Using virtual worlds efficiently in a post-graduate business course: Designing an exploratory study

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There is much interesting work being done around virtual worlds in education (Bulmer, 2008; Dede, 2007; NMC, 2007; Schutt & Martino, 2008) particularly in areas that lend themselves to immersion and scenarios or role-plays, but how can the time and effort required to become familiar with a virtual world be minimised whilst at the same time creating an engaging task for students? This paper describes one such example using Second Life in a postgraduate business course. It outlines the first phase of a mixed methods research study (Cresswell & Piano Clarke, 2007), in which insights are sought from a lecturer and student perspective. An Exploratory Design: Instrument Development Model is used to inform research questions around the factors that influence the use of virtual worlds in learning and teaching. Preliminary findings show that initial support and orientation to virtual worlds contribute to the success of their use in learning and teaching, and that our 'net-gen' students are not as technology savvy as we imagine. The second phase of the study has brought to light a conceptualisation of virtual worlds as a gaming environment which may indicate one reason not yet highlighted in the literature, for low uptake of virtual worlds by both students and lecturers (McNeil & Diao, 2010). Continuing investigations will use a Triangulation Design: Convergence Model to collect qualitative and quantitative data, surveying students on their perceptions of virtual worlds in order to corroborate the findings in the literature.

Keywords: Second Life, virtual worlds, learning outcomes, business, engagement

Introduction

Virtual worlds have the potential to extend the boundaries of when, where and how learning can happen beyond the realm of the traditional classroom (Schutt & Martino, 2008). The literature abounds with examples of virtual worlds being used in higher education, in disciplines as diverse as Statistics (Bulmer, 2003), Healthcare (Rogers, 2008) and Hospitality and Tourism (Penfold, 2008). Studies confirm the affordances of virtual worlds such as *Second Life* and *Active Worlds,* providing 3D environments with the ability to create and share richer, more authentic learning environments (Dede, 2007; NMC, 2007). Johnson and Levine (2008) draw the distinction that while online games such as *World of Warcraft* often take place in virtual worlds, these games tend to have a 'fixed, goal-oriented purpose' (p. 162); while the virtual worlds themselves are open and can be applied to any context.

Along with these affordances, the literature also includes evidence of limitations. According to Butler & White (2008), they may also represent a substantial investment in time, particularly by early adopters and innovators. Wood and Hopkins (2008) argue that we cannot assume our 'Millenial/Digital Native/Net Gen' students are comfortable with this new participatory environment, but they will be more marketable to prospective employers if they can demonstrate their capacity to adapt readily to these new and emerging technologies. Kluge and Riley (2008) reported various reasons why students may find working with virtual worlds prohibitive, including cost of Internet access, robustness of computer hardware, accessibility issues and even distraction from other goals due to the almost addictive engagement aspect. De Freitas, Rebolledo-Mendez, Liarokapis, Magoulas and Poulovassilis (2010), found in their comprehensive study of design and evaluation of immersive learning activities in virtual worlds, that the least liked aspects of the interaction were creating avatars and moving in-world. They also found that orientation is important for new users of virtual worlds to induct them into using the platform, and for maximising their engagement with virtual worlds as a whole.

Background

A recent student IT experience pilot study (McNeill & Diao, 2010) at Macquarie University confirmed Wood and Hopkins' (2008) findings around students' technology skills. Despite their classification as 'Net Generation' (Oblinger, 2003), not all the students interviewed had highly developed technology skills. In addition, the students in the survey thought most technologies could benefit their study but some technologies made their study more complicated. This was because they had to take time to learn them and they expected to encounter many technical problems as they began. A follow-up study surveyed a wider group of students and asked about their uses of technologies in general and in particular for their learning. Only 3% reported any use of virtual worlds. (Gosper, 2010). Another study was carried out at Macquarie University, into academic perspectives of the affordances of social networking tools to support assessment of higher order learning (McNeill, Gosper & Hedburg, 2010). This study used a survey to explore how unit convenors used various technologies, and preliminary findings showed that only 3% of respondents use virtual worlds in their teaching, mirroring the student results above.

This evidence prompted investigations into whether this low level of usage of virtual worlds by both academics and students alike is in some way related to themes from the literature such as lack of time to learn and become familiar with such a complex technology (Butler and White, 2008), or whether other factors are at play. If so, what are these factors and do they align with the limitations outlined in the literature?

The *Information Systems in Business* unit is run at postgraduate level and because of the unit's inherent focus on technologies, it offered an ideal opportunity to pilot the use of a virtual world experience for an assessment task. The primary objective of this unit is to understand the concept of the digital economy, the impact business pressures play on the organisation and their responses and adaptations to these pressures and the role technology plays both inside and outside the organisation in the context of globalisation.

