



Learning
Light

where knowledge makes a difference

Second Life and Virtual Worlds

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Overview

What is Second Life?

Second Life is a MUVE, or Multi-user Virtual Environment. Though games-based it is not, strictly speaking, a game, because it lacks pre-defined goals. All the content in this virtual world is user-created, and each user makes of their experience in it what they will – within a rapidly evolving framework of regulations laid down by Linden Labs, the provider and (sometimes reluctant) arbitrator of Second Life.

As a MUVE, Second Life is different from a MMORPG (Massive Multi-Player Online Role-Playing Game) such as World of Warcraft. In a typology of digital games such as that provided by Prensky in his influential 2001 work *Digital Game-Based Learning*¹, it would best be classified as a simulation. Certainly, it owes something to simulation-based ‘God games’ such as Sim City (1989) and The Sims (2000).

However, such a classification does scant justice to its open-ended architecture and collaborative, user-driven character. These are features which Second Life has in common with contemporaneous developments such as Facebook, YouTube, Wikipedia and Flickr, with their emphasis on community and collaboration. Like them, Second Life is widely considered to be part of the Web 2.0 phenomenon.

Second Life is less a game than a compendium of games. It provides a space in which games can be created – and people have indeed re-created a wide range of existing, real-world games from poker to paint-balling, alongside experiences which would be more familiar to players of computer games. There are also a slew of user-invented role-playing environments and simulations inworld, including whole simulated ecosystems.

It is a sandbox, a playground; a place where all conceivable types of human interaction can be tried out, with limited repercussions in the real world when things go wrong; a place to fail safely, and in relative anonymity; a place to make discoveries about the self and others. It has both public spaces and private spaces, allows both highly structured linear experiences and more free-form, open-ended ones... and all points in between. It is in some senses, an ideal space for learning.

Many people see in Second Life an opportunity to carry out learning projects that constraints of geography or cost would make impossible through traditional, real-world means. Others see in it a chance to engage a younger generation of learners

¹ Prensky, Marc (2001). ‘Digital game-based learning: practical ideas for the application of digital game-based learning’. McGraw Hill, US.



impatient with the traditional forms of Education and Training. Beyond these more immediate concerns, many see in it a way to advance the practice of learning itself, creating new pedagogies, and extending and modifying old ones. Many, again, including large corporates such as IBM and Intel, see it as the shape of things to come – a proof of concept for the emerging 3D internet.

If Second Life is a part of Web 2.0, it is also being widely touted as a precursor of next phase of the internet's development.

Second Life and the 3D Internet

Defending IBM's multi-million dollar investment in virtual worlds in the face of widespread negative media stories² about Second Life in particular, Maggie Blayney, director of Global Web Strategy & Innovation for IBM said: 'The real reason why we're doing this is because we do feel the beginning of a major transformation on how people are going to interact on the Web - going from a flat to an immersive experience... It's not going to replace the two-dimensional Web but it's going to integrate and complement it.'³

Irrespective of whether Second Life continues to prosper or goes under, the learning that IBM believes it gets from being an early adopter in the virtual worlds space is felt to be of value. The future may not be Second Life, but in IBM's view at least, it will be something very like Second Life.

The wider vision for the 3D internet is not of a single virtual world (or 'metaverse', a name coined by [] in his [date] novel [title]) but of many – a network of interconnected virtual spaces which the user can navigate with a unique avatar and common interface, just as a single browser gives access to many websites today. Some of the money IBM spends in this area is reportedly going into projects which aim at linking Second Life to other virtual worlds, and Linden Labs has committed to making its software Open Source to expedite just such a vision. A few things stand in the way of this happening in the near future, not least the problem of finding a set of common standards that the providers of virtual worlds, all private concerns with their own commercial and competitive agendas, can adhere to. But it is an idea that is gradually gaining momentum.

² An extensive selection of links to media stories about Second Life can be found at <http://del.icio.us/Johnhe/secondlife>

³ Reuters. IBM sees future in Second Life, Web worlds, 23 August 2007. <http://www.reuters.com/article/technologyNews/idUSSP16777120070823?feedType=RSS&feedName=technologyNews>



Competitors to Second Life

Second Life is certainly not the only MUVE in existence, although it is the one which attracts the greatest amount of media attention. Competitors could be forgiven for being jealous of this high profile. However, as far as many are concerned – particularly platform-providers of other virtual worlds with a more commercial orientation (e.g. Forterra), and established games-based learning companies transitioning to the virtual world model (PIXELearning, Caspian Learning) – Second Life’s high media profile can only be a good thing, even if a lot of that publicity is bad publicity for Linden. Educators and training departments alerted to new possibilities by Second Life will swiftly migrate, it is believed, to less risky and more serious behind-the-firewall solutions.

The list over the page of virtual environments is taken from the website <http://www.virtualenvironments.info/> which carries useful information about education and research in Second Life. The list given here is correct at time of writing, but is regularly updated on the website.



Virtual Environments

[Active Worlds](#) (For teens and adults), PC and Linux

[Barbie Girls](#) (For kids and teens), PC only

[Club Penguin](#) (For kids and teens), PC and Mac

[Forterra Systems](#) (For training applications), PC

[Gaia Online](#) (For teens and adults), PC and Mac

[Habbo Hotel](#) (For teens and adults), PC and Mac

[Neopets](#) (For kids and teens), PC and Mac

[Second Life](#) (For adults only), PC and Mac

[The Sims Online](#) (For teens and adults), PC only

[Teen Second Life](#) (For teens only), PC and Mac

[There](#) (For teens and adults), PC only

[Whyville](#) (For kids and teens), PC and Mac

[Zwinktopia](#) (Mainly for teens), PC and Mac

Potential for learning

It is certainly true that Linden Labs' creation has attracted a great deal of negative publicity. The almost universal approbation which attended its rise to mainstream visibility in 2006 began to peter out in mid 2007, to be replaced by a stream of negative press stories painting a picture of low traffic, falling sign-up rates, corporate desertions, failing inworld banks, and suspicions that terrorists and paedophiles were using the metaverse for illicit purposes⁴.

