences of volunteer tutors using a multi-user virtual environment to teach literacy instruction were examined. According to both tutors, using the scripted direct instruction curriculum in Second Life was nearly identical to using it in an actual tutoring session. This method of programming common stimuli helped to facilitate transfer of training from the virtual environment to live, face-to-face tutoring \(\text{(p. 62)}\).

- Technology has developed to the extent that live classroom experiences can be simulated in the virtual environment. The implications of such instructional technology in teacher education programs are profound, especially in the realm of distance education. Future research should focus on other teaching practices which can be taught in the virtual classroom, such as training culturally-responsive teachers and conducting functional behavior assessments \(\text{(p. 63)}\).
Chapter 5: “Learning to Become Citizens by Enacting Governorship in the Statecraft Curriculum: An Evaluation of Learning Outcomes” (Yam San Chee, Susan Gwee, and Ek Ming Tan)

• Given the different approaches to designing a Social Studies curriculum, we first interrogated and clarified our own philosophical position, together with its implied value system. The goal was to determine a fitting approach to designing an innovative social studies curriculum that can be localized to fit the Singapore context and that would provide a high likelihood of being able to achieve the desired student learning outcomes related to Social Studies established by the Ministry of Education. We observed that while the Social Studies curriculum included objectives related to knowledge, skills, and values, widespread local practice indicated that the teaching of Social Studies emphasized knowledge, or content acquisition, at the expense of values education (p. 70).

• The enactment of the Statecraft X curriculum, as designed, did not therefore always proceed in the manner intended. In this particular intervention, which represents the very first enaction of the Statecraft X learning program, we observed occasions when teachers insisted on (or lapsed into) teaching content. On occasion, the agreed upon lesson plan was modified without giving us any prior notice. These “enaction failures” are a factor that must be taken into consideration when evaluating the efficacy of the curriculum intervention. Challenges in the field, such as these, foreground the fact that a classroom environment is a “messy” research space to work in. It is a situated space, both socially and culturally, that is locked into a more expansive system of existing human praxis. Genuine innovations always create perturbations to the system, with rippling side effects that disrupt entrenched practices. Conventional cause–effect analyses are of limited analytical power in such situations because they can at best yield only a partial analytical grasp of factors at work in the intervention environment. More holistic, systems-based analyses that go beyond the current state-of-art are required (Chee, 2010b) (p. 87).

• Clear learning gains by intervention group students were manifested in a post-intervention essay writing task. In this task, students were required to propose and justify government policies they would advocate when contesting for a seat in parliament. Students in the intervention group outperformed those in the control group with respect to the quality of their essays, evaluated on the criteria of relevance of content, being able to incorporate multiple perspectives, and demonstrating personal voice. This outcome provides evidence that game-based learning, as enacted in the StatecraftX learning program, can foster student learning that promotes having a voice and a sense of personal agency in matters relating to citizenship (p. 89).

Chapter 6: “Strategies to Teach Game Development across Age Groups” (Lakshmi Prayaga, James W. Coffey, and Karen Rasmussen)

• In the years after 2000 in which considerable declines in enrollment in computer science programs took place, many universities and colleges have created degrees or minors in game development that cater to student demand for game-related curricula. Computer Science programs, at the same time, have used courses in game development to increase student enrollment. In addition, student interest at earlier ages has led to the creation of Career Academies and courses at the high school level that focus on game design and development. Existing research however, does not provide a frame-
work that can be used to teach game programming across age groups and education levels. Such a framework to teach game programming to students of different ages is the subject of this article (pp. 95-96).

- Game development is one pedagogical application of games. Game development is inherently multi-disciplinary. While it is a challenge to develop curricula that integrate art, design, and technology including programming (Baer, 2005), game development is one of the best mediums for doing so. Furthermore, game development both encourages and requires collaboration, and it tends to break down disciplinary walls (Masuch & Rueger 2005; McCallum et al., 2004) (p. 96).

- This work enumerates the results of implementing the framework and varying expectations for students in different age groups relative to game development. For instance, provision of code templates to MS/HS students helped them assume ownership and control of their games which in turn motivated them to improvise or expand the existing game code. By contrast, since the college students could operate much more autonomously and at a deeper level, different strategies were utilized. Still, some similarities were noted between the groups, most notably the motivation to implement more features than were specified in the baseline requirements (p. 107).