This study is designed to test the themes from the literature in a specific teaching context, particularly using DeFreitas et al. (2010), Butler & White (2008), Kluge & Riley (2008), and Wood & Hopkins (2008), as theoretical frameworks. Findings will then be incorporated to the task design such that the topic of 'social technologies' can be introduced in a way that overcomes the identified limitations and minimises the complexities and technicalities of 'emigrating' to a digital world

Method

A mixed methods research design approach (Cresswell & Piano Clark, 2007) is taken in this study, and it is carried out in two phases. The first phase involves an Exploratory Sequential Design model (Creswell & Piano Clarke, 2007.) whereby an ethics approved survey instrument is designed based on findings in the literature as well as from informal observations of the first cohort of 23 post-graduate students to attempt the task, their ability to engage with the technology and their familiarity during the orientation tutorial in the computer lab. It is this first phase of the study that is reported on in this paper.

The second phase of the study will use a Triangulation Design: Convergence Model (Cresswell & Piano Clark 2007). Quantitative data will be collected from the survey of the 2nd cohort of 41 students and analysed. Qualitative data will be collected from both open ended answers in the survey and from emergent themes from students' own reflections in their submitted assignments, as well as lecturer's reflections on the students' ability to immerse themselves using the technology, the questions they asked in the discussion forum on the unit website, and the emails received. Then these two sets of data will be compared and contrasted with the aim of corroborating findings from the literature and to help improve the design of the learning task. Initial reflection data has been collected and is currently under analysis. Emerging themes will also be reported in this paper.

Learning design

The following learning activity and its design process is outlined here, although the effectiveness of this design is not under investigation at this stage of the study and will be analysed as a case study, after phase two.

The design of the Virtual Worlds based assignment task was an iterative process between the lecturer of the unit and an Educational Developer (ED). The lecturer wanted to introduce current 'social' technologies by exposing her students to them in an authentic context i.e. to not only read about them but to fully immerse themselves in the technologies. Second Life was chosen for the task as it is an example of a virtual world that is increasingly being utilised by businesses. According to recent research, companies such as Coca-Cola, Intel, MTV, Penguin and Toyota not only have property and buildings in Second Life but are also actively engaged in marketing campaigns within it (KZero, cited in Wood & Hopkins, 2008).

Second Life, is a popular MUVE (multi-user virtual environment) created by Linden Labs in 2003. It has an internal currency, the Linden dollar (L$), which can be used to buy, sell, rent or trade land or goods and services with other users. The assignment task was titled *Second Life: Is it Serious Business?* Students were required to investigate how businesses are using Second Life and provide a recommendation to management. Their audience consisted of the executive committee of a large insurance company. The following points were given to students to reflect upon and thus help compose their report:

- How Avatars can make money in Second Life and how this works
- Ways in which Avatars can make real money, giving specific examples
- Advantages of using Second Life this way
- Potential disadvantages of using Second Life this way
- Other ways that Second Life is being used by other organisations
- Their experience of using Second Life.
- Whether organisations should or should not adopt Second Life

Some initial background reading was sourced for students (Erickson, 2010) and a computer tutorial was scheduled to assist them in orientating themselves to SL, namely creating an account with corresponding avatar. Importance was placed on this initial computer-lab based tutorial (as recommended by De Freitas et al., 2010), to enable them to move quickly past the 'learning of the technology' phase to the 'using' phase and then further still to enable them to employ some higher order skills such as evaluation and synthesis (Salmon, 2000). They were then directed via a SLURL (Second Life URL) to Welcome Island, where they attempted hands-on tutorials to help learn the basics of navigation, chatting, camera control and teleporting (http://maps.secondlife.com/secondlife/Welcome%20Island%20Public3/28/225/25). Students were also introduced to the Macquarie University SL space.

Initial findings

To better understand the student experience, the section in the assignment on the student reflections was used to identify themes that could be used as input into the survey (to be used in the second phase of the research). The student's reflections on their Second Life experience was captured and the following themes were identified: Graphics and Interface; Ease of Use; Game versus Virtual World; Business Context Usefulness and Social Network Characteristics

The student reflections showed that they had limited knowledge of virtual worlds and their usefulness. A number of students had difficulty with distinguishing virtual worlds from role playing games and other types of social networks. After some initial concerns, students found that they could engage with Second Life and provided well-considered reflections on its capabilities and effectiveness.

The project has completed its first phase and the survey instrument has been designed based on findings from the literature, student reflections of Second Life, informal observations of students and reflections from the lecturer. Results suggest that students found this assessment task challenging, due to initial technical obstacles such as the campus access to Second Life being restricted, and the streaming capabilities of the Internet over the Wi-Fi, but extremely engaging. Students found that they were able to enter into this new environment for the first time with purpose and direction.