This has undoubtedly tarnished its appeal to some in Learning and Development. Even within the Educational community, where there has been widespread enthusiasm for the possibilities offered by Second Life, opinions as to its value as a platform for learning are divided, as evidenced by recent research from the New Media Consortium (NMC)⁵.

However, an increasing amount of activity continues to be seen in investigating and trialling the potentials of Second Life for learning. More than 160 colleges and universities are active in Second Life at the time of writing, with a continuing flow of new establishments coming online, and the SLED listserv for Educators numbers above 3,900.

⁴ An extensive selection of links to media stories about Second Life can be found at <http://del.icio.us/Johnhe/secondlife>

⁵ News story: <http://chronicle.com/wiredcampus/index.php?id=2434>
The report: <http://www.nmc.org/pdf/2007-sl-survey-summary.pdf>



The academic community may be making more of the running in this area than Organisational Training, but the wider e-learning community can hardly afford to ignore this area of innovation. Since computer-based training, as it used to be known, went online and became e-learning at the turn of the century, developments in web technology have increasingly driven changes in its market space. Examples of this can be seen in the LMS market, where Open Source software as exemplified by Moodle has challenged commercial operators such as Blackboard. In the content market, Web 2.0 has led to a change in client attitudes away from the traditional course-based structures and towards informal learning, with adoption of wikis and blogs driving a more collaborative, user-generated model.

If Second Life is showing us the future of the web then it is, by implication, showing us the future of e-learning. Clearly, anyone with a vital interest in the future of learning should at least keep an eye on what is happening in this area. Beyond that, there is a judgement to be made by learning professionals as to whether it is worth investing time and energy in Second Life, and in virtual worlds in general, at this fairly early stage of their development. Different people are liable to have different views on this question depending on their own needs, circumstances and priorities. A report of this nature cannot, ultimately, pretend to provide hard and fast answers.

By outlining the pros and cons of Second Life as an environment for learning, however, and by providing illustrative examples of what is currently being done in the space, we hope to give an indication of the current state of maturity of learning activities in Second Life which can help inform the decision-making process.

Second Life as a learning environment

Strengths and weaknesses

	Strengths	Weaknesses
The World	<ul style="list-style-type: none">• Pre-existing engine makes it faster and cheaper to develop game-based learning experiences• User-created content and 'the network effect' make for large, rich, highly diverse environment• Global reach provides a polyglot and diverse cultural mix• Wide range of interest groups and communities of practice represented• Augmented capability: users	<ul style="list-style-type: none">• Learning curve: basic orientation 4 hours plus – mastery of environment takes far longer• Compromises inherent in adopting a generic, non-bespoke learning environment geared towards entertainment• Not custom-designed for learning: unnecessary features of the world provide barriers and distractions• As a new type of public space, Second Life continues to raise



can teleport, fly, see round corners, etc.

- Augmented reality: facilitators can telescope or expand time, play with scale and proportion
- Media-rich, highly social environment produces high levels of user engagement

fresh and unforeseen issues in law, finance and ethics

- Uncertain future: impact of PR problems and future commercial imperatives on Linden Labs



	Strengths	Weaknesses
Identity <i>To what extent is the anonymity of the avatar presentation within Second Life a help or a hindrance? (i.e. users in Second Life do not appear under their own names)</i>	<ul style="list-style-type: none">• Anonymity helps with training in sensitive subjects (e.g. mental and sexual health, corporate whistle-blowing etc.• A 'safe place to fail'• 'Level playing field' for many types of disability	<ul style="list-style-type: none">• Potential confusion and distraction caused by dealing with dual identities (self and others)• Lack of accountability for personal behaviour inworld
Security <i>A safe environment for learners?</i>	<ul style="list-style-type: none">• Second Life replicates accurately the chaos and uncertainty of real life environments and situations• Option to restrict entry to private regions and parcels	<ul style="list-style-type: none">• 'Griefers' in public areas provide time-wasting distractions, risk of financial and data loss, and possible emotional hurt• Non-mainland areas of Second Life not under direct control of Linden Labs: varying standards of service and business probity in these areas



	Strengths	Weaknesses
Media Mix	<ul style="list-style-type: none">• Media-rich: supports PowerPoint, video, audio, graphic images, VOIP, public chat, private chat, text-based information, HTML, e-books, interactive whiteboard• Existing media assets can be integrated into new learning experiences• Provides intuitive, cognitively familiar way for users to access learning resources in different media• Links externally to 2D web, LMS (Sloodle), mobile networks	<ul style="list-style-type: none">• Learning curve for developers of learning experiences in getting these different media types to work inworld with unfamiliar toolset• Requires new hardware (i.e. headsets)
Interface	<ul style="list-style-type: none">• Easy-to use-building tools – non-technical people can build• Games-based• Graphically-based environment helps those with low literacy levels or language barriers	<ul style="list-style-type: none">• Poor usability• Poor accessibility• Learning curve for users in mastering non-standard interface



	Strengths	Weaknesses
IT/Infrastructure	<ul style="list-style-type: none">• Rapidly evolving platform• Open source development• Future integration with other virtual worlds and 2D Web• Stability will improve as bandwidth/processor power naturally increases	<ul style="list-style-type: none">• Bandwidth hungry• Requires high spec kit, good graphics card• Unstable platform leads to high demand for inhouse IT support• Frequent reboots, downtime and re-installation for bug fixes waste user time• Architecture limits number of concurrent users feasible in any region

Second Life in the context of digital game-based learning

Since Prensky's landmark book on the subject appeared in 2001, digital game-based learning has been slow to get going in the UK. The high cost of development – together with nervousness about using such a form, with its roots in teen subculture, as a medium for learning – seem to have deterred clients from employing gaming-based approaches.

