

Virtual Worlds in the General Education Curriculum

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Abstract: Virtual worlds have been an increasing element in professional training and instruction for some time, with many institutions in higher education becoming interested in integrating virtual worlds into the curriculum. Instructors are integrating these virtual worlds in many cases to supplement traditional courses in higher education, however, only few courses exist that use virtual worlds as a primary topic of study. This paper reports about the use of virtual worlds in a newly created general education course for first year students at a mid-sized university, making virtual worlds the primary focus as well as the primary medium for learning course content. It discusses the rationale for the course development, implementation, lessons learned, and student feedback. The paper concludes with a summary and suggestions for future research.

Keywords: Virtual Worlds, Multi-User Virtual Environments, Second Life, MMORPGs

Introduction

Advances in technology have prompted many institutions in higher education to evaluate current course content as well as delivery methods. Online education, social networking, and virtual reality have been integrated in varied degrees into many courses taught in higher education. Virtual worlds are a form of interactive virtual reality; in these 3-D online environments thousands of users can participate and interact simultaneously. Users are represented through avatars, and are offered a rich, multimedia environment where they can customize their appearance, transform their environment, and generally communicate, collaborate, and cooperate within their “world”. Similar to many gaming applications, virtual worlds have been very popular, and games such as “World of Warcraft” or “Farmville” have millions of active user accounts sharing an online world (Messinger et. al, 2009). Younger adults are significantly more likely to adopt a virtual world; approximately 14% of the young adults between 18 and 29 years old report playing MMOGs (massive multiplayer online games), and experts predict that young people’s interest in gaming will drive a trend to integrate game elements into other aspects of life (Anderson & Rainie, 2012).

Virtual reality applications have been very successful in training and business (Mahon, Bryant, Brown & Kim, 2010; Psotka, 1995; Heinrichs, Youngblood, Harter & Dev, 2008). The major added benefit of virtual reality applications when compared to online learning is the effect of placing a person into a simulated environment that “feels real” to the user and allows the experience of immersion. These environments are a shift from interactive computer technologies where interaction becomes immersion, the desktop metaphor becomes a world metaphor, and learning is augmented with experience (Psotka, 1995). Unfortunately, many of these environments work best with newer technology, and certain advances in technology, such as the integration of haptic interfaces or sensory interfaces (e.g. integrating tactile feedback or integrating smell), are still in the early stages of implementation into mainstream software applications (Meiselwitz, Bentz & Lazar, 2010).

Benefits of virtual worlds can extend to the traditional classroom as well. Many educators see vast potential for these simulations in areas such as training, social interaction, prototyping, design, team collaboration, advertisement and many other areas of study using the simulation and interactive potential of the medium (Vincenti & Braman, 2011). The attraction of the gaming elements can enhance and grow social networks, increase participation, and speed up self-organized learning (Anderson & Rainie, 2012). Some researchers see virtual worlds as an advantage to problem-solving and a great way to deliver more effective education. However, cost for planning and implementation, time constraints, and initial technical learning curve may cause adoption of virtual worlds in the classroom to be slow (Anderson & Rainie, 2012).

In this paper, we report about a course that was created at a medium size, mid-Atlantic liberal arts university as part of the university’s revised general education curriculum. The revised curriculum has the goal to provide a more inclusive learning environment where students are exposed to different ways of knowing and multiple perspectives to better balance capacities and knowledge for our undergraduate students. The rationale for the course development is discussed; implementation, lessons learned, student feedback, as well as suggestions for future research are presented.

Virtual Worlds, Gaming and Education

At first glance many virtual worlds appear as a relatively low-resolution videogame, given some of the technological advances and sophistication in video graphics available today. This very first impression can be disappointing for first time users and may drive some users away from these platforms. Once a user is able to get past this initial hurdle and explore the possibilities that such applications offer, they start appreciating the richness and completeness that virtual worlds feature, able to model situations and environments, defying spatiotemporal limitations imposed by traditional laws of physics.

In retrospect, even considering virtual worlds as “just a game” is not excessively negative, given the strong potential that gaming offers in education (Prensky, 2000). This concept becomes even more important in conjunction with the fact that digital natives have finally reached our classroom by the masses rather than the trickle that we experienced in previous years (Prensky, 2001). Today’s classrooms are nearly completely populated by students who are sometimes more familiar with the keyboard (or touch screen) than pen and paper because of the digital divide that is finally closing when we look at the pervasive presence of connected devices (Attewell, Suazo-Garcia & Battle, 2003; Bruno, Esposito, Genovese & Gwebu, 2011). While there are still many perceived negative stereotypes related to virtual worlds, many would argue that the benefits far outweigh the disadvantages (Laughlin, 2010). Table 1 outlines the 12 aspects of games that engage players on the left and the learning preferences of digital natives (Derryberry, 2007; Prensky, 2000).

