

The future for (second) life and learning

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Abstract

This paper highlights the potential of three-dimensional multi-user environments such as *Second Life* (SL) from the perspective of future developments in the service of learning. It notes trends within the SL innovation to date, including the provision of realistic settings, the exploitation of pleasant simulated environments for groups and the links with other learning technologies. It also considers the creativity sparked by SL's potential to offer the illusion of 3-D 'spaces' and buildings, and points to infinite imaginative educational possibilities. It explores aspects of the construction of virtual representations of learners and teachers as avatars, and reveals a wide range of intriguing issues yet to be researched.

Introduction

A systems approach to creating and constructing the future examines the necessary intertwining of advances in economics, technology, sociology, engineering, biology, pedagogy and many other disciplines (Laszlo, 2006). Futures studies and research use theoretical models and deductive methods for describing the *likelihood* of an event and the *conditions* under which it is prone to occur (Bell, 1997). That is not what I am attempting here. But instead to stimulate systematic and imaginative thought about the future of three-dimensional multi-user virtual environments (3-D MUEs) for learning by examining the intertwining of accessible developments, expectations and options. We need much stronger visions to help us get ready and to point the way to evidence-based research, rather than merely 'reacting'.

Second Life (SL) and other 3-D MUE worlds have emerged, like many innovations, through combinations of developments coming together in a moment of time. The concept of 'virtual reality' has been discussed since the early 1980s (Schroeder, 1997). The critical advances, which have taken us from wearing devices such as 'headsets' in order to create personalised virtual reality around ourselves to today's internet-accessed 3-D MUEs, converged in the first decade of the 21st Century. They included

the huge increase in computing power, storage, broadband, digital tools, e-spaces and networked applications, the Web 2.0ish wave of desire to do it yourself and the associated drop in access costs. Now we build particularly on social networking, simulation and online gaming.

The precise nature(s) of learning, teaching, assessment and knowledge construction through and with 3-D MUVes cannot be 'predicted', but each of us has a role in the construction of what futures do become available through designing and delivering learning, and in sharing experience of successes and failures. We need to contemplate many possible futures, engage in dialogue and undertake evaluation with different stakeholders about choices available to us.

In this paper, I focus particularly on SL as the current prime example of a 3-D MUVe in higher education. SL is where I have 90% of my experience to date, like most of the authors in this *British Journal of Educational Technology* (BJET) special issue. Initial results from my own research projects suggest that SL is low cost and high value for learning—and barriers for entry are relatively easily overcome (Bainbridge, 2007; Carr, 2008; Jiyeon, 2008; Lucia, Francese, Passero & Tortora, 2009; Rosedale, 2007). As always, designing for *learning* and the training, development and support of university teachers (as SL-moderators) are the key pivot for success and student satisfaction (see Edirisingha *et al.*, 2009, pp. 20–24 in this Journal and Edirisingha, Salmon & Nie, 2009; Nie, Edirisingha & Wheeler, 2009). I acknowledge that many alternative platforms to SL are emerging and will be used and explored for educational purposes in the near and more distant future (de Freitas, 2008; Kirriemuir, 2008a).

My spotlight is on the potential of 3-D MUVes for educational purposes, as well as acknowledging the need to build on e-learning concepts. What is particularly special about SL is its unique brand of avatar control and choice. First, the new avatar needs to acquire basic gestures, movements and camera skills. Soon though, the avatar's interactivity within the environment and with other avatars aids its 'feeling' of presence and immersion, dialogue and encounter. I have avoided the 'if only we had better functionality' route as I hope to demonstrate that the scalable future for 3-D MUVes rests on learning design and pedagogical applications.

In this paper, I note but three perspectives in my exploration of the future for 3-D MUVes in higher education: trends and emerging issues, the power of pedagogical imagination and the potential impact of humans as learning avatars.