The issue of development costs is a problem for e-learning generally. The front loading of budget on an e-learning project, relatively expensive to develop, though cheaper to deliver than stand-up training, has exposed learning departments to a higher degree of perceived risk than would be the case with more traditional forms of training. Development costs in digital game-based learning are, if anything, higher than those for 2D e-learning. If e-learning suffers from an image problem in the industry, with surveys of training managers still reflecting scepticism about its effectiveness⁶, digital game-based learning has had even more to prove.

This has meant that, while there has been much interest in digital game-based learning in the UK over the last few years, and several innovative projects showcased on the conference circuit, budget holders have generally been slow to commit when it comes to commissioning major projects.

This is the context within which *Second Life* arrived, marking a paradigm shift in the possibilities open to those wishing to adopt gaming-based approaches. *Second Life* provides a ready-made games engine and a large collection of environmentally diverse 'regions' including landscapes complete with flora and fauna (entire eco-

⁶ CIPD Annual Survey Report 2007 (see also 2005, 2006)
http://www.cipd.co.uk/subjects/lrmanddev/general/_lrngdevsvy.htm



systems in some cases – e.g. the island of Svarga⁷) civic spaces, buildings, vehicles, furnishings, apparel – most of this generated by users – together with a set of building tools usable by non-technical people; all readily available at no development cost.

For years, graphics-rich simulations have been the exclusive preserve of those who could afford the price ticket involved. Second Life brought graphically rich simulations out of the rarefied realms of defence and aerospace, and made them available to anybody with a moderate level of computer literacy and the time to spend on acquiring the skills and knowledge necessary to 'build' in the metaverse.

The rise to widespread prominence of MUVES like Second Life as a new force in learning over such a short timescale was not foreseen by people like Prensky. But it has given new life to what was beginning to seem a rather moribund corner of the e-learning industry. The creation of a world such as that currently sitting on the Second Life grid would have been far beyond the resources of the average digital game-based learning company – usually a small group of individuals, working in isolation and with limited resources.

Linden's far-sighted vision, based in Web 2.0 concepts such as 'creative commons' and 'open source', harnessed the power of user-generated content. Almost incidentally – as a side effect or spin-off of Linden's fundamentally entertainment-based objectives – the company created a learning-friendly world in which educational simulations and learning programmes could be easily and (relatively) cheaply developed.

Steps one, two and three in the creation of digital game-based learning were suddenly eradicated. You no longer had to create the 3D world in which the game would take place – a world was already there to use – vast (too big to visit in its entirety in one lifetime, reportedly) teeming and multifarious.

So what types of learning does this virtual world support? What will work best in Second Life and other MUVES like it?

Applications: what type of learning is Second Life good for?

One should draw a distinction between **educational** uses of Second Life and those related to **Organisational Training**. Although there are substantial areas of overlap between the two, nevertheless they are two distinct worlds, and certainly – at least in the UK – two distinct markets.

⁷ <http://slurl.com/secondlife/Svarga/128/128/0>



Organisational training

Second Life differs from the sort of computer game one might purchase to run on a home PC or gaming platform such as Xbox, Playstation or Nintendo DS in several important respects.

Apart from those have already mentioned – including the lack of any overall aim or purpose – it is not linear in the same way. There is no structure of ‘levels’, where failure in a particular task will throw the user back to a defined intermediate point in the game. There is no built-in mechanism of scoring (unless one counts the ability to accrue or waste Linden Dollars).

However, it is possible with careful design of learning experiences to import a degree of linearity, and means of assessment. So in theory, at least, almost any type of training for which digital game-based learning would previously have been a candidate could potentially be delivered through Second Life.

Prensky lists examples of the following training types that have successfully employed a digital game-based approach:

Customer education	Public sector finance
Supplier education	Induction training
Business strategy creation	Product knowledge
Compliance training	Professional skills
Certification & continuing education	Public policy creation
Customer service	Recruiting
Disaster preparedness	Sales staff updating
Diversity awareness	Sexual harassment prevention
Ethics training	Soft skills training
Industrial counter-espionage	Strategy communications
Job skills	Support staff competence
Management training	Team building
	Technical knowledge

This list has been slightly anglicized to point up the fact that it covers many of the ‘training perennials’ UK L& D departments will be required to deliver year after year. This would seem to indicate wide potential for organisational training delivery in Second Life.

Learning in online virtual worlds also adds a further element of possibility, no more than nascent in 2001 when Prensky wrote Digital Game-based Learning, in the shape of collaboration. With the growth in bandwidth, online games are not only multiplayer, but *massively* multiplayer when played on the internet. It is no longer simply a matter of a learner interacting with a learning programme, now learners can



interact with each other as well, across dispersed teams, across communities of practice – right across the globe. This further extends the range of types of learning that can theoretically take place within an online environment like Second Life, to cover areas like language learning, team building and leadership, all of which benefit from group interaction.

So if Prensky's list implies an index of possibilities for learning in Second Life, what learning is actually happening right now? In fact, most cases studies of learning projects available in the public domain are from the world of Education. Relatively little organisational training seems to be taking place currently in the metaverse by comparison, even at pilot level.