Player engagement (Prensky, 2000)	Learning preferences (Derryberry, 2007)
<ul style="list-style-type: none"> • Games are a form of fun, which generally evoke a sense of enjoyment and pleasure; • Games are a form of play, which typically results in involvement in the activity; • Games have rules, which constitute structure; • Games have goals, which result in motivation; • Games are interactive, involving the player into some type of action; • Games have outcomes and feedback, which may result in learning; • Games are adaptive, giving some flow to the experience; • Games have win states, resulting in ego gratification; • Games have conflict, competition, challenge, opposition, which sparks the player’s interest and involvement into the situation; • Games have problem solving, stimulating the player’s creativity; • Games have interaction, which often involve social groups; • Games have presentation and story, giving the player emotions. 	<ul style="list-style-type: none"> • Receiving information quickly from multiple multimedia sources; • Parallel processing and multitasking; • Processing pictures, sounds, and video before text; • Random access to hyperlinked multimedia information; • Interacting/networking simultaneously with many others; • Learning “just-in-time”; • Instant gratification and instant rewards; • Learning that is relevant, instantly useful, and fun.

Table 1: Comparison of engaging aspects of gaming and learning preferences of digital natives

A fair look at virtual worlds would instead move students away from the idea of simple games, and instead situate them into the toolset of pliable environments completely capable of delivering formal, as well as contextual learning experiences, to the users (Lim, 2009). The variety in interfaces, policies, as well as age target of different virtual worlds, gives the instructor numerous choices of the medium through which they can deliver the material to students. We should look at virtual worlds exactly as this: a medium. Such medium is particularly adaptable to educational activities because of six features that pedagogy requires which are reflected into the majority of virtual worlds, as described by Lim (2009): Learning by exploring; Learning by collaborating; Learning by being; Learning by building; Learning by championing; and Learning by expressing.

Virtual Worlds in the College Classroom

General education courses are a part of many American colleges and universities. Currently, more than 85% of colleges and universities in the United States require their students to complete some general education requirements, originally with the purpose to prepare their students for a larger variety of professions (Hachtmann, 2012). Often general education curricula are subject-based and focus on training in a specific discipline to broaden student knowledge. Many general education curricula are complicated and are often unappealing to students, especially when transferring from one institution to another. In recent years, general education has increased as a priority, and almost 90% of higher education institutions are assessing or modifying their general education program (Hachtmann, 2012). Current trends in recent general education reform emphasize broad competencies rather than mastery of content, integrative learning experiences across the curriculum, and improving instructional methods and assessments of student learning (DeZure, 2003).

At Towson University, the general education curriculum underwent a reform implemented in the academic year 2011/2012. It was renamed the “New Core Curriculum”, and changed from a subject-based to an outcome-based curriculum. The goal is to provide students with an experience of different approaches to learning, different disciplinary frameworks for analysis, and different perspectives on issues and beliefs, while paying increased attention to global affairs. Ten outcomes have been defined that all undergraduate students must achieve by the time they graduate. In addition, a new category was added introducing a seminar course, taught by full time faculty with an enrolment limit of 20 students per section. This seminar course focuses on exploration and discovery, and introduces incoming freshmen to the intellectual, communication, and collaborative skills needed for academic success. The seminar format emphasizes active learning, multiple perspectives, and should involve more than one discipline.

The Course

“Virtual Worlds and Society: Impacts of Online Interaction” is a new course in the computer science department and was created as a seminar course in response to the requirements of the new core curriculum. It addresses the need for multidisciplinary and global perspectives as well as the need for constructivist learning environments, supporting collaboration and different approaches to learning. Additionally these seminar courses are also aimed to help students learn various research skills for success in their college career. The course, while focusing on and requiring the use of virtual worlds, examines the impacts and implications on the technology as well as the in-world culture as the main content of the course. Specific course goals were mapped to the university new core goals to assure that the new course fulfills the new requirements. Following is the course description:

“This course explores online interaction through virtual worlds and Massively Multi-player Online Role Playing Games (MMORPGs). Emphasis will be placed on social, economic, technical and design aspects of these environments, both from a virtual and real life multidisciplinary perspective. Students will engage in activities within several online worlds in order to better recognize related issues and technologies, and to be able to analyze world specific tasks and goals. A historical perspective on the development of virtual worlds will be discussed as well as an examination of current and future trends, issues and impacts.
Prerequisite: None”