Chapter 7: “Negotiating Students’ Conceptions of ‘Cheating’ in Video Games and in School” (Karla R. Hamlen and Holly Gage)

- Video games are spaces that often operate by completely different rules, codes, and social norms than “regular life,” so there are no universal standards relating to ethics for their play. Given that ethical standards are not necessarily set in video game play and that “beating the system” can even be a positive and respected pastime in the video game world, it is reasonable to question how these fuzzy standards and shifting ethics apply to other settings. This study used a phenomenological approach to explore the ways in which adolescents negotiate the ethics of the different spaces within their lives and to attempt to frame a perspective on their definitions of cheating in video game worlds and in the classroom (pp. 111-112).

- As in the academic environment, definitions of cheating and ethics in video game are largely individualized. Moreover, the reasons of getting stuck and being bored do not necessarily explain the underlying views of those who cheat in video games. Since games are designed to be played for fun or for a sense of accomplishment, it is interesting to further probe the question of why, then, so many use alternative methods to beat them (p. 114).

- It would be helpful for educators to understand the dissonance that students are feeling between academic and non-academic ethics and to educate and engage in discourse with students about this subject. It is possible that students truly do not recognize similarities in cheating between settings; it is also possible that the culture of video gamers has created an environment in which cheating is not only acceptable, but is expected. This notion may account for the situations in which students do not see cheat codes and glitching as unethical behavior, while they view a variety of parallel behaviors in academics as unethical, perhaps due to how teachers and administrators treat particular behaviors in the classroom (i.e., cheating on a test, copying homework, helping another student with an assignment, using CliffsNotes). Overall, instead of having clear views of right and wrong, students experience and see the world in different ways both from each other and from context to context, and based on a number of factors, both internal and external (p. 122).
Chapter 8: “Television, Games, and Mathematics: Effects of Children’s Interactions with Multiple Media” (Sandra Crespo, Vincent Melfi, Shalom M. Fisch, Richard Lesh, & Elizabeth Motoki)

- Amid industry buzzwords such as “multiple platforms” and “transmedia,” it is increasingly common for projects to span several media platforms, such as a television series, website, hands-on outreach materials, museum exhibit, and live stage show. This approach to offering educational content follows the entertainment industry’s approach to disseminating and advertising their products but it is unclear whether this model also works in education. From an educational standpoint, producers assume this combination of media yields added benefits for children’s learning, beyond those that might be provided by one medium alone. But is this assumption true? Past research has focused almost entirely on the impact of one media component, such as a television series or a computer game in isolation. This leaves open the question of whether greater learning might emerge from using a group of components that span multiple platforms (which we shall refer to as cross-platform learning) (p. 125).

- In this study we found that children’s naturalistic use of Cyberchase tended to span multiple media; that is each month, children who watched the Cyberchase TV series more frequently also tended to visit its Web site more often. Thus, in naturalistic use, some children do indeed use multiple media when they are available (which lends real-world validity to the question of how children learn from multiple media) (p. 131).

- These data revealed that children who used multiple media employed more sophisticated strategies while playing the three online games that were tagged with the tracking software, and produced more correct responses while playing two of the three games. Just as in the posttest tasks, it appears that children took the educational content they encountered in one medium (television and/or hands-on activities) and applied it while engaging with math content in another medium (online games). This transfer of learning supported their interaction with the second medium, allowing children to apply more sophisticated approaches and producing a richer, more successful engagement with the material (p. 138).

Chapter 9: “Optimizing the Psychological Benefits of Choice: Information Transparency and Heuristic Use in Game Environments” (James J. Cummings and Travis Ross)

- This predicament—a desire for freedom, autonomy, and self-determination that in excess can lead to negative outcomes—has been termed the “paradox of choice” (Schwartz, 2005). Researchers have identified numerous instances of the paradox of choice, with perhaps the best known examples occurring in a study by Iyengar and Lepper (2000). In their study the researchers examined the influence that number of choices had on three different decision-making situations: deciding on a topic for an extra credit paper (30 choices versus 6 choices), purchasing jam in a grocery store (24 versus 6), and choosing chocolate versus money as a reward for participation in an experiment (30 versus 6). What they found was that the participants seemed to be more attracted to the high choice conditions. However, participants in the limited choice condition were significantly more likely to actually follow through with a purchasing jam (+27%), completing the extra credit (+14%), and choosing chocolate instead of money (+36%) compared to their peers in the extended choice condition (p. 143).
Therefore, it stands to reason that heuristics-based decision-making may indeed serve as an escape from the tyranny of choice in modern environments, so long as such an approach is ecologically rational. As noted above, the use of heuristics can lead to marked success in some modern choice environments (Gigerenzer, 2008), but can be quite irrational (even predictably so [Ariely, 2008]) in others. And again, the relative ecological rationality of a given decision-making strategy—heuristic or deliberation—is dependent upon how the informational environment is structured. If consumers and other decision-makers can distinguish between good and poor alternatives using only particular attributes or available cues then heuristics may be rational, and the barrage of choice welcome, as the amount of information one must process is minimized (p. 146).