Education

Second Life boasts a thriving community of educators, mostly from colleges in the US, though including many from the UK, involved in exploration of its uses as a learning environment. At time of writing, the Second Life Education Wiki⁸ lists 161 colleges & universities active in Second Life. These include high-profile Higher Education 'premium brands' such the Harvard, INSEAD, NYU, Stanford and MIT, as well as the UK's Open University.

Activities which this community is engaged in include researching, experimenting, piloting, producing taxonomies, compiling databases of useful resources and writing up case studies, as well as running ongoing educational and research projects with and without students. A proportion of the educational activity being carried out in Second Life is research work, particularly in the SciLands⁹, a specialized region of Second Life for Science and Technology based organizations. It is a feature of the Higher Education landscape that research lies fairly comfortably alongside teaching, and the two are seen to be in various degrees related activities. No such linkage exists within Organisational Training, where the two tend to occupy very different places within the value chain. This exploratory work being carried out by educators will doubtless lay the groundwork for future development of learning in virtual worlds from which organisation training will eventually benefit.

It is worth pointing out that this situation is very different from what has been seen in the general e-learning market, where Organisational Training has very much made the running in innovation, driven by the demands of a rapidly changing business environment which has thrown the spotlight on issues of skills and 'Human Capital'. A great deal of debate and experimentation has been seen in the organisational context around the 'disruptive' effects of web technology when applied to how learning is designed, delivered and accessed. We have seen a plethora of new ideas

⁸ http://www.simteach.com/wiki/index.php?title=Second_Life_Education_Wiki

⁹ <http://scilands.wordpress.com/>



in the space, including blended learning, informal learning, performance support and rapid e-learning, all of which have mould-breaking implications; all of which have, to varying degrees, attacked the traditional model of 'the course' as the basic unit of learning delivery. Meanwhile during the same period the Education market for e-learning (at least in the UK), has perhaps shown a greater focus on infrastructure, platform and technology tools such as interactive whiteboards which *enhance* the classroom experience rather than offering an alternative to it.

In virtual worlds learning, by contrast, leadership seems very much to be coming from the Educational sector. Though there are notable exceptions to this, including an interesting pilot of an employee ethics and compliance exercise by BP, case studies from corporates and public sector bodies, outside of particular sectors such as defence, security and emergency services, are thin on the ground. It is therefore to educators that we have to look if we want to see real examples of learning in Second Life, and the emergence of a typology of virtual world learning types.

Advantages of Second Life as a learning environment

Advantageous features of Second Life for learning, as summarised from the tables on pages 9-12 are:

- Pre-existing engine
- User-created content
- Global reach
- Wide range of interest groups and communities of practice represented
- Augmented reality and user capability
- Media-rich
- Links externally to 2D web, Moodle, etc.
- Easy-to use-building tools
- Rapidly evolving platform
- Commitment to Open Source

Perhaps the best way to examine the advantages of Second Life as a learning environment in more detail is to look at some of the work that is being done there. We have chosen, for the purposes of this report, to use a typology based on learner engagement described in a paper submitted to SLCC 2007¹⁰. We hope this approach

¹⁰ Papers submitted to the Second Life Education Workshop 2007, Part of the Second Life Community Convention, Chicago Hilton, 24th-26th August 2007
<http://cis.paisley.ac.uk/livi-ci0/slccedu2007rev2.doc>



will make for a less random selection of examples than one based purely on 'wow factor', and one which covers a broader range of learning types. Using this method we hope to show how educational builds are exploiting and highlighting the potential of environment for learning.

Typology of learning types in Second Life

The SaLamander project, sponsored by the Center for Advanced Technology in Education at the University of Oregon, is developing a searchable database of '3D learning objects and environments categorised by subject matter and type of learner engagement' available in Second Life¹¹. Progress so far can be seen at: <http://www.eduisland.net/salamanderwiki>. One of the fruits of the SaLamander project's initial scan of learning materials available in Second Life, as presented in a paper submitted to the Second Life Education Workshop, at the Second Life Community Convention, Chicago 24th-26th August 2007, is a typology based on 'learner engagement'. The project has identified five types of learner engagement so far: (1) demonstration, (2) experiential, (3) diagnostic (4) role play, (5) constructive. Below we give a brief explanation of each, together with examples drawn from the SaLamander wiki.

1. Demonstration

The five types categorise learning objects or sites according to levels of engagement and immersion. Demonstration involves the least amount of interaction. Learner can be shown video, audio, presentations, displays, or models¹². Virtual museums, showcases, lectures, displays, expositions presentations and portfolios can be classified as demonstrations under this typology. The least interactive of the types, Demonstration is the most closely aligned with real-life traditional educational experiences, however that is not necessarily to denigrate demonstration as a form of learner engagement. Even with minimal interactivity, a virtual world can offer learning experiences that go beyond presentation of material on flat screens and, due to its capability in augmenting reality can actually outstrip, in some cases, real world demonstrations.

Visitors to the International Spaceflight Museum¹³ get to walk in space and have a close-up view of a space station in orbit, for example, a view of the subject matter that would be hard to arrange in the real world. The International Spaceflight

¹¹ 'Critical Engagement of Teachers in Second Life: Progress in the SaLamander Project'. Jonathon Richter, Ed.D., Lynne Anderson-Inman, Ph.D., and Mindy Frisbee, B.A. Center for Advanced Technology in Education, College of Education,

¹² For a brief survey of the various media types available in Second Life for demonstrations, see an article by Mark Abedour in the July Epic newsletter, Epic Thinking http://www.epic.co.uk/content/news/jul_07/reviews1.htm

¹³ <http://slurl.com/secondlife/Spaceport%20Alpha/48/78/24/>



Museum was one of the early islands in Second Life to be cited as an example of excellence in learning, and still ranks as a must-see for those who remain to be convinced about the potential for learning in virtual worlds, yet most of what happens on this site would be classed as demonstration.