Trends and emerging issues in virtual worlds

One way of exploring the future is to examine and build upon known visible trends. We can use aspects of multiple disciplines to identify strong forces and work out how to exploit them. This is best done over a period. For example, the Horizon Reports (EDUCAUSE, 2008) and the Universities and Colleges Information Systems Association (ICISA) reports (Browne, Hewitt, Jenkins & Walker, 2008) examine ongoing trends impacting on emerging technologies relevant to teaching and learning, with web-based

virtual worlds increasing in importance from 2006. Others report on developing the functionality and integration possibilities of MUVES—see, for example, the account of Simulation Linked Object Oriented Dynamic Learning Environment (SLOODLE) (SL and Modular Object-Oriented Dynamic Learning Environment (MOODLE)) in Livingstone, Kemp and Edmund (2008) or in Kemp, Livingstone and Bloomfield (2009). Westmoreland Bowers, Ragas and Neely (2009) report growing interest from academics and teachers.

Extrapolating statistics is one way of looking at trends. Unfortunately, statistics available for SL and other virtual worlds are neither well coordinated nor reliable. Statistics are available from Linden Labs on the SL site and through reports such as Loric, Magoulas and the O'Reilly Radar Team (2008). The number of registered users (residents) of SL has grown rapidly over the past 4 years, and there is increasing interest from educational institutions (Kirriemuir, 2008a). Gartner Inc. (2007), known for forecasting 'adoption cycles', predicted that by the end of 2011, 80% of all active Internet users would have an avatar and would be registered in one or more virtual worlds. They argued that commercial use would dominate as businesses look to enhance market positioning using 3-D MUVES, but added:

The collaborative and community-related aspects of these environments will dominate in the future ... the majority of active Internet users and major enterprises will find value in participating in this area in the coming years. (Gartner, 2007, p. 1).

The potential for community-building activities is currently most readily recognised by those with experience in the 3-D MUVE medium (Eduserve Foundation Report, 2008). The longest term forecast I have discovered is from the Metaverse RoadMap study, which looks 20 years ahead and suggests that 3-D MUVES 'may become primary tools (with video and text secondary) for learning many aspects of history, for acquiring new skills, for job assessment, and for many of our most cost-effective and productive forms of collaboration' (Smart, Cascio & Paffendorf, 2007, p. 7). The Metaverse advice is to think about the future for MUVES, not as the next bit of online development but instead as a *junction* of physical and virtual worlds. The study's authors suggest that many of the activities we currently associate with the 2-D Web will develop into 3-D or will become meshed 3-D applications, a conclusion supported by a recent report from the consultancy McKinsey (Manyika *et al* (2007, p. 5). Similarly, Savin-Baden (2008) predicts the need to integrate real life (RL) and SL learning activities, as well as enable unstructured spaces for interaction.

Some futurists make a distinction between trends and emerging issues. Within the exploration of trends, it is important to be aware of emerging issues that could not have been easily predicated. One way is to look at what the first participants in the field actually do. For example, at present, SL offers the most powerful object creation toolset of any 3-D MUVE. The first organisations moving into SL concentrated on its awareness-raising potential, hence the interest from commercial companies (Galagan, 2008). In education, there were numbers of example copies of physical campuses—

developed mainly for marketing purposes. Other early adopters of SL chose to replicate lecture halls and classrooms, followed closely by the imitation of museums, arts galleries, hospitals and science laboratories (Prasolova-Førland, Sourin & Sourina, 2006). At present, SL offers the most powerful object creation toolset of any 3-D MUVE. More recently, however, following the user contribution pathways stimulated by Web 2.0 applications, several courses have encouraged the building of artefacts by the learners themselves, with interesting results (Good, Howland & Thackray, 2008). If this trend continues, I agree with Salt, Atkins and Blackal (2008) that all universities will have an SL presence in 5 years, but some of these will be for display and market-positioning purposes. The others are much less predictable.