This paper proposes that contemporary commercial video games serve as modern choice environments in which players often employ the adaptive toolbox in an attempt to escape the tyranny of virtual choice. However, the rationality of this approach is dependent upon how well the relative motivations and gameplay styles of a given player fit the informational environment of the game space. Players seeking to optimize choices and that enjoy the process of gathering and comparing all information does fine to deliberate. However, many other players prefer to avoid the tyranny of choice through cognitive shortcuts that can often only guarantee “good enough” returns and sometimes do no better than chance. This paper suggests that those players that enjoy the cognitive ease of using heuristics yet also insist upon optimization have therefore taken it upon themselves to restructure the informational affordances of their gameplay experience, such that a reliance on the adaptive toolbox is not only “good enough” but very close to optimal (p. 155).

Chapter 10: “Impacts of Forced Serious Game Play on Vulnerable Subgroups” (Carrie Heeter, Yu-Hao Lee, Brian Magerko, and Ben Medler)

A serious game’s audience may include those who rarely play any kind of game (i.e. inexperienced “non-gamers”) and those who dislike and normally avoid playing the genre used by that particular serious game (i.e. genre inexperienced and/or “resistant players”). The ramifications of this are obvious, though surprisingly overlooked in the digital game-based learning community at present: inexperienced players face an extra barrier of figuring out how to play, and resistant players miss out on the intrinsic motivation games afford to eager players (p. 159).

Declaring that serious games are less effective for players who dislike the game on the surface seems to imply that serious games simply need to be great games, and they will have the desired impacts. The problem with that solution is that liking a game is highly idiosyncratic. Every one of our games in the study had eager players and resistant people who would never play the game intentionally. Even if a game were a great example of its genre, the appeal of such a game would certainly not be universal. Different people like different games. Even the most wonderfully designed serious game will fail to appeal to some players. This also points to the need for more future work on understanding the relevant individual differences between game players, particularly for formal learning environments (p. 174).

Our results showed that males tended to seek more difficult challenges in games than females did. On two of four games (the two harder games, both of which involved shooting), males were more committed (played for longer). On the learning game (which was also the easiest game), females showed significantly stronger commitment. Performance was rarely different by gender. Affect was only different for one of the games (Stormwinds). Incorporating ways to permit different players to experience their own optimal amount of challenge may be the most important design consideration for mixed gender serious games audiences (p. 174).
Chapter 11: “Playful Learning Experiences: Meaningful Learning Patterns in Players’ Biographies” (Konstantin Mitgutsch)

- But, as I will outline in the present paper, the question as to whether games encourage us to set meaningful learning processes in motion is a question that remains unanswered. We therefore need to investigate in greater depth how players reflect on deep and fruitful experiences in games and how they connect their learning through playing games to their every-day lives (p. 178).

- One of the key results of the narrative interviews is the ease with which all players could describe different yet meaningful experiences that they relate to computer games. Most players had never reflected on these experiences before and were surprised by how their drawings turned out. It showed how early childhood play experiences at the age of 4 to 6 pave the way for fruitful play biographies. Particular playful experiences are deeply connected to the interviewees’ lives and play a central role in their life-long cognitive and emotional development. Interestingly, the most meaningful games were often not the games that the players spent the most time playing, but—as the interviews show—those that opened up novel learning challenges and those that were connected to other players (p. 186).

- Summing up, players do develop meaningful learning patterns, but the transformation to everyday life is never direct. A pattern learned in a game does not lead to an immediate transformation process, but it can allow transformation if a connection to real life settings is fostered at the right time. Whether games themselves have the power to do so is a question that remains unanswered. The interviewees showed that digital games can be a door opener for transformative learning processes, but such a transformation is not obligatory—it remains a delicate process which is highly dependent of the contextual setting. Nevertheless, games and the learning process that takes place when playing them are part of the players’ lives (p. 189).

Chapter 12: “Videogames and the Ethics of Care” (John Murphy and José Zagal)

- It has been argued that a complete model of ethical reasoning must include an ethics of care (Held, 2010). Consequently, we believe that an understanding of ethics in videogames will be more robust if the perspective of care ethics is taken into account. In this article, we briefly describe the ethics of care and discuss how it can be a valuable tool for understanding ethical experience and reasoning in videogames. Despite the potential for alternative perspectives like care ethics to provide insight into ethics in videogames, analysis from such perspectives is scant (p. 194).