Together with the Second Life Planetarium, it can be found on the island of Spaceport Alpha. Some activities in the Spaceflight Museum undoubtedly fall into the next category, of experiential learning, but the Planetarium is a good example of a type one – a fairly static presentation with images and audio.

2. Experiential

The primary example offered for this category of learner engagement is the University of California Davis' Virtual Hallucinations site¹⁴, which provides a more immersive, time-based experience than a demonstration, with the capability to connect not just intellectually but on a directly emotional level.

The emotions involved, in this case, are disturbing ones. Users enter a building where they move through a series of auditory and visual hallucinations based on the testimony of actual patients suffering from schizophrenia. The experience is authentically unsettling.

Educators championing Second Life make much of its ability to allow users to 'walk a mile in someone else's shoes' and to experience other people's realities. However, Second Life can do more than just help learners to experience an existing, present reality, and here again the ability of a virtual world to augment reality for educational purposes comes into use: 'Systems may be seen, time speeded up, micro-worlds suddenly expanded large enough for physical exploration...'¹⁵.

Fittingly, in an age of nanotechnology, this augmented reality allows students studying plant cells to 'climb inside a large cell to examine and manipulate its chloroplasts and organelles close up'.

Time travel, too – of the virtual sort – is possible. In the Gothic Literature site from Literature Alive¹⁶ school students can immerse themselves in the literature of a past age; entering the world of Mary Shelley, Horace Walpole, George Lewis and other writers of Gothic literature; doing quizzes and educational games, and accessing texts, pictures, information on authors and other learning materials about the subject. Into this category of learner engagement would also come orientation or induction programmes, an example of which is work done by the School of Hotel & Tourism

¹⁴ <http://slurl.com/secondlife/sedig/27/45/22/>

¹⁵ Papers submitted to the Second Life Education Workshop 2007, Part of the Second Life Community Convention, Chicago Hilton, 24th-26th August 2007
<http://cis.paisley.ac.uk/livi-ci0/slccedu2007rev2.doc>

¹⁶ Gothic Literature: <http://slurl.com/secondlife/Eduisland%203/229/51/25>



Hong Kong Polytechnic University, described at:
<http://virtel.shtm.polyu.edu.hk/sotel/>.

3. Diagnostic

A build in this category would involve learners interacting with 'a simulated environment designed to promote inquiry, analysis and identification'. An example of this is Jeremy Kemp's Heart Murmur Sim (2006)¹⁷. Learners walk around a virtual heart clinic interacting with virtual patients in beds and gathering information about their symptoms in each case in order to diagnose the patients' heart ailments. Medical diagnosis is a high-level decision-making process, and the Heart Murmur sim shows that learning in Second Life can embrace some fairly sophisticated learning. Though limited in this case to the health sector, one could easily imagine an analogous build for MBA students on a business course, for example; moving around a virtual factory and trying to diagnose why it wasn't operating profitably by observing and interacting with the various business units.

4. Role play

Role play is already the primary activity in Second Life. Everyone in this virtual world is playing some sort of role. However in the context of SaLamander's typology, role play covers engagements which have behind them some particular learning objective, or set of learning objectives.

Some islands have been set up to simulate particular historical periods (Virtual Rome, Renaissance Island), allowing students a further degree of immersion in past times. Rather than merely experiencing the past as tourists, they can become residents of that age; dressing in period costume, performing jobs and activities appropriate to the period, speaking the language appropriate to the place and period; attempting to speak in Seventeenth Century English, for instance.

Immersive role play of this kind has potential not only for History and Literature learning but also for languages learning. Online language learning programmes currently lack the type of immersion provided in the real world by foreign exchange trips, for example. Second Life would allow a version of this, potentially leveraging the global reach of the world to provide interaction with native speakers of the language under study.

Role play is a staple in the world of organisational training (indispensable in training for customer service, interviewing skills, retail sales, counselling, etc.) and something that, to date, e-learning has had difficulty emulating. Digital game-based learning has produced many convincing interviewing simulators (Lost IOPs¹⁸ for the DWP by Epic being a notable example), but the branching required tends to result in high upfront

¹⁷ Heart Murmur Sim: <http://slurl.com/secondlife/waterhead/130/37>

¹⁸ http://www.epic.co.uk/content/resources/case_studies/dwpiop.htm



costs for production and design, even if people cost for delivery is reduced — and the final result is fairly inflexible, being difficult to modify when circumstances change without incurring further expense that duplicates much of the original production cost. Second Life appears to provide an ideal environment for role plays. A 'people cost' for delivery would still be necessary, but travel and accommodation costs are dispensed with, since the two protagonists in the role play don't have to leave their existing locations to participate, and production costs can be absolutely minimal. Given all of the above, it's a little surprising to see how little activity there is in the area of role plays for organisational training in Second Life.

One area where there has been quite a bit of well-documented activity however is in large scale simulations of dangerous environments for military, security, health and disaster preparedness training and orientation. The University of Illinois at Chicago, School of Public Health CADE (Center for the Advancement of Distance Education)¹⁹ operates a chain of more than seven islands in Second Life representing urban and suburban environments for emergency preparedness training. Projects include an exercise to plan for mass fatality processing centres in scenarios resulting from a public health disaster, such as pandemic flu, and exercises involving various urban environments and conflict scenarios where players learn to stop shootings 'through street-level outreach'²⁰. These simulated environments and CADE's 'virtual training systems' are currently being deployed for several jurisdictions in the US.

