Virtual Worlds to Enhance Student Engagement

Janette Grenfell and Ian Warren
Virtual Worlds to Enhance Student Engagement

Janette Grenfell, Deakin University, Victoria, Australia
Ian Warren, Deakin University, Victoria, Australia

Abstract: Both the School of Education and the discipline of Criminology at Deakin University have been using the 3-dimensional virtual environment Second Life to deliver curriculum content and to engage students with each other and with teaching staff. The nature of this platform is facilitating more proactive student engagement with technology, including increased student competence in sharing artwork, problem solving and general discussion of complex criminological issues. In this paper, we provide some examples of how we are using Second Life in our curriculum offerings in Education and Criminology as a tool to promote greater engagement, particularly for students undertaking these courses by distance. We outline how the immersive nature of this platform can enhance the level of student interaction to produce a deeper form of engagement with our Unit material than is possible through conventional text and web-based document repositories.

Keywords: Virtual Worlds, Second Life, Engagement, Technology, Education, Criminology, Immersive Learning

MULTI USER VIRTUAL worlds are collaborative web based teaching and learning environments that use a metaphor of physical space and place to create the illusion of “being in the virtual world” (Lombard & Ditton, 1997). These shared platforms allow multiple simultaneous participants representing themselves through “avatars” (Czarnecki & Gullett, 2007) to communicate with each other, interact with digital artifacts, and take part in immersive problem solving scenarios and simulations (Dede et al., 2004) that may not be readily available to students in real life.

Within a virtual context, collaborative and individual practice (Bartle, 2004) enables students to seamlessly use new technologies to access new ways of learning (Metcalf, Clarke & Dede, 2009) and the presentation of information, ideas or core discussion themes (Prensky, 2001). The interactive and immersive character of three-dimensional virtual environments also enables a new realm of constructivist learning building on other popular Web 2.0 technologies, such as Media Wikis (Neumann & Hood, 2009; Wheeler et al., 2008), by enhancing the capacity of students to collaborate, talk and interact in real-time, while sharing still or moving digital images, audio streams and even adding to the digital infrastructure by constructing buildings, signage or developing movement simulations.
One example of a multiuser virtual environment, *Second Life*, was launched in 2003 by Linden Labs, a San Francisco based company founded in 1999 by Philip Rosedale, who was reportedly inspired by the depiction of a persistent, ubiquitous metaverse in the 1992 cyberpunk novel *Snow Crash*. He envisioned creating a virtual world where users could ‘digitize everything’ and collaborate in a 3D environment built by the users themselves. Similar to the technology used by the Massively Multiplayer Online (MMO) gaming industry, Linden Lab hosts servers that simulate a real world environment with grass, trees, skies, and oceans. In contrast to MMOs and other simulation games, however, the *Second Life* world is not pre-populated with content or a narrative storyline provided by its creators. Rather, a palette of content creation and communication tools is available to users to individually or collectively create the places, objects, and activities in this platform. This allows any number of communities within the broader *Second Life* community to populate the world according to any range of real or fantasy criteria the human imagination permits.

As a teaching and learning tool, *Second Life* provides unique and flexible opportunities for educators and students, particularly those engaged in distance learning, to participate in computer supported collaborative learning, simulations and role-playing (Grenfell, 2007). The advantage of using such an environment over a typical Learning Management System (LMS) is its three dimensional character. This enables users to interact with learning objects and other avatars through its open source functionality. *Second Life* is therefore a global community, reaching any geographic area with a reasonably sound broadband internet connection. The flexibility to modify the digital environment allows any learning community to create any number of simulated experiences, which are either unavailable or impractical to encounter in real life.
However, before collaborative learning can occur, Lee (2009) believes that educators need to foster in participants a range of social and interpersonal skills such as leadership, trust building, team communication, group decision making, consensus-building and conflict management. This is particularly crucial in humanities fields where such skills are embedded as core graduate attributes in most conventional face-to-face learning and workplace settings. For Salmon (2006), the concept of the learning community is one in which people are joined together by mutual interest to intensively examine particular themes, are able to learn together and exchange existing knowledge and work collaboratively on aspects of problem solving. Salmon (2006) contends active learners are participants who learn from and with each other, with a lecturer taking on the role of facilitator, introducing ideas or answering questions as needed, framing issues, setting boundaries and summarizing next steps. An extension of this theme highly relevant to virtual worlds such as Second Life situates the lecturer as a participatory collaborative member of the virtual learning community. Here, the overarching concept of a collaborative virtual community of learners is one that is interactive, dynamic, where all members communicate fully with one another and where the virtual site engages and reflects the interests of the members who contribute content to the community with a shared purpose, common interest and unified community engagement (Grenfell, 2007).