It was also found that only two of the cohort had previous experience with SL and already had their own avatar. The students worked their way through the process of creating an avatar and corresponding username but their reactions were not as anticipated. It wasn't so much that they didn't enjoy the experience as found by de Freitas et al. (2010), but that most were unfamiliar with the process. Choosing what an avatar would look like was a time consuming activity, as students were very careful in obtaining the right look and feel of their virtual representation.

Linden lab's policy on limiting accounts from the same 'household' or in this case the same IP address was another barrier to the success of this first session. When it came to submitting their avatar names, only one student was able to complete this step, and actually create their avatar. The remainder kept receiving an error message. So whilst technical issues were encountered, the students reported that actually going through the account creation process meant that they could quickly and easily do so again at home. Unfortunately the visit to Help-Island had to be by demonstration since students didn't have accounts yet, but again, most students reported that this helped them feel more comfortable with this new experience once they were able to attempt it. Initial analysis of students' reflections of the task in phase two of the study, confirm these observations and they also reveal some further themes of interest. One such emerging view is that of Second Life as a game, which appears to lead to a general feeling that the animations are outdated and moving around Second Life slow and cumbersome and therefore no fun.

Discussion

There are some limitations to this study in that it is a small-scale pilot used with only one cohort of postgraduate students and then repeated with a second cohort.

It was interesting to observe (in line with findings of McNeil and Diao, 2010) that students were unfamiliar with creating avatars, when it would have been expected these 'net-geners' to do this regularly. In phase two of the study, students will be asked to expand on the reasons for this and demographic data will also be collected from the 2nd cohort of students which may shed more light on this observation. The technical issue around account creation led to the discovery that upon request, an IP address for a school or business can be cleared for multiple-account creation, so this was carried out to minimise technical issues for the 2nd cohort of students attempting the task (Kluge and Riley, 2008).

Although these and other technical challenges occurred during the lab-based orientation tutorial, benefits were still gained. Students were able to experience the virtual world without that experience being too time consuming and without the need to master too much technology. It also helped overcome any reluctance or wariness around using the technology for the first time. Secondly, students were able to see how the teacher worked around these limitations and still produced a viable outcome, which is certainly an authentic workplace scenario as recommended in Wood and Hopkins, (2008). The survey instrument in phase two will be able to further investigate students' perspectives of this orientation tutorial and wether it was deemed pivotal to the success of the assignment. In particular, whether, as in the study of de Freitas et al. (2010), the technical issues did significantly impede the users' seamless experience and therefore impacted upon their engagement in the task, and also whether the time-consuming aspects of virtual world immersion enhanced or detracted from the learning and teaching experience (Butler and White, 2008).

Other data that will be collected in phase two of the study will include students' experience of accessing virtual worlds for the first time. What were the obstacles, what were the affordances of the technology? The design of the assessment task, did the students find it useful for their learning? What was it that made it engaging (or not)? Which Second Life knowledge and skills were essential so that they could complete the assignment? Did they feel they were immersed enough in Second Life to have an informed opinion?

Since many students' initial impressions where that Second Life was a game (and an outdated game at that), could this contribute to the findings of McNeil and Diao (2010) on the low uptake of virtual worlds by students and academics? This leads to further questions, should we be encouraging academics to utilize these emerging technologies in their teaching or will they become obsolete before we are able to do so? Does it matter what the technology is, or should we be concentrating on the generic skills such as adaptation to change, and enhancing digital literacies? All academic programs at Macquarie seek to develop students' capabilities and skills in a range of areas (graduate capabilities). This then leads to the question - can links be made to specific learning outcomes and to more generic outcomes such as graduate capabilities in order to make the use of these technologies more appealing, relevant and productive?

Conclusion

This paper has outlined the challenges and issues faced in introducing a virtual-worlds based assessment task into a post-graduate business course. Initial observations indicate that the task was engaging to students despite the technical obstacles and that the initial orientation lab-based tutorial allowed students to 'acclimatise' to the technology, confirming findings from the literature (de Freitas et al., 2010). The fact that many students considered Second Life as a poorly crafted gaming environment may contribute to the low uptake of virtual worlds in education (McNeil & Diao, 2010) and this will be further investigated in phase two of the study. Reflections from the lecturer conclude that we need to ask further questions about how these technologies are assisting students to transition to the workplace. Most crucially, we should be ensuring that students are articulate in the social and ethical issues associated with these types of technologies and we can only do this if students experience this and reflect on the experience.

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