This echoes work being undertaken in the corporate sector by Forterra Systems Inc. (<http://www.forterrainc.com/index.php>) for the military, medical and homeland security sectors in the US. Forterra's 'OLIVE' (On-Line Interactive Virtual Environment) platform differs from Second Life in that the virtual worlds it generates are closed, client-specific networks, behind the firewall. The greater specificity of the platform, focused on government and corporate training, also allows development of a higher degree of representational fidelity in specialised areas: avatars can provide heart massage, for instance, and simulate injuries and wounds²¹.

Training in dangerous environments has long been looked to as a fertile area for games-based learning, as the realisation has grown that fidelity does not have to be absolute in simulations for valuable learning to take place (Prensky 2001). This currently looks to be the most serious area for learning in virtual worlds, probably because the issues it addresses are such critical ones, and because virtual worlds provide a way of mounting exercises which could not be done by other means, or which are prohibitively expensive and difficult to do on a regular basis. 'When was

¹⁹ <http://www.advancedrealities.com/index.html>

²⁰ See three papers submitted by CADE to the Second Life Education Workshop 2007, Part of the Second Life Community Convention, Chicago Hilton, 24th-26th August 2007
<http://cis.paisley.ac.uk/livi-ci0/slccedu2007rev2.doc>

²¹ This increase in fidelity causes a potential problem for the question of interoperability standards. See discussion at: <http://blog.epic.co.uk/?p=92>



the last time you shut down a major airport for training,' asks CADE's paper. 'How about the financial center of a major city? Perhaps the Superbowl..?'

5. Constructive

One feature of Second Life that is certainly not provided by bespoke platforms such as Forterra's OLIVE is the ability of all users entering the virtual world to create or 'build' elements of that environment, such as houses, vehicles, clothing — whole 'lands', in fact. This capability provides SaLamander's fifth type of learner engagement. In a project of this type, students or learners would be engaged in design and build, using the tools provided to all residents of Second Life. This is one type of engagement for which there is no real-world equivalent. Students in physical campus locations are not often called upon to construct their own lecture blocks, for instance. And one might ask what exactly is being learned, other than learning about Second Life. Certainly, this category doesn't have much to say to organisational trainers.

Think of architecture students, however; town planners, interior designers, theatrical set builders, car designers and 3D designers of all types, and the educational value of this category becomes immediately clear.

Neither does the building activity have to relate directly to design skills in order to have educational value, as the Global Kids (<http://www.globalkids.org>) program detailed in the SLCC papers shows. Global Kids Inc. is a non-profit that works with urban youth in New York City, using digital media to 'provide students with opportunities for civic and global engagement'. The case study tells how they engaged young learners — youths with often low educational attainment, and limited interest in their formal studies — in building serious games and making machinima or short films in Second Life.

Differing priorities of Education and Organisational Training

The work we have detailed above, though it shows a great deal of potential for organisational training in Second Life, tends to reflect the concerns of educators:

- Engage learners with new technologies
- Offer educational experience that have relevance for 'digital natives' of the current generation reaching adulthood
- Keep pace with and help to shape the changing character of learning
- Keep pace with and help to shape the changing character of teaching



- Engage with wider social issues

Many learning professionals in the arena of organisational training will have common cause in many of these objectives and perspectives (e.g. those with young, highly-educated workforces; those engaged in serious leadership development programmes where personal transformation is aimed at; non-profits and various parts of public sector). However these won't be so strictly relevant to those who have large amounts of training to do that don't require any great shift in behaviour or attitudes, or with strong compliance drivers.

It would be fair to say that the current focus in UK Organisational Training when it comes to e-learning is on cutting the cost and time of 2D e-learning content production. Increasing numbers of organisations are taking some or all of their e-learning content development in-house, and there is much interest in rapid authoring tools, and on 'just-in-time' delivery through performance support tools and systems. There is interest in Informal Learning methods and in mobile delivery modes, however Virtual Worlds Learning will feel a little 'blue sky' to these organisations at the moment, and out of sync with the very pressing demands felt by L&D departments to deliver on short term training needs. With particular regard to Second Life, Training Managers are liable to reflect many of the general worries on subjects such as grieving, low traffic and cultural dissonance.

Disadvantages of Second Life as a learning environment

Technology barriers

Moore's Law continues unchecked, and bandwidth has shown remarkable growth, particularly in the UK, in recent years. These two factors alone have made the concept of the 3D internet seem a feasible reality at last. However gaming applications (of which Second life counts as one) put heavy demands on computer systems, and the minimum spec required to run Second Life adequately is at the top end of the domestic computer market. A fast processor is needed, plenty of RAM and a good graphics card.

Since work computers tend not to be specified with gaming in mind, this means that most computers in the work place are probably not currently able to run Second life. Even for those that can, Second Life puts a heavy load on system resources — so the sort of multi-tasking most people are used to at work, flicking between email, documents, web searches and IM, do not sit easily with Second Life sessions. Add to this the instability of the Linden Lab grid.



Second Life is subject to frequent crashes and outages that can occasionally make the performance of even routine tasks a frustrating experience, particularly for new users.

Interface

The Second Life interface has been widely attacked for its lack of usability (There.com is held up as having a better interface in this regard). This is a subjective area, but whether the interface is really as bad as people say or not, the fact remains that it will be an entirely new one for most users, having not much in common with the standard windows-based packages most people use — or with any gaming system for that matter.

This adds to the time it takes a new user to learn how to use Second Life.

Orientation

Linden Labs state that orientation within Second Life takes four hours, but this feels optimistic given the newness of the experience for many people, and really only covers the basics. After four weeks of using Second Life fairly regularly, though no longer a 'noob', as new arrivals are disparagingly called, users might still find themselves bumping into walls and appearing inappropriately dressed on teleporting. In reality it takes far longer than four hours for users to feel truly at home in the wider environment of Second Life.