It was probably inevitable that in the early days of SL, people would reproduce the buildings and classrooms they were familiar with in RL. University teachers typically think first of opportunities to present information in ways they know, such as with slides and video clips. While such applications are increasingly possible in SL, it usually is more efficient to use other well-developed e-platforms intended for presentations. However, this must not be viewed as a limitation. From my experience, SL is experiential, collaborative and immersive in ways that no virtual learning environment (VLE) or remote synchronous classroom ever could be. So, I consider it important in the future for academics to experience SL in order to understand its potential and, especially, SL's affordances that enable exploration and discovery (McKay, Van Schie, Headley, McFerrin, Wber, Carlsen & Willis, 2008, Scot's story). Strong scaffolding and support is necessary for SL learning, as in all technology-mediated learning design.

Some disciplines tend to lead the way because an 'obvious' application occurs to someone with a pedagogical challenge. One of these is using SL to end the need to visit, investigate or practice in physical RL environments. People in what we call off-campus 'learning locations' (Salmon & Edirisingha, 2008) include the archaeologist on the site, the business student in the client firm, the health worker with the patient and many more. The transcendence of geography is not a new idea in e-learning (until now it meant 'any-time any-place for log-in'), but the creation of realistic environments where an avatar can wander and interact at will is innovative. The potential for creating authentic experiences through SL is high, and reliable-looking environments can be very enticing for learners. Early adopters have therefore included medical schools for the provision of practice where no avatar dies at the hand of the clinical novice (Kirriemuir, 2008b; Stott, 2007). Other examples of early adoption are in management learning via virtualised case studies in which no chief executive officer loses his/her job or shareholders their money.

In 3-D MUVEs, visiting and immersing oneself in learning locations and cultures can involve doing so in those no longer in existence or accessible in RL. One example is the use of SL to explore the manifestation of social structures and spaces in traditional cultures, such as the ancient Saami people in Northern Europe. Students studying archaeology at the University of Leicester have benefited by being able to visit the Saami tents in SL and experience something of the lifestyle and tribal relationships. Further environmental authenticity can be created by going to locations that are difficult to visit

(Good *et al.*, 2008), such as the Kalasha people in North Western Pakistan: it is very difficult for groups of undergraduates to visit this region now, for political reasons. Instead, SL provides an immersive and visual experience. There is more about these artefacts and learning activities in Edirisingha *et al.* (2009, pp. 20–24) and in Edirisingha *et al.* (2009).

Predecessors of the 3-D virtual world were the multi-user dimensions/dungeons (MUDs) and multi-object orientated MUDs (MOOs) of the 1980s and 1990s. These had some of the collaborative characteristics of the 3-D MUVes but were text based. Many models of e-learning, including my own well-rehearsed five-stage model (Salmon, 2002, 2004), were researched and developed within asynchronous text-based environments. There was no need for us to reinvent completely the pedagogical concepts because we found that they were adaptable and could be built on for the new environments. For instance, the idea of e-tivities has morphed into SL-tivities, and notions of structured learning design for maximum participation (Wheeler & Salmon, 2008). From our research on the MOOSE project (<http://www.le.ac.uk/beyonddistance/moose/>), we know that scaffolding processes developed for online text-based environments have much to offer for structuring group learning.

Interestingly, at the University of Leicester, in our own research with groups in SL, we have found it easier to work with text chat than sound, as Wheeler (2009) explains (pp. 427–443) in this issue. My point here is that we should not begin at the beginning with pedagogy, but reach back to our most abiding and productive educational models to inform our learning design.

So the trends noted so far are:

- Awareness from teachers of the potential of virtual worlds, especially in the teaching of history and science
- Transfer of pedagogical concepts from other e-environments to frame group development and group working
- Creation of artefacts for educational purposes, sometimes by the learners themselves
- 'Immersion' in cultures otherwise inaccessible
- Creation of realistic environments for practice
- Awareness of virtual worlds and interest from Internet users
- Integration with other learning technologies with a view to creating 3-D virtual classrooms
- Predictions of interest from commerce and industry for skills development.