It is crucial that the learner feels part of a learning community where his/her contributions add to a common knowledge pool and where a community spirit is fostered through meaningful social interactions (Bernard in Redfern & Naughton, 2002). These views are supported by Wenger’s Model of Learning (Wenger, 1998) where members of the community work together to achieve certain purposes for their mutual benefit, by exploiting the notion of social capital and the way in which people establish networks, participate and make contributions to the common good of a community. As the following discussion illustrates, these characteristics were strong motivations for utilizing virtual worlds to enhance the sense of community amongst face-to-face and distance education students in two highly distinct educational contexts at Deakin University, Geelong, Australia.
Experiencing Arts Education Teaching and Learning in a Virtual World

In 2007, funding from the Deakin University Strategic Teaching and Learning Grants Scheme (STALGS) enabled the construction and development of a multi user virtual environment, the Deakin Arts Education Centre in Second Life. The project’s focus was to create an immersive three-dimensional virtual arts education centre incorporating existing university web environments such as Blackboard (Vista), streamed audio and video files, and links to outside web environments including blogs, Flickr and Teacher Tube. In this environment, the project group anticipated the potential for innovative teaching and learning is enhanced by a constructivist approach to learning (SICTAS 2009) that challenges students to engage in authentic problem-based activities by immersing them not only in the adventure of the virtual world itself, but also into deep inquiry about the unit content they are required to learn (Shear and Penuel, 2002).
From the outset, the project had a number of interlocking phases. These included the building and establishment of the Deakin Arts Education Centre in Second Life, and the engagement of participants to develop collaborative learning scenarios within selected arts education and arts discipline based units in both undergraduate and post graduate primary and secondary degree courses for face-to-face and distance education students.

The Arts Studio and Visual Arts Complex in Second Life is designed as the central space that presents the opportunity for learners to create and construct their own immersive, virtual, and real-time learning environment. It has been observed that individual presence in collaborative virtual environments leads to greater student immersion and engagement (Bricken & Byrne, 1993). Here, the idea is to provide virtual forums for peer-to-peer and teacher-to-student academic discourse, and to promote the development of multiple learning channels to enhance student engagement with art education concepts of visual literacy, visual culture, images, meaning and contexts.

The design of the Art Gallery centers on a main ground floor lobby from which one can access galleries on upper levels through the use of a central lift. Students have uploaded several exhibitions of artwork, while others are currently under construction. It was proposed that the virtual collection would consist of artworks from the Deakin University Art Collection and original works by students working in Second Life. Currently, students exhibit their work in-world as a component of their assessment tasks. The curatorial aspect of setting up an art exhibition is designed to simulate the real-world gallery experience. It should be noted that the development of the Virtual Art Gallery is ongoing and has the potential to develop as an independent Art Education resource. Currently, the exhibition of artworks includes paintings and batik works from students enrolled in a partnership course between Deakin University and Malaysian teacher training institutions.

The Visual Art Studio encourages the seamless participation of students in synchronous and asynchronous learning activities regardless of their enrolment mode or geographic location. Currently, the studio is used as a tutorial meeting space where students meet and work collaboratively on common projects. Students also conduct seminars using the powerpoint facility, a virtual video player and all Art Education study materials can be accessed in Second Life via Deakin’s LMS.

**Linking Learning Environments**

Providing ways to incorporate and expand the student learning experience is central to successful participation in the virtual learning environment (Grenfell, 2007). To support increased levels of student engagement, all Art education students have access to the web based learning modules of each unit in both the art studio and the gallery. The design of the learning modules includes core content that underpins central theoretical concepts and ideas through the use of audio and video podcasts, as well as interactive visual analysis exercises and links to printed or virtual readings. Interactive visual analysis exercises based on the artworks in the collections housed in Second Life engage students in an interactive exploration of theories central to understanding personal constructs about paintings to develop a richer understanding of how their interpretations of works within the gallery space evolve (Durbridge & Stratfold, n.d.).
Immersive Narratives in Visual Arts Education