The length of time it takes to acclimatise to any new learning environment is an important factor in organisational learning. It means that before learners can actually start learning anything, they have to spend time learning how to learn in this new situation. Think of a pilot that may involve four hours of actual learning. A day in total will be required, with only 50% of that time spent actually on learning. Many people have bad or frustrating experiences the first time they try out Second Life. It can take time to get over such a bad start and begin to see positives. All of this prolongs the agony of what is, inherently, a fairly steep learning curve already. Put this together with the technological difficulties mentioned above and the organisation would have to be sure that virtual worlds were the way ahead in order to invest the necessary time.

Given the will, however, none of these difficulties is insuperable. A case study among the SLCC papers details a project in which BP trialed using Second Life for



Employee Ethics and Compliance²². Making use of the anonymity afforded by Second Life, CADE worked with BP to develop a prototype counselling site where employees could report anonymously on ethical issues to upper management. The interesting thing about this project for the point at issue is the extensive bespoke development work that was done on streamlining the process of avatar registration and creation. Employees entered Second Life through the BP website, and choice was limited to ten preset avatar designs. Employees were given a unique case ID and teleported direct to the secure counselling site.

An avatar detection system alerted counsellors to the presence of an employee in the Second Life room, and all chat data was sent to an SQL server to be recorded. This project shows that, even working within the constraints of Second Life, it is possible to overcome some of the potential barriers presented by orientation time through using a bespoke point of entry to the world for a specific organisational project, and creating a more linear experience.

Cognitive dissonance

The greatest strength of Second Life, from a purely cost point of view, is that it provides a pre-existing environment in which learning experiences can be designed and built. However, this fact is also one of its biggest drawbacks, since the world was not purposely designed for learning, and therefore has features which are not only surplus to requirements, but in some cases become irritating and obstructive.

Take the issue of identity. All avatars chose names different to their real names on signing up. This can make business meetings extremely difficult in Second Life: large meetings with people not all of whose names one knows are difficult at the best of times, but when each of those people has two names the difficulties are multiplied. Add to this confusion the cognitive dissonance caused by the wide choice of avatar types available. If one of the meeting attendees has decided to present his or herself as a medieval knight on a horse, for instance, or a purple fire-breathing dragon, can you really take them seriously?

Recognising this latter difficulty, corporate active in Second Life have begun to introduce codes of conduct for employees. Company-specific surnames can also be arranged, although this is not at present a widely available option.

Limitation of representational fidelity in simulations

Prensky makes the point in his discussion of fidelity²³ that one of the great virtues of simulation is that it strips excess cognitive load out by simplifying reality to emphasise

²² See paper submitted by CADE to the Second Life Education Workshop 2007, Part of the Second Life Community Convention, Chicago Hilton, 24th-26th August 2007 – available at: <http://www.advancedrealities.com/index.html>.

²³ Pp 214-215, Prensky, Marc (2001). 'Digital game-based learning: practical ideas for the application of digital game-based learning'. McGraw Hill, US.



the learning points at hand. Second Life, as multifarious and random as real life in many respects, will have more fidelity than is really needed for an effective simulation exercise in some cases — to the point, on occasion, of cognitive overload. It's very easy to miss things in a Sim; even, perhaps the thing you went there to find. It's easy to get distracted. Second Life was designed as a distraction, a diversion — as an antidote to the limitations of real life. And in this it works perhaps too well, for the purposes under discussion.

These problems of cognitive dissonance and cognitive overload represent a challenge to those who have to design learning experiences within the virtual world, although as the BP example shows, they are not insurmountable. Nevertheless these points should be considered when deciding what will and will not work in Second Life.

Security

Residents of Second Life are as vulnerable to hackers, fraudsters, protesters and unscrupulous marketers as anyone else who takes the risk of plugging their computer into the internet — but these phenomena take different forms in a virtual world, and the fact that the environment is so much more immersive and psychologically affective than the 2D web can make them appear to loom all the larger.

In fact the incidence of 'griever' activity is less than portrayed in the media. Unfortunately it tends to hit new users disproportionately as grievers have a tendency to prey on them, and an early bad experience with a griever can have quite an off-putting effect on that person's view of Second Life. It is not difficult to secure an area of the grid, or a parcel of land within a particular region, and restrict entry only to named individuals. If a learning programme wants to take advantage of the 'massively multiplayer' character of the world, and engage with its inhabitants, it will have to take on board a certain level of risk analogous to the risks we take by venturing into any real world public space.

Recent moves to improve security, such as the introduction of identity checking — much as they anger the resident community — show signs of a willingness on the part of Linden (despite its historic avowal of a heavily non-interventionist ethic) to reign back the 'wild west' character of the world in areas where it seems to pose a threat to widespread acceptance of Second Life.

An issue that arises from this apparent volte face however is the question of how far Linden Labs may feel itself forced to compromise the essential nature of its invention — eroding its freedoms, and tolerance of colourful behaviour and hedonistic excess — in response to negative media stories and high-profile corporate desertions.

A long-term decision about whether to make the necessary investment of time and effort in making a go of learning in Second Life must have to take into account the commercial destiny of Linden Labs.



Governance

'We're sort of being run over by the train that is Second Life right now,'²⁴ admitted Philip Rosedale, CEO of Linden Labs. Second Life's very openness as a user-created world makes it vulnerable to criticism, while its sheer size (12,000 sims and growing) makes it almost impossible to police effectively. But concerns have been voiced over a number of issues recently (introduction of identity verification, nudity, parental control) that call Linden's judgement into question. As difficult issues starts to surface and apparently rushed decisions are made, the company can seem to be tying itself in knots.

It should be said that both Wikipedia and Google have survived similar storms in the past and continued to thrive. And it should also be said that throughout its summer of controversy in 2007, the Linden Dollar remained remarkably stable against the US Dollar — though whether that is really a reliable bellwether, given the Alice-in-Wonderland character of inworld financial institutions, is perhaps open to question.