- We have shown how videogames can be designed in such a way as to encourage ethical play and reflection with a focus on the ethics of care. Little King’s Story encourages the development of relationships between the player and his citizens by directly involving the player in the lives and behavior of individual citizens. The game then proceeds to encourage ethical reflection by allowing the player to use his power over his citizens in situations that allow for him to take into account, or to ignore, the relationships he has established. Animal Crossing: City Folk creates an ethical experience for the player by placing her in a social network where she builds and maintains relationships with her neighbors. In both cases, the ability to develop relationships with the other characters derives in part from the fact that the relationships are an end in themselves (p. 201).
There are also potential pitfalls in relying on an ethics of care to create or attempt to design ethical experiences in games. Because games are usually goal-oriented, it is easy to entangle the goals of a game with the desire to build relationships. Other factors, such as investment of time, attachment to a character, or fandom can be confused with caring. In order to accurately model caring-focused ethical experiences, the value in the relationships established must be as intrinsic as it is in real life. There may also be ethical concerns inherent in any game that is too successful at making the player care. Ethical play is in some sense practice for real-world experience, and when these play experiences are based on relationships and emotional attachment, there is a danger of players valuing those experiences more than is appropriate or constructive. The value of these in-game relationships is lost when players care too much (p. 202).

Chapter 13: “Investigating Youth’s Life Online Phenomena: Subverting Dichotomies through Negotiation of Offline and Online Identities” (Azilawati Jamaludin and Yam San Chee)

With the hybridization of learning with popular media culture, learners expect, and derive, little gratification from conventional curriculum. They may simply ‘play the game’ of schooling before investing heavily in their own cultural capital of learning in out-of-school spaces thereafter. More importantly, the kind of learning that happens within these informal spaces fundamentally differs from the learning experiences arising from conventional pedagogy, both in terms of meeting youth’s personal fulfillment as well as in preparing them for the new kinds of literacies imperative at a time of fast-paced social and economic change (pp. 206-207).

It is not surprising then that youth living in ‘postmodern conditions’ are inevitably drawn to online worlds of WoW, as the appeal of these spaces pivots around the agency of choice, strongly coupled with the socially oriented tradition of MMORPGs (p. 208).

Consistent with Haraway’s metaphoric cyborg, we argue that there is no strong case to be made that any pervasive dichotomy between youths’ offline and online lives exist. What players do when engaging in their online activities are largely perceived as real engagements with real fellow gamers involved in real forms of community, with no clear distinctions made between their offline and online realities. To these youths, life in WoW is associated with the notion of communities where their performances exist as an enunciation of their partial, fractured identities that Haraway speaks of, in a changing context influenced by social and cultural practices (Desiato, 2009)... The embodied subjectivity experienced by informants, thus, is no longer through a discrete body, but a composite configuration that is not unlike a vision of the “cyborgian posthuman” expounded by Hayles (1999). Within this metaphorical conceptualization, the boundary between the body and technological mediations is seen as a permeable membrane, and “there are no essential differences or absolute demarcations between bodily existence and computer simulation” (p. 3). The cyborgian point of view constructs the human being such that it can be “seamlessly articulated” with rapidly evolving technology (p. 220).
Chapter 14: “Behind the MASK: Motivation through Avatar Skills and Knowledge” (Yadi Ziaeehezarjeribi and Ingrid Graves)

- The situated play, psychological, and physical effects found through engagement in role-playing games such as massively multiplayer online role-playing games (MMORPG), EverQuest (Gameinfowore.com, 2004), and World of Warcraft (Blizzard, 2004), supports inquiry models of learning to shore-up literacy practices. This is where we find the potential for student motivation through avatar skills and knowledge (MASK) (p. 227).
- The vicarious nature of using an avatar to “experience a new behavior” holds great potential for students. For instance, in many schools, it is not “cool” to be the smart one in the room and many students, in the United States, hide their intelligence for fear of ostracism (Au, 2005). When a student can hide behind an avatar, that person can vicariously become a member of a community that respects and values a particular type of knowledge (p. 234).
- In order to create engaging learning environments for students, players must immerse and become involved in the game quests and become an integrated component of the experience and expertise, which can intensify student curiosity. Educators and game designers must be able to rethink and allow new paradigms of knowledge construction to emerge from experiential learning within digital immersive virtual environment, video games, and simulations that are already popular with children. We believe this paradigm shift will come as methodology begins to push the boundaries of what constitutes learning within educational settings (p. 236).