Within the visual arts, one of the exercises was to develop a three-dimensional virtual environment that supports digital ‘storytelling’ or immersive ‘narratives’. Here, the participants ‘enter’ and interact with the artwork, giving new meaning to the idea of the student as a creative part of a cultural text. If cultural narratives (that is, how culture is made into narrative, including oral culture) are a form of visualization, then we can employ new media technologies to explore the state of the image as narrative in a postmodern world, as well as the relationship the image has to subjectivity and to the production of knowledge. New media technologies such as virtual worlds promise to enhance our understanding of how meaning is constructed visually and experientially (Rauch & Wang, 2007).
In one example, Visual Arts students enrolled in the unit *Navigating the Visual World* worked collaboratively on projects incorporating both real- and in-world experiences. Initially, students explored the real life laneways of the city of Melbourne, experiencing graffiti and street art in its many manifestations. They visited the Melbourne Laneways project in *Second Life*, and debated the question “But is it art?” In class, students worked collaboratively on a large project covering the walls of the *Second Life* studio, exploring ideas of ‘identity’ within the university environment, using a range of techniques and digital media. The completed graffiti wall was digitally manipulated by students and re-created as an installation in the Festival area of the Centre in *Second Life*. Students worked collaboratively on the installation, with each student contributing to the building and completion of this group assessment task. As a component of the task students hosted an ‘opening’ of their work both in-world and in real-life.
Another exploration of the ‘identity’ theme was based on the exploration and development of an avatar. This activity centres on the development of individual avatars to enable students to participate in activities located in Second Life. To ‘live in-world’, participants are required to develop an avatar, initially chosen from a range of avatar types developed by Linden Labs and later customised by the user by changing clothing, hair styles or other elements of visual appearance (Nowak, 2004). Avatars can take the form of humans, animals, robots, or other objects (Annetta et al., 2008). The use of avatars for representation in virtual worlds can increase a student’s sense of social presence and awareness of issues surrounding personal ‘identity’, through the feeling that others are present with the user in the mediated environment (Nowak & Biocca, 2004).

Virtual worlds such as Second Life are entirely based on user-generated content. The avatar types and customizations are designed by each individual rather than by professional designers employed by game companies. For these reasons, avatars might offer a particularly promising window into understanding how participants in these worlds think about their representations
of self in both real- and virtual-life. Given broad choices in creating avatars, it is important to understand how users respond to and conceptualize their online visual representations in relation to themselves (Kafai et al., 2007).

During the course of a teaching semester students engage in journaling their experiences of identity while in the virtual world. As they became more engaged with development of individual identities, many expressed dissatisfaction with the stereotyped avatars provided by Linden Labs. They experimented with and in some instances radically changed the original appearance of their personas. Other student activities in the studio included the development of self-portraits using a range of digital media. Again, the very structure of the Second Life platform allows self-reflection on questions of identity and how these can evolve in ways that are not always practical in real-world contexts or through more static forms of digital technology.

Deakin Criminology Island

Whereas the Deakin Arts-Education Island is more concerned with enhancing student appreciation of the aesthetics of contemporary art and personal identity, Deakin’s Criminology Island in Second Life is specifically designed to expose students to the seamier aspects of the built urban environment. Island developers scoured the inner-city areas of Sydney and Melbourne to create a digital replica of a degenerated central business district, littered with disused garbage, graffiti, the booming noise of a nightclub precinct and sirens. The overall aim was to expose criminology students to a range of crime prevention issues that commonly characterize contemporary inner-city life, which are informed by various sophisticated situational, environmental and surveillance theories (Shaftoe, 2004).
Two major issues underpinned this approach to using Second Life. The first was the general concern that real-world field trips to problematic urban environments are simply not possible in contemporary risk-society. A digital simulation therefore allows students to interact in such an environment without compromising their physical security. The second involved broader issues of regulation associated with virtual world communities. In this sense, Deakin Criminology’s venture into Second Life was part of a systematic research agenda examining how physically dispersed online communities develop and enforce the required norms to promote user safety, confidence with the technology and good conduct (Warren et al., 2008; Warren et al., 2009). This aim has several aligned elements, culminating in the development of a series of modules for Australian educators using virtual worlds to promote awareness of issues associated with risk, good governance and harm minimization. Throughout, students using the Deakin Criminology Island will be educated on various social and environmental crime prevention initiatives, methods of enhancing social capital in virtual worlds and a host of allied situational harm reduction methods, ranging from the use of digital signs, verbal warnings, closed circuit television surveillance and digital coding to restrict access to the environment by unwanted outsiders.