Second life and the future of learning in virtual worlds

Whether or not Second Life turns out to survive the long haul, the phenomenon of which it is a part, namely the development of virtual 3D worlds which, with the development of interoperability standards could become linked and literally add a further dimension to the internet, is certainly worth taking an active interest in for learning professionals.

In terms of market maturity, Virtual World Learning is currently at the stage of innovation. There is an exploration of potential, there are pilots (every project is, in a sense, a pilot); there is the beginnings of the conceptual scaffolding that will be required to make virtual world learning a credible option for the wider learning and development community. At the moment, however, the important skill sets and understandings which will be needed in order to exploit its fuller potential are still under development.

Timescale

As to how far we are away from learning in virtual worlds being a mainstream activity in training and education, timescales in technology development are notoriously difficult to predict. Estimates we have seen vary from two years to about ten.

CADE predict that within two years 'a large portion of Emergency Preparedness Training exercises will be conducted virtually'. Gartner gained headlines with their

²⁴ Chicago Tribune, 29 August



prediction that by 2011, 80% of active Internet users will be in non-gaming virtual worlds like Second Life²⁵.

E-learning, in the sense of computer-enabled learning delivered over the web, is far from a mainstream activity in Learning and Development still, eight years after the term achieved widespread currency. In the UK it continues to face considerable resistance from the training community. What is technically possible, and financially attractive to organisations, does not necessarily achieve widespread adoption unless it also succeeds in becoming culturally acceptable.

If we believe that learning in virtual worlds is about at the same state of newness and maturity in practice as was web-delivered e-learning in the year 2000, then it could be eight years or more before virtual world learning becomes as established a feature of the organisational training landscape as general e-learning is now. Of course, if Gartner's prediction comes true, and Second Life becomes truly pervasive, and also widely used as an environment for learning, then the timescale of adoption could well be accelerated. Also, it is widely perceived there is an acceleration in the introduction and adoption of new learning and communications technologies in recent years, which could also shorten the timescales of development.

Likely development of the buyer market

Because bespoke companies, by and large, have fared better in the UK e-learning market than product companies, the driving force in innovation has tended to be enlightened buyers of e-learning within large organisations. This is because a bespoke company can invent nothing until it finds a client sponsor to commit to a project and fund some on-the-job R&D.

Assuming that this continues to be the case, we would expect to see innovation in virtual world learning, as far as the organisational training market is concerned, being driven chiefly from within the buyer market.

Virtual world learning is most likely to happen where:

- Organisations are dispersed
- Organisations have significant pain points around necessary training
- Where it can take cost out

²⁵ Reuters, 25 April 2007



- Where it provides a means to do training that the organisation has previously wanted to do, but which it was prevented from doing by cost, resources, access to technology skills etc.
- Where it provides a more efficient way of doing something than was previously the case
- Where it provides a way of doing something that could not otherwise be done by any other form of training

As we mentioned earlier in this report, the education sector is currently playing a larger role in innovation in virtual world learning than it has lately played in e-learning. If this continues to be the case, we could see more public/private co-operation on learning projects across this barrier, as is currently the case in the German e-learning market. This could also give rise to more start-ups and commercial spin-offs with academic roots being set up to service the organisational training market. Another scenario is that virtual world learning thrives in the academic environment, but does not achieve significant levels of adoption within the organisational community, except in niches where it is currently making headway – i.e. Defence, Medicine and disaster preparedness.

Likely development of the supply market

It is assumed that the supplier market will follow buyers in their interest in virtual worlds, and that buyers for their part will be led by the guru community and by consultants.

There is currently a very limited supplier market focused on learning in virtual worlds. When and if this does develop, it is possible that it will follow the broad lines of the existing e-learning market in its structure – which is to say we could see:

- Service companies (bespoke content development and consultancy) who will focus on designing and implementing learning programmes to order in virtual worlds
- Product companies, who will buy up virtual real estate in pre-existing worlds such as Second Life and build training centres (or islands) which they will rent out to organisations as needed
- Technology companies, who will provide virtual world platforms in some cases, and in others deal with the reporting issues,



and the integration between 2D and 3D web, LMS, LCMS, and between different virtual worlds

A platform owner, such as Frontera, can offer a combination of licenses and technical support with learning design services. As with general e-learning, where it is fairly typical for companies to aspire to become 'a one-stop shop', an emerging supplier market is liable to contain companies which do some combination of two or more or all of the above. In time, however, inevitably, greater specialisation would be seen.

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Second Life Education Workshop 2007, Part of the Second Life Community Convention, Chicago Hilton, 24th-26th August 2007
Available online here:
<http://cis.paisley.ac.uk/livi-ci0/slccedu2007rev2.doc> (2 MB Word doc.)

Useful links:

Second Life Resources for Education & Non-profits:

<http://secondlifegrid.net/programs/education>

Second Life Education Wiki:

http://www.simteach.com/wiki/index.php?title=Second_Life_Education_Wiki

Virtual Environments website

<http://www.virtualenvironments.info/>

A page of links relevant to Education in Second Life:

http://ifa.amu.edu.pl/~swlodek/Second_Life.html

SLED Picayune (news resource for educators, trainers, librarians working in Second Life:

<http://sledpicayune.blogspot.com/>

The SciLands: Science and Technology in Second Life

<http://scilands.wordpress.com/>

Author's del.icio.us links:

Second Life general

<http://del.icio.us/Johnhe/secondlife>

Learning in Second Life

http://del.icio.us/Johnhe/learning_in_second_life

Virtual worlds

<http://del.icio.us/Johnhe/virtualworlds>