Class Activities

Multiple elements of the course require direct interaction within a virtual world in addition to learning the course content in class or through assignments, projects and writing assignments. Direct use of a virtual world is one of the main methods of learning course content for a hands-on approach of learning about the cyber culture of the environment. There are several lab exercises that were created in order to reinforce reading materials and discussions. Students in the course have access to a virtual campus in the world of Second Life for class activities, labs and for research. The “Towson Innovation Lab” is a 3D virtual campus and interactive space currently supported jointly by the department of computer and information sciences and the center of interactive media and design. The virtual space has been operational since 2008, originally created through a team of interdisciplinary collaborators through a teaching innovation grant. The Towson Innovation Lab gives students the opportunity to access an international venue for research, attend classes, lectures, meetings, and showcase the results of their academic and creative endeavors (Sullivan et al, 2009). Several courses at the University have already used the space for a variety of projects and initiatives with positive student feedback (Braman *et al*, 2011; Wang & Braman, 2009; Wang *et al*, 2009).

The major topics included in the course are as follows:

1. Introduction to virtual worlds and MMORPGs: history, developments and trends
2. Introduction to various virtual worlds
3. Impacts and usages of online collaboration and virtual teams
4. Virtual crime, privacy and security
5. Online identity, embodiment and trust
6. Social impacts: personal addictions and negative consequences
7. Design and creativity in virtual worlds
8. Importance of groups, guilds and virtual networking
9. Virtual economies, virtual goods and services

These topics are covered in various class discussions, lectures, assignments and projects. At the end of the semester, all students are required to write an in-depth research paper based on one of these topics which must be extensively supported by scholarly research. As it is difficult to find course textbooks that cover all of these topics for the course, several textbooks are often used as well as materials from various resources and from the instructors own research and experience with Second Life.

Lab Exercises

Lab sessions require students to create and use an avatar to interact in Second Life. To reinforce class materials students are required to complete several tasks, exploration activities, conduct in-world interviews, observations and experiment with object design. For example, some lectures focuses on virtual crime, privacy and intellectual property. As a lab exercise, students are asked to visit several locations, sometimes while working in small teams, to identify possible legal or ethical issues in Second Life. Students are then required to take a picture of the situation, analyze the ethical dilemma in an essay format, and relate it to class materials or to other research. This type of lab often contains several similar tasks and includes several questions, where students need to interact with the world, apply content learned in class, and also be able to write and research on the topic. Another lab includes the design, building and analysis of a virtual business, which includes the marketing of a virtual brand or product. Others relate to online identity, virtual commerce, social interaction, the “Magic Circle” concept, emergent phenomena and more, as it relates to class discussions and reading.

Course Pilot Survey

The course was offered for the first time in the spring 2012 semester. On the first day of class, students were asked preliminary questions related to their use of virtual worlds. This was to understand what (if any) virtual world experiences they had previously engaged in (including gaming). Questions were generally open ended and purposely did not include a definition for a “virtual world” or “game”. The differences between gaming and virtual worlds as well as the properties and characterizes of each were discussed in the course at a later time. In the Seminar course, there were a total of 21 students enrolled. All 21 students (100%) responded to the survey. The class consisted of 11 females and 10 males. Seventeen students listed their age, for an average of 18.47 years for those responding. There was a wide variety of declared majors with the most popular including: art & design, exercise science, and family studies.

Question 1 asked “Have you used any virtual worlds before this class?”. Twelve students responded “Yes” (57.1%) with the remaining nine responding “No” (42.9%). Several students listed environments they considered main virtual worlds in which they interacted regularly. These included: Runescape, World of WarCraft, Minecraft, Gaia Online, IMVU, MapleStory, StarCraft, Runes of Magic, Pirates of the Caribbean Online, Spiral Knights, Half Life, Sims Online, Final Fantasy, Habbo Hotel. Most of the students responding listed more than one world.

Question 2 asked “Do you play video games? (if yes, which ones do you play the most?)”. The majority of the responses 81%, replied “Yes” that they do play video games. The remaining 19% replied “No”. Several students also listed the games that they played which included: Battlefield 3, Civilization 3, Halo 3, Gears of War, Madden, Kingdom Hearts, Mario Kart, Counter Strike, Skyrim, Oblivion, Fable, Grand Theft Auto, Tetris, Roller Coaster Tycoon, Sim City 4, NCAA Football, FIFA Soccer, Call of Duty, Final Fantasy, Spiral Knights, and Half-life. Several more generalized game genres were listed such “Racing Games”, “Sports Games”, “RPG’s”, “Simulations” and “Wii Games”. Interestingly several responses were repeats of environments listed from question 1 such as: MineCraft and World of WarCraft, indicating those students did not differentiate between virtual worlds and video games.