The power of pedagogical imagination

When Robert Kennedy was running for the presidential nomination he said that, "There are those that look at things the way they are, and ask why? I dream of things that never were, and ask why not".¹ To imagine the world as you would like to see it, and act upon

1. Robert F. Kennedy quote—attributed to his presidential campaign in 1968, paraphrasing Irish playwright George Bernard Shaw.

that vision, is not an idle indulgence. At this moment in the history of education, it has never been more important. I believe that SL offers us just that opportunity. So instead of seeing SL as a novel technological application, what if we saw it as handing to us, the educators, a huge 'sandbox' in which to experiment—a way to tap into our imaginations and explore new learning and teaching approaches in ways we have never had the chance to do before now. What if we start with pedagogical challenges and work out whether 3-D MUVes offer good solutions?

Trends have their limitations because there are so many different forces acting on our society, including its technology and the varying ability of our policy makers and practitioners to respond. As I write, early in 2009, the UK policy and funding arenas are dominated by attention to the learners' experiences in UK higher education, and to the changing nature of learners as they arrive at university more technologically savvy, more linked in. The power of individual choice has never been greater. Understanding the trends has never been harder. There is a feeling that if we look back too much, we risk inventing the future based on outdated modes of teaching and learning. So, the role of creativity, imagination and viable innovation in engaging with the technologies and pedagogies of the future has become very important.

Creativity in engaging with SL applications taps into the exploitation of SL's affordances to do what we could not do before. Indeed, during 2007–8, there was a bigger take up of SL by individuals or groups in universities and some increase in funding for small-scale research or institutional projects (Kirriemuir, 2008a). Many of these initiatives recognised that SL offers us the capacity to vary and create the environment to suit the learning in ways not possible in RL (Blascovich, 2001), and to enable new stakeholders (typically the learners) to imagine new approaches (Hew & Cheung, 2008; Jennings & Collins, 2007; Read, 2006).

With a number of currently popular Web 2.0 applications, universities are sometimes accused of stepping over the line into student-owned universes. However, while the affordances of SL (its game style, visual aspects, personalisation and immersion) appeal to young people, their feelings of 'ownership' of the technologies can still be variable. As reflected in this *BJET* special issue, a variety of innovators have managed to scrape together funding from here and there in order to buy an SL island for piloting and researching applications for learning and teaching. These innovators have faced scepticism and lack of access in their universities, but the enchantment of SL, the 'je ne sais quoi' that has inspired many an innovator, has won through. In some ways, the technological and human resource investments needed to take the use of 3-D MUVes beyond experiments are similar to those we made in VLEs 7 years or 8 years ago. We have fought these battles before and need to learn from them. Clearly to scale up and secure massification, early evidence of success in learning and teaching is critically important.

What may we creatively exploit? As a start, I suggest:

- The illusion of 3-D space which offers infinite possibilities and quite new ways of using metaphors (Cheal, 2007)
- Virtual artefacts that can be manipulated in ways impossible in RL or used as a 'spark to start a dialogue' (Edirisingha *et al*, 2009; Salmon, 2002)
- Tutor and student 'satisfaction' with learning in SL (Edirisingha *et al*, 2009; Waugh, 2009)
- New visual environments and tools for interaction and participation between individuals and within groups (Ditullio, 2008)
- Adaptation to almost any discipline or context.

We used a new metaphor of 'edutainment' when developing the concept of the Media Zoo island (see Wheeler, 2009, pp. 427–443) in SL, inviting creative professionals from the world of television to help us (<http://www.twofourcommunications.com/learning.asp>). Even sceptics who have visited the slightly tongue-in-cheek environment of the Media Zoo in SL comment that it feels like 'fun', though there are serious underlying intentions to use the Zoo in disseminating our research output as widely as possible.