These issues are fundamental to the use of virtual worlds in contemporary higher education. While an avatar can provide a convenient mechanism for a virtual world user to explore complex and important issues of personal identity, it also offers a mechanism for site users to generate new forms of virtual harm or offence to others not possible through conventional static internet platforms. Through a combination of print sources and modules developed ‘in-world’, students will be encouraged to explore questions surrounding the concept of harm in virtual worlds, their similarities and differences in light of conventional notions of internet and real world harm, and to develop regulatory solutions to these problems, including codes of conduct, audio warning signals, video signage, and dispute resolution procedures. In addition, crime prevention theory can assist students to develop methods of protecting digital infrastructure and personal property, with real-world environmental design methods promoting awareness of how the built environment can be developed to create defensible space (Newman, 2006). Digital coding methods can also be used to protect or track the movement of smaller items of property to prevent theft.

The overall aim is to encourage students to consider the virtual world as a regulatory ‘clean slate’, requiring a new realm of thinking about notions of risk, harm and governance, while they actively learn about the role of regulation in contemporary society. Student assessments have been designed to enable students to develop harm minimization and regulatory strategies in line with current theories in this field, and to publicise their approaches to the
broader community of Second Life users within and beyond Deakin University. The novelty of virtual world technologies has generated ongoing global debate about the most effective forms of regulation and how to mitigate the various forms of in-world harm generated by immersive activity (Warren et al., 2008). Our goal is to enable students to actively engage in this debate and devise workable solutions to these problems in a way that is simply not possible within the existing social, legal and political confines associated with most contemporary real-world regulatory problems.

The Deakin Criminology Island is still being developed and has yet to host any student activities. However, it is important to recognize that using Second Life or other virtual world environments for any educational activities necessitates a modified approach to curriculum design to promote immersive learning and student engagement. Firstly, delivering core theoretical and conceptual material within virtual worlds does not replace other more conventional methods of knowledge-transmission in contemporary education. Therefore, the simulations and activities offered within Second Life are an adjunct to conventional printed materials, lectures, tutorial participation and student research activities. Where the virtual world presence adds to this range of material is through its immersive character, which allows students a new forum for experiential learning that is simply too risky or inaccessible in the real-world environment. Second, as educators who are learning the possibilities virtual worlds can present in contemporary university education, we are wedded to constructivist thinking in designing our learning modules in Second Life. This means that current and future generations of students are encouraged to be active in shaping how unit content is delivered and evolves within the Deakin Criminology Island (SICMAS, 2009). Not only will this help to enhance the level of student engagement with a novel form of educational technology, but it also helps to foster the very forms of social capital promoted by the technical characteristics of virtual worlds, which are considered vital in both contemporary educational theory (Wenger, 1998) and criminological learning (Schwendinger et al., 2002). Third, the Second Life experience is inherently immersive. Therefore, in designing the Deakin Criminology Island and the various activities and assessment tasks therein, we have created a platform allowing students to critically absorb complex questions associated with risk, harm, governance and crime prevention through critically informed approaches based on direct experience of these issues. Again, real-world constraints simply prevent such a degree of active learning on the intricacies of these issues in the broader social, political and environmental
contexts in which contemporary crime prevention debates are commonly staged. Finally, questions surrounding regulation and governance remain to be explored systematically in virtual worlds, and have ongoing significance for the sustainability of these platforms within and beyond the educational context (Warren et al., 2008; Warren et al., 2009). As such, Second Life and other virtual worlds allow students a greater level of experiential online learning than is possible through static internet platforms. In addition, this can encourage students to actively participate in broader debates associated with harm, risk and governance, which have ongoing significance to other educational and non-educational users of these technologies.

**Conclusion**

It is anticipated that the levels of student engagement experienced by these initiatives in Second Life will evolve over a period of time as our own knowledge of the technical possibilities and dilemmas of immersive learning improves. We envisage that the opportunities available for Deakin Arts Education and Criminology students to construct their own learning and to engage with innovative social worlds and additional simulated activities will no doubt increase in future. The experiences documented in our respective projects to date will enable students to model their own professional work within this rich virtual learning environment, while significantly enhancing their technical skills, knowledge and professional competencies in arts and criminology curriculum and practice. These new immersive media by no means replace conventional face-to face or distance text or multi-media learning methods. However, platforms such as Second Life add a significant new dimension to the idea of experiential learning by allowing new methods for displaying artistic work and articulating ideas of harm, risk, governance and citizenship, which enable students to be active participants in the learning process.