Question 3 of the survey asked “Do you have any accounts on any social networks?”. If they responded yes, they were asked to list which social networks they belong. All students noted that they did indeed have an

account on a social network. Several social networks were listed: Facebook, Twitter, MySpace, Tumblr, YouTube, Google+.

Question 4 of the survey asked students if they had any particular topics they were interested in related to virtual worlds that they would like to know more about during the course. Twelve students (57.1%) said “no” or did not list any response. The remaining 9 students (42.9%) listed the following topics: History of virtual worlds, the impacts on Real Life, how they work, how they relate to games, Second Life, effects on social aspects, effect of gaming on child development, and how to interact in a virtual world.

At the conclusion of the course, students were asked if they would continue to use virtual worlds. Again 21 students responded (100%), 11 reported “No” (52.4%) and 10 reported “Yes” (47.6%). Some of the comments from the students that noted they would not use virtual worlds include:

- I am just used to interacting with people face to face and the technology is time consuming
- I don't see myself using virtual worlds again because I personally was not very interested in them
- I do not find it very valuable to me as it would take away from the time I have to spend with people physically.

From the students that noted that they would use virtual worlds again, we received several comments such as:

- The main reason why I enjoy using virtual worlds is because of the wide variety of people I got to interact with in a short period of time spent online
- I truly believe that virtual classrooms would be an enjoyable and productive use of virtual worlds
- Using Second Life was very interesting, but it is kind of like being a tourist in a different country.

Challenges

Using Second Life in the classroom can have many challenges, both technically and in practice. While the authors have had success in a variety of courses with positive student outcomes and reception, its usage poses challenges (Wang & Braman, 2009). For instance, having adequate computing resources to run the software can be problematic, as well as latency over slower or limited internet connections (Bainbridge, 2007). Periodic updates to the Second Life viewer (or any virtual world) depending on its frequency, can pose challenges if instructors need assistance applying such updates or lack administrative rights to apply updates. It is also highly beneficial that instructors are very well adapted to the virtual world that they decide to use in a course. This will enhance student's perception of the environment and also ease any apprehension about using the software if problem arise in class if they are able to get assistance. At Towson University, the professors that maintain the Towson Innovation Lab Island often conduct several training sessions per year to help acclimate other faculty to the Second Life platform and its usages. In the classroom, it is also strongly recommended that the instructor conducts at least one lab session as a “Introduction to Second Life” in order to acclimate students to all of the complex controls, avatar editing, transportation and many other details on using the virtual world.

Discussion

Integrating virtual worlds into the general education curriculum as a primary topic of study in our first year seminar overall had a positive impact on student learning experiences and engagement. Students were excited and interested, and were motivated to participate in class activities. Some of the more attractive features of Second Life (such as being able to fly and edit their avatar appearances) could at times be a distraction as students spent significant time in class experimenting with these features. For future seminars, we plan to restructure the learning units and assignments to include more time for exploration and discovery, and will provide more open ended activities.

Unfortunately, the number of students indicating that they would continue to participate in virtual worlds after completing the class was lower than expected (52.4% reported that they would not continue). Informal comments suggested that students missed personal interaction in the virtual world compared to real life, especially when all interaction was conducted in the virtual world. For future seminars we plan on collecting additional data that will help us to identify possible factors contributing to this situation. We especially plan on investigating student expectations of virtual worlds compared to expectations of gaming and social networking environments, as well as investigating the impact of student's prior experience with gaming and social networking environments. The course also involved considerable commitment regarding the development of learning activities, as well as configuring details of the virtual world. In our case, having the ability to create a stable and customizable space in Second Life was extremely helpful via the Towson Innovation Lab. Initial learning time to master the environment was also a factor to be considered for students as well as faculty. Our seminars are generally capped at 20 students per seminar section, but despite the smaller class size faculty often was very busy helping students managing navigation through

the world, and smaller class sizes are definitely an advantage. It is also strongly recommended that instructors spend ample time learning the virtual world prior to class activities.

Our preliminary findings in our use of virtual worlds in a general education course as the primary focus and primary medium have been encouraging. Student response has been positive, and virtual worlds have supported the new core requirements for different approaches to learning, frameworks for analysis, and perspectives. However, this first semester has also shown that the use of virtual worlds in the classroom requires a considerable investment in time and technology, and in our case, although students enjoyed the use of virtual worlds in the classroom, it did not automatically translate into interest in virtual worlds outside of the classroom or for other applications. We plan on further research to clarify this issue and will work on reviewing and refining the course learning units and assignments.

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