In SL, avatars can create their own reusable learning objects and build collaborative displays of their work (Livingstone & Kemp, 2006). At London South Bank University, digital photography students built virtual 'story cubes', as part of the MOOSE project, exploiting the benefits of SL as a visual discovery, collation and presentation environment (MOOSE team, 2009). I anticipate that discovery, collaboration and self-creation are likely to prove extremely important and popular features of SL in the learning/Web 2.0 era. SL also offers opportunities to simulate and replicate examples of cultural environments that are extinct or difficult to visit in RL. Examples of these can be found and visited on the Media Zoo island—such as the Saami tent and Kalasha village—which enabled exploration by a group of University of Leicester archaeology students (Edirisingha *et al*, 2009, pp. 20–24) as mentioned above. Simulations enable learners not only to see how a place looks, but also 'feel' what it is like being part of it. To date, simulations have been a very expensive part of educational provision. SL makes them cheap and highly accessible, and they could become a key 'killer application' of the future.

Are we human or are we avatars?

As early as 1995, Turkle anticipated 'cyberspace' (ie, all of the Internet) as the context for new cultural experiences and identities. She predicted:

... eroding boundaries between the real and the virtual, the animate and the inanimate, the unity and multiple self ... (Turkle, 1995, p. 10).

Three-dimensional MUEs are providing just such environments for anyone with a reasonably up-to-date computer and Internet access. Computers were originally considered mathematical machines that extended the intellect of a human, but now can extend our physical presence. A very special component of working and learning in 3-D MUEs is the avatar, involving creation of your own 'double', an experience that is both

disorienting and exhilarating (Bayne, 2008, p. 201). In SL, there are choices about how the avatar looks and responds to others and the environment. Avatars provide a visual representation of their 'operators' (Hew & Cheung, 2008), and contribute to tele-presence and co-presence (Schroeder, 2001).

I think of an avatar as the 'personification' of the individual who drives the avatar. We know, from earlier research on MOOs and MUDs, that virtual identities can be powerful stimuli for considering RL selves. Participants reported that

It's a chance for all of us who aren't actors to play [with] masks. And to think about the masks we wear everyday.

Quoted in Turkle (1995, p. 256) from a WELL discussion, April 18, 1992

Recognition of the living, breathing, learning humans behind the avatars leads us to consider the different roles and responsibilities of tutors and learners. In SL, avatars have considerable control. After basic skills such as movement and camera controls are acquired, travel and dialogue become simpler, more enjoyable and effective. Repeat visits to SL environments are possible, and the avatar can enjoy the experience of familiarity. After this initial induction into SL, there is a powerful stage of personal development, where there is a suspension of disbelief and the avatar is immersed in each encounter. One way of describing this is that the experience transcends being a 'puppet' to that of extension of self (McKay *et al*, 2008). Early evidence suggests that teachers as avatars find 3-D MUVes satisfying places in which to work (Waugh, 2009).

Bayne (2008, p. 197) describes this experience as 'uncanniness':

Students immersed in Second Life and other virtual worlds quite regularly describe such environments in terms of their 'deathliness', their blurring of the boundary between fantasy and reality, and their foregrounding of issues to do with identity which move beyond the weird ontology of the avatar to the nature of being a learner across the digital *and* material domains.

When this type of experience occurs freely in SL, individuals may engage in activities that they would not undertake in RL. If such an experience can be made purposeful and designed for learning, it seems to me that we have tools at our disposal as learning designers and moderators, the like of which no educators have ever had before.

As I have already noted, one of the key debates in developing 3-D artefacts for use in learning and teaching in MUVes is between developing accessible RL imitations and creating fantasy environments. Similarly, some people work hard to represent their avatars as (usually slightly improved) but recognisable versions of their RL selves. Others are intrigued by the opportunity to 'become' something completely different (Figure 1).

Almost all avatars want to exploit SL's capacity of allowing them to fly. Teleporting (moving instantly anywhere in the virtual world) also appeals to people who are used to



Figure 1: The author with Genevieve Simons, her avatar, pictured in a corner of the Media Zoo in Second Life

our traffic-ridden RL. It is still a little early to know whether these attractions will remain as novelties that quickly become passé, or whether in time, they will form an important part of the exploitation of 3-D MUVes for learning.