The process of ‘populating’ Deakin University’s Arts-Education and Criminology Islands has presented the opportunity for all participants to engage in innovative forms of professional development, relevant to our own teaching programs and those in other Australian Higher Education institutions. For example, Second Life has allowed Arts-Education students to engage in joint tutorials with Education Information Technology students from the University of New England, and numerous cross-faculty collaborations involving integrated assessment projects for students studying Public Relations and Visual Arts. In future, Deakin Arts-Education students will be encouraged to upload artistic graffiti into the Criminology Island, and contribute to joint problem solving activities with students undertaking crime prevention, legal dispute resolution and computer security units. While some problems such as bandwidth access, copyright and site security remain to be explored, the immersive, interactive and simulated real-life experiences have continuing relevance in these and many other disciplinary fields, and reconfigure our very notions of experiential learning and student engagement in a more technically sophisticated information age.
References


Redfern, S. & Naughton, N., 2002, ‘Collaborative Virtual Environments to Support Communication and Community in Internet-Based Distance Education’, *Journal of Information Technology in Education*, vol. 1, no. 3, pp. 203-211.


**About the Authors**

*Janette Grenfell*

Ms Janette Grenfell has contributed over 40 years of service in the field of Education at Deakin University. Jenny has pioneered the use of Second Life technologies in Education studies, with a particular emphasis on critical theoretical approaches in the use of virtual technologies for Arts-Education students. Jenny was instrumental in designing the Deakin University Arts-Education Island in Second Life, and uses this technology to promote new ways of thinking about artistic activity, reflexive teaching practice and student engagement in the education field.

**Dr. Ian Warren**

Since 2006 Ian Warren has led the curriculum renewal of Deakin University’s criminology degree with a focus on interactive and multi-media learning. This work has led to an Aus-
tralian Learning and Teaching Council citation for teaching excellence and innovation, which was awarded in 2009. Ian has ongoing research interests in complex interdisciplinary and comparative criminological problems, including drug trafficking, media regulation, violence prevention and the regulation of virtual world technologies, and is also involved in several research initiatives aimed at enhancing the student learning experience through the use of new educational technologies.
EDITORS
Bill Cope, University of Illinois at Urbana-Champaign, USA.
Mary Kalantzis, University of Illinois at Urbana-Champaign, USA.

EDITORIAL ADVISORY BOARD
Darin Barney, McGill University, Montreal, Canada.
Marcus Breen, Northeastern University, Boston, USA.
G.K. Chadha, Jawaharlal Nehru University, New Delhi, India.
Simon Cooper, Monash University, Australia.
Phillip Kalantzis-Cope, The New School for Social Research, New York, USA.
Bill Dutton, University of Oxford, Oxford, United Kingdom.
Amareswar Galla, The University of Queensland, Brisbane, Australia;
Pacific Asia Observatory for Cultural Diversity in Human Development, Sydney, Australia.
David Hakken, University of Indiana, Bloomington, USA.
Rom Harré, Georgetown University, Washington, D.C., USA;
London School of Economics, London, UK.
Michele Knobel, Montclair State University, Montclair, USA.
Karim Gherab Martin, Harvard University, Cambridge, USA; Bibliotecas Digitales, Madrid, Spain.
Jeanette Shaffer, Edtech Leaders, Virginia, USA.
Ravi S. Sharma, Nanyang Technological University, Singapore.
Robin Stanton, The Australian National University, Canberra, Australia.
Telle Whitney, Anita Borg Institute for Women and Technology, Palo Alto, USA.

Please visit the Journal website at http://www.Technology-Journal.com
for further information about the Journal or to subscribe.
THE UNIVERSITY PRESS JOURNALS

www.Arts-Journal.com
www.Climate-Journal.com
www.Design-Journal.com
www.GlobalStudiesJournal.com
www.ReligionInSociety.com
www.SportAndSociety.com
www.Technology-Journal.com
www.Universities-Journal.com

www.ConstructedEnvironment.com
www.Diversity-Journal.com
www.Humanities-Journal.com
www.Learning-Journal.com
www.Science-Society.com
www.SpacesAndFlows.com
www.Sustainability-Journal.com
www.ULJournal.com

FOR SUBSCRIPTION INFORMATION, PLEASE CONTACT
subscriptions@commongroundpublishing.com