



Using 3D-virtual worlds to teach decision-making

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This paper presents the results of a pilot study of a project that uses 3D-virtual world technologies, namely *Second Life*, as a platform for learning simulations through role plays with the intent to improve the development of professional decision making amongst pre-graduate teachers undertaking a unit in professional ethics. At present students engage in discussion of ethical issues and case studies within the classroom environment as tools for learning decision-making and developing moral sensitivity. However, the effectiveness of these are limited by the already existing identities and social relationships of the students and the scenarios lack the social complexities evident in the professional world. This pilot study reflects on the first use of the 3D-virtual world to teach in this manner and highlights some of the limitations and possibilities that are to be considered in the larger research study.

Keywords: 3D-virtual worlds, decision-making, teacher education, professional practice

Introduction

Innovation in teaching and learning in higher education are being driven by the increasing availability and affordance of information and communication technology (ICT). ICT provides the ability for new pedagogies to be created and for tested pedagogies to be transformed beyond the realms of the traditional classroom (Sutherland et al., 2004). Learning within classrooms is situated within a set of overlapping cultures and social expectations with the power structures of teacher-student and student-student relationships embedded in all activities (Ares, 2008; Contu & Willmott, 2003). ICT can transcend these boundaries allowing for the re-invention and transformation of pedagogy; it is not proposed that ICT brings about, necessarily, new pedagogies, instead it reshapes existing practice and understandings (Linser, Ree-Lindstad, & Vold, 2008; Sutherland et al., 2004).

3D-virtual world technologies, such as *Second Life*, provide platforms for different levels of online interaction. Where previously online learning was limited to textual synchronous and asynchronous forms, such as discussion boards and online chat, 3D-virtual world technologies provide for the evolution of a new online persona that affords a deeper level of engagement in the discussion and learning in a generative environment. Furthermore, 3D-virtual worlds afford phases of testing simulated practice moving online learning from just sharing and discussing ideas to testing and practicing behaviours. Such possibilities challenge educators to consider a transformed pedagogy moving to an online form of what was previously limited to the experience of face-to-face classrooms.

Pedagogy in 3D-virtual worlds

In working with ICT it is an imperative to draw upon general theoretical principles and perceptions about teaching and learning, but to further develop, from these, new realisations. Arguing from a socio-cultural perspective, learning is viewed as a the product of social interactions between two or more agents (Vygotsky, 1978). Learning comes as the result of the “creation, development and communication of meaning through the collaborative use of mediational means” (Daniels, 2001, p.60). In many educational settings learning is conceived of as being individualistic, dependent on transmission pedagogies and associated with the transfer of decontextualised knowledge separated from the activities of life (Guile & Young, 1998; Kozulin, 2003). Through such a conceptualisation, collaboration is discouraged and assessment of learning focuses upon the achievement of the individual in examinations removed, again, from the context of the knowledge. Such a view of learning ignores the complexities of human

interactions and fails to consider learning as a social process with its meaning being in the 'lived-world' (Fuller, Hodkinson, Hodkinson, & Unwin, 2005; Guile & Young, 1998).

It is argued here that effective teaching and learning happens where collaboration can occur within authentic settings (Lombardi, 2007; McKenzie, et al., 2002). Within traditional classrooms collaboration can be facilitated through interactions such as group-work, peer-to-peer learning episodes and role-play. The online world presents as very much a social phenomena through the sharing of expertise in navigating the environment and also providing the setting for constant communication and social interaction, especially in this era of Web 2.0 technologies. However, collaborative online learning and the formation of communities of learners is often stifled by the opaqueness of the technology (Campbell & Uys, 2007). For example, engaging in online discussions is often through a text-based interface in the form of textual conversations posted to a space that resembles a notice board. There is little identification of the person who posted the message and the responder has no visual image of the person to who they write, beyond their own imagination. For such an environment to be conducive to the sharing of ideas and forming a community of learners consideration must be given to facilitating the risk-taking of participants and the forming of trust amongst the community's participants (Campbell & Uys, 2007).