Many of the hopes for and predictions of the future of 3-D MUVes centre on identity experimentation, self-revelation and role play on the creative variation of social norms around gender, ethnicity, social class, and on group values and goals. Areas to exploit in the future include the intrinsic nature of playfulness, exploration and ‘naturalistic’ learning (McKay *et al*, 2008, Sean’s story). It looks as though avatar roles and identity in learning and teaching are likely to exercise numbers of researchers if 3-D MUVes continue to increase in popularity and diversity (Smart *et al*, 2007).

In 3-D MUVes, the learners and teachers will all be driving avatars, and we need to focus on how they can work together in these virtual environments. Avatars are the material out of which ‘relationships and interactions are embodied’ (Taylor, 2001, p. 41). We can examine:

- Greeting, playing, signalling group affiliation, conveying opinions or feelings, creating closeness and dealing with conflict (Taylor, 2001, p. 41)
- Creating a strong sense of presence or ‘being there’ with others (Blascovich, 2001; Slater & Steed, 2001)
- Importing and exporting of shared norms into and out of virtual worlds and exploring alternatives roles (Axelsson, 2001; Becker & Mark, 2001; Park, Jung, Collins, McFerrin, Wber, Carlsen & Willis, 2008)
- The possibilities and constraints for small groups of avatars learning together (Nilsson, Heldal, Schroder & Axelsson, 2001; Slater & Steed, 2001)

- Developing trust and a sense of belonging, prerequisites for successful learning in groups (Hudson-Smith, 2001; Jakobsson, 2001)
- Evaluating the impact of the nature and mode of communication used (Sallnäs, 2005).

Speculative conclusions

I am setting aside predictions of the billion-dollar exploitation of 3-D MUVES for business or to promote RL products, though with the world in recession, some new approaches are likely to emerge. I hope no one in the education world will be seduced by virtual 'solutions' myths. Apply a simple test: does this application offer any potential for low-cost, high-value learning? If the answer is yes or maybe, then I believe we should make a small investment of time and energy to find out more. The roles that social scientists and researchers can play in designing and evaluating 3-D MUVES are perhaps the greatest ever in the learning technology domain—and the need for collaboration between developers, learners and teachers is huge too. A well-designed learning experience, like an accurate map, does not detract from the learning journey nor does it necessarily dictate the final destination.

Kirriemuir (2008a) asked current practitioners and early adopters whether they thought that SL would be 'mainstream' in the future. The majority said they thought large-scale adoption and/or integration into learning was 'possible to likely', with widely varying suggestions of how long this might take—from a couple of years to 10 years or more. Several, probably seeing the potential for creating 'presence' in-world, suggested that distance learners might be the first beneficiaries. While SL can hardly be called a majority 'parallel' universe yet, I believe that it and its successors are here to stay as significant players in the higher education field.

SL is the most widely used 3-D MUVE among practitioners and researchers, except perhaps computer scientists. However, many more 3-D MUVES (100+) are under development with a wide variety of intentions and goals. A few have already come and gone! Market pressures will probably lead to a merging of current virtual worlds into a smaller number of open-sourced environments that support the free transfer of assets and avatars from one to another with the use of a single, universal client (Gartner Inc., 2007). Clearly higher education should be leading suppliers in that direction before long.

Meanwhile, experimentation with 3-D MUVES for a wide variety of educational purposes should continue, but in my view, we should not yet plan massive projects. We should instead explore deeply those educational concepts that transfer, or transfer in part, from other more familiar e-learning environments while we continue to keep open minds about 3-D MUVE pedagogy, what Barnett (2007, p. 137) refers to as a 'pedagogy for uncertain times ... open, ... daring, ... risky'.

I hope the advocates of SL will find, within their universities, further support, tolerance for the risks involved and recognition of 3-D MUVES' potential importance. As with all learning technologies, it is the complex marriage of the technological application with

the challenging pedagogical drivers that results in appropriate support and learning design. I hope this paper has provided some light along the avatar pathways. The future for 3-D MUVes like SL is up to each of us—including you—to determine.

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