Chapter 15: “Relations between Videogame Play and 8th-Graders’ Mathematics Achievement” (Scott Tobias, Duane Rudy, and Jean Ispa)

- Given the varied approaches of prior research in relation to game content, the current study aimed to explore associations between spatial-temporal content and level of complexity of popular videogames played by respondents in relation to math performance. The aim was also to establish a link between real-life videogame play and academic achievement previously established experimentally with educational games, though not necessarily with adolescents. Mathematics performance was studied as an outcome because it has been previously linked to spatial-temporal ability as well as complex problem solving skills, both of which are present to varying degrees in videogames (p. 242).
- When players played at minimal levels of time, there were positive relationships between spatial content (and to a lesser extent, the level of complexity) of videogames and MAP scores. However, among students who played for higher amounts of time, the hypothesized gain from videogames high in spatial-temporal content or complexity disappeared, consistent with diminishing returns as a result of massed practice (Swing, Gentile, & Anderson, 2009) (p. 254).
- At the highest amounts of play, individuals who played games high in spatial-temporal content or complexity scored no better than those who played games low in spatial-temporal content or complexity. This finding indicates that regardless of game content, high amounts of time playing videogames are not associated with high levels of mathematics performance. This result is not surprising given that the time spent playing videogames may be taking away from other activities that would be beneficial regarding math, such as homework. It should be noted that the direction
of the effects identified in this study cannot be determined. It is possible that children who are cognitively complex and also responsible (or limited) in terms of videogame play may do well in complex math subjects while only playing videogames for moderate amounts of time (pp. 254-255).

Chapter 16: “Levels of Failure and Learning in Games” (Matthew J. Sharritt and Daniel D. Suthers)

- Kapur and Kinzer (2009) introduce the concept of productive failure: learners who have had to struggle with ill-structured problems and hence experienced failure may subsequently perform better on transfer of learning tasks than learners who were initially confronted with well-structured problems. These effects are attributed to the nature of ill-structured problems: they create an environment for creative problem-solving, where more divergent explorations of the problem and solution spaces can occur. Similarly, games that require learners to strategize and explore the problem space can encourage meta-cognition and problem-solving behaviors that better prepare learners for later problem solving in both well and ill-structured domains (p. 263).

- In line with Gee (2003, 2008), failure in a game appeared to have a low penalty and encouraged subsequent learning (the pair learned how to gather military forces together to win battles later in the game). This supports Kapur and Kinzer’s discussion of productive failure, where ill-structured problem domains (such as games) encouraged learning (Kapur & Kinzer, 2009). When failure occurs at the action level of activity (player goals), new strategies and problem solving add to player motivation and their willingness to learn (p. 275).

- Game designers are faced the difficulty of making a fun, balanced game, and can incorporate usability (user-experience) research to help avoid frustration at the operation level of player activity. Balancing the amount and type of player frustrations can aid player learning and help create meaningful game experiences: motivating players to keep playing and learning efficiently while engaged in situated play (p. 276).

Chapter 17: “Procedural Ethos: Confirming the Persuasive in Serious Games” (Michael A. Evans)

- Attention to the persuasive qualities of games, and how they can and should be intentionally designed and developed, could not be more important as the adoption of video games for education, formal and informal, is gaining increasing scrutiny (Gee, 2010; Ito et al., 2009; Honey & Hamilton, 2011) (p. 281).

- In an attempt to advance the quality and persuasiveness of games, we suggest that additional evaluative questions be asked to judge whether a serious game is persuasive, additionally conveying elements of procedural ethos as follows: 1) Is it demonstrated to the player that the characters, actions, events, processes, and/or rules in the game are factual, and that these are accurately represented in the game (phronesis)? 2) Is a player convinced that the game play or simulation is a fair and just model of reality, that the real world works as represented in the procedural rhetoric of the game, and that the designers are presenting the whole truth with integrity (arête)? and 3) Is a player convinced that the game is not manipulating or deceiving the player by the procedural arguments but is rather on the player’s side (eunoia)? (p. 283).
In terms of implications for instructional design and serious games, our position is that consideration to add the three criteria offered by procedural ethos, phronesis (practical knowledge, factual basis), arête (integrity, virtue), and eunoia (goodwill, concern for the hearer), to the list of design specifications might provide additional insights into what it means for a serious game to be persuasive from a comprehensive position (p. 288).

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