3D-virtual world technologies, such as *Second Life*, provide another dimension to online interactions, in that users do not just communicate via text on a screen abstracted from reality, but instead they interact through visual representations of themselves, both textually and with audio, in an alternate reality. The interactions in these environments attempt to simulate, far more so than previous technologies, those environments that occur in real first-life experience, reducing the level of risk-taking required to build the required trust. The 3D-virtual world allows for learning to no longer be limited to the constructs of a four-walled classroom but instead can take place anytime and anywhere (Kluge & Riley, 2008). 3D-virtual worlds allow the teacher to construct experiences for students that simulate the face-to-face learning experience with the added flexibility of online interactions. Further to the new level of interaction, 3D-virtual worlds, such as *Second Life*, also allow for users (both teachers and students) to create and extend their three-dimensional online learning environments (Cheal, 2007). The generative nature of 3D-virtual worlds provides for exciting possibilities for teaching and learning where existing rules and structures can be reshaped and reformed (Kluge & Riley, 2008). Within these environments students are able to create the environment and the objects within, as well as develop their own representation in the form of an avatar. Although suspension of disbelief and a willingness to be fully immersed is necessary for the user of 3D-virtual worlds, identification with avatars can be very real for those involved in these spaces (Cheal, 2007). 3D-virtual worlds facilitate experiential, active learning in authentic settings.

The teaching of decision-making

Teaching of ethics, it is argued, should serve two primary purposes; (1) the development of ethical behaviour and sensitivity to recognise moral dimensions of a particular situation, and (2) improved moral reasoning and decision making skills (Corbo Crehan & Campbell, 2007). If these are to be realised it is important that students be provided with opportunity to reflect on their own values, develop these more fully, and apply them to professional contexts. The use of case studies and role plays, allowing for the consideration of complex and problematic scenarios, is widely accepted as an essential part of ethics education (Corbo Crehan & Campbell, 2007). Within the teaching of ethical decision-making the use of case studies and role-plays provide for richer and deeper learning experiences, especially where these experiences can be contextualised within the lived context (Keefer, 2005).

The benefit that is argued to occur in the use of 3D-virtual world technologies as a platform for decision-making simulations and reflection on ethical values is the reinvention of a student's identity and the need to therefore reconstruct the social world and governing rules of interactions. Al-Mahmood (2006) argues that there is a transformation of identity as a student moves from the real to the 3D-virtual world interactions in a learning experience. Identity, as a socially constructed concept, changes as the social and cultural world changes (Tajfel, 1974; Wenger, 1998). 3D-virtual world technologies may provide a temporal space where this transformation can occur to allow students to participate free of the pre-existing power relations, social expectations and conceptualisations of identity. Furthermore, through interactions in a 3D-virtual worlds, deeper learning in sensitive subject areas, such as professional ethics, which require self-scrutiny, may be more achievable given the transformation of identity from the real-world person and the avatar in the 3D-virtual world (Edlington, 2007). It is the aim of this research to test and explore the application of these ideas through the learning in professional ethics units delivered to pre-graduate teachers just prior to them going into school placements. This research will contribute to a better understanding of the use of 3D-virtual world technologies, but will also extend this understanding

to consider how these technologies can be used to overcome some of the cultural barriers evident in the classroom.

Design of study

The study discussed in this paper used *Second Life* during the teaching of a professional ethics unit that is run during a 5-day intensive teaching period. Students undertake this subject during their fourth-year of a Bachelor of Teaching/Bachelor of Arts program and just prior to their internship, which forms the last component of their study before working in schools. This subject had previously used a combination of online learning tasks and traditional classroom based tutorials to challenge students on their own personal values, but more so how these related to and were reflected in the professional value systems evident in teaching contexts. The use of the 3D-virtual world was aimed to enhance the online learning component of this subject and was designed to relate to the experiences within the tutorial classroom. The students were divided into 2 groups of approximately 50 students in each group.

Within *Second Life* the study used an island identified as Australis-4-Learning, which is the site of a joint project between the Australian Catholic University, Curtin University and the University of New England. The island was designed, within our area, to provide places for group discussion as well as a replica of a classroom learning experience using a neo-Likert scale, with the building of the space being undertaken by the author / researcher. Images of these spaces are below. Figure 1 shows a forum area where students could meet to share ideas and discuss topics. This was used as a space where instruction could be given to a large group before students could move to complete the task. Figure 2 shows the neo-Likert scale area, a space where students were able to move to these signs and by clicking on them they could sit on top to form a group discussion. These signs were positioned so where students were able to hear and interact with conversations occurring at nearby groups.



Figure 1: Forum space on Australis-4-Learning

At the completion of the unit the student participants were requested to develop a brief reflection of their use of *Second Life* by responding to suggested questions and/or generating their own format. The suggested questions were: what were the challenges and limitations in using *Second Life*, how did the use of *Second Life* contribute to your learning in this unit, how useful was this approach to enhancing your learning, and how could you see yourself using this approach in your own teaching? The responses were extended responses generally about 1 – 2 pages in length from each student and, although all students were required to respond, approximately 60% provided consent, in line with the requirements of the approving ethics committee, for their responses to be used for research purposes. These responses were analysed against the four questions for common and emerging themes, as well as additional analysis of reflections outside these identified areas. Given the length and nature of this paper the discussion presented displays the general emergent themes from the student response rather than detailed results, with these being made available in later papers.

Outcomes, limitations and future directions

The use of *Second Life* reflected similar experiences for students that had occurred within the normal classroom. The extent of use was somewhat limited due to a range of technical and experience related

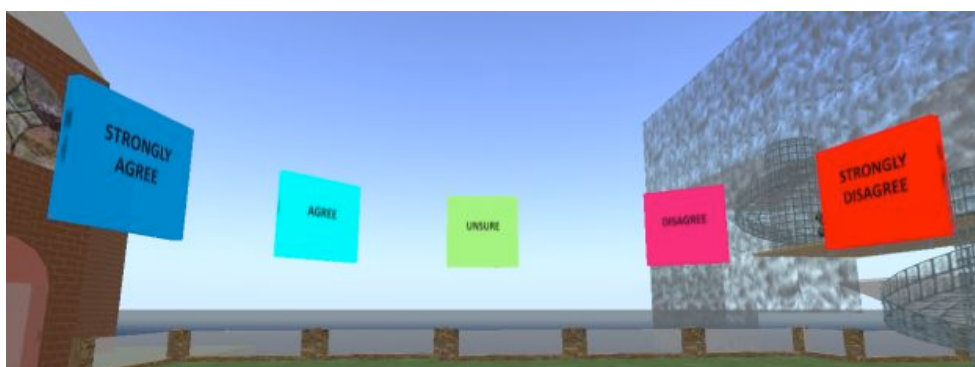


Figure 2: Neo-Likert scale on Australis-4-Learning

issues. The original design was for *Second Life* to be used to compliment the existing program of study with students engaging in a series of online learning experiences during time when they were not in the traditional classroom setting. The success of this was dependent upon the capacity of students to enter *Second Life* and locate the island. For a significant number of students, and despite a set of instructions, this proved difficult. Firstly, we were limited by technical requirements within *Second Life* that only permits a few accounts to be generated from a single IP address. As the university network was identified as having only the one IP address only three of the 120 students were able to create an identity during the originally allocated time. Therefore students had to log on from home and create an avatar. Most students were able to do this successfully, though this mainly depended on the availability of Internet connections.

The second difficulty faced by students was the entry point into *Second Life*. As a newcomer to the package avatars are located in a space called 'Help Island'. This provides a useful entry into *Second Life* allowing for the development of simple skills that make the experience more worthwhile. To leave 'Help Island' a person has to click on, and accept notes from, a designated entry point. This space is not obvious from the original location and presented as a hurdle for a significant number of students who did not recognise that this 'Help Island' space was not part of *Second Life* proper and therefore they were unable to move directly from this point to Australis-4-Learning. Once in *Second Life* proper all students were able to navigate and interact with minimal trouble and all were able to locate the Australis-4-Learning island and participate in a discussion. Many students also explored other areas and interacted with avatars at these locations testing ideas that they later brought back to the class as a whole.

To manage the use of *Second Life*, especially once the difficulties outlined above were identified, it became necessary to run the first interactions as a face-to-face tutorial session. During these sessions students were led through the access protocol and were instructed on how to enter the island. Further discussions were had about how to interact in this space, as no student had previously used *Second Life*, which included an overview of the desktop display. The sessions then led into students being able to interact with the neo-Likert scale and respond to some ethically challenging statements, such as 'Teachers personal lives should be considered in determining their suitability for employment.'

This process of learning mirrored a similar experience that occurred within the face-to-face setting, but this time discussions were moderated through *Second Life*. Comparing these two interactions clearly demonstrates the shift of identity that was described in the literature. Within the normal classroom setting students would move to various locations in the classroom that corresponded to the various points on the scale. Quite often a large cluster of students would move to one point and others would feel challenged and isolated and therefore would follow, not because they agreed but due to unspoken social pressure and fear of losing face. Students would then be encouraged to justify their position with some hesitation evident in their response. In considering the same experience in *Second Life* interactions were more passionate and there seemed to be no existing expectation that one should conform. The identity of students was unknown to others in the class and therefore students felt freer to express their true opinions; this created passionate debate and discussion of the ideas, as opposed to personal attacks on character. By reviewing the log of discussion it was evident that students were active in their participation and focused on the given topic.

Second Life created a novel approach to learning, and it could be argued with this limited data that there may be some bias in this study of students enjoying the experience because of its uniqueness as opposed to a fundamental shift in pedagogical practice. Students commented on how this format of learning allowed for freer flow of ideas and participation without the fear of being identified with students

commenting that they had made, and also saw in others, comments that they would not have felt comfortable expressing in class, in particular one example was a discussion of homosexual staff within Catholic and other religious schools. This anonymity was also considered by others to be a negative with concerns that some students could hide behind the lack of identity and become offensive; however, there was no evidence of this being reality in the interactions within this unit. As one student wrote, "people are more likely to follow their own morality rather than any societal or ethical conventions in such an environment. This is because there lacks a code of ethics in cyberspace." Such a reflection reinforces the relevance of this technology to the teaching of professional ethics and decision-making.

There was mixed evidence of the use of *Second Life* making a significant contribution to improved learning outcomes, though many students did comment that they found it engaging and could see the potential of its use. This reflection is more evident of the intensive nature of the unit and limited time for meaningful interaction in a range of settings as opposed to being directly related to *Second Life*. However, the time investment required for the establishment of a 3D-virtual world space and for students to equip themselves with the necessary skills is an important consideration in the development of the use of such technology. Firstly, the development of the space and a range of new skills took considerable time, though in comparison to other online learning technologies the time commitment was not significantly greater. This commitment was exacerbated as the researcher undertook all the development, with the intent to upskill, but this process could have been easily shared amongst other staff. Secondly, students required time and space to become more familiar with the environment and what could be achieved. Some students commented about how they enjoyed creating their new identities as well as going to other places and meeting people. Though, this was limited to those who were willing to invest the time outside that allocated to do so, and there was clear evidence that these students had more positive experiences. It is an important part of the use of new technology to invest time and encourage students to undertake this exploration.

Conclusion

As a pilot study this experience has proved to be valuable and has identified a range of opportunities that need to be considered in the larger research study. These are: (1) training of students in the use of *Second Life* and provision of adequate time for them to become familiar with the environment, (2) the further development of learning experiences to encourage greater formation and testing of ideas, such as the use of role play scenarios, (3) greater use of already established spaces to interact with others to test ideas that can better inform the knowledge of the class group, and (4) greater scope of time for the development of skills and understanding of the nature of interaction in 3D-virtual worlds. These areas present as workable opportunities as the larger study is being conducted with a group of students engaged in a semester long unit as opposed to the intensive 5-day unit of the pilot study. The expense of using 3D-virtual world technologies such as *Second Life* is minimal, however, there requires extensive investment of time in the development and design of learning opportunities and for students to become familiar with the environment. At this stage such an investment seems to prove worthwhile given the benefit to learning that is occurring, but there presents the need for further investment in the development of the space to be even more conducive to learning needs. The larger study will contribute further to an understanding of the extent of this benefit.

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