



## Virtual world activity in UK universities and colleges

### An academic year of expectation?

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“It really is not a matter of choice; nurse and midwife education (and many other healthcare professions) currently have nowhere left to accommodate the needs of students except in virtual worlds.” – Tim Johnson, Senior Lecturer, IHS, University of Worcester.

“We’ve learnt that kinaesthetic and visual learners can get a lot from activities in virtual worlds, so we shouldn’t be put off by those who say some people will ‘never get it’.” – Kate Boardman, University of Teesside.

“It’s an ongoing process of development and rethinking. The use of virtual worlds for education isn’t a linear route to a satisfactory end result. It’s a slow series of increasingly less spectacular failures.” – Simon Bignell, University of Derby

“There were discussions about using some sort of software to ‘control’ student avatars, but really, perish the thought of forcing adults to stay in one place! We don’t lock the lecture theatre doors in the physical world, so why would we wish to do that in the virtual one?” – Kathryn Trinder, Glasgow Caledonian University.



## Summary

From input to this and previous snapshots, plus background research, institutional website searches and anecdotes, it is evident that every UK university except one (the University of the Highlands and Islands) has members of staff who have developed, or are developing, something in a virtual world – though that ‘something’, and the use and educational relevance of it, varies extremely widely.

This snapshot includes input from new respondents. In addition, several academics who are at the early stages of using virtual worlds chose not to report for this snapshot (and will hopefully do so for the next one).

Overall, the picture is one of more virtual world activity in UK academia than in previous years. Several universities, such as Edinburgh and the Open University, are into their third or fourth year of using Second Life and an academic development community continues to grow, though steadily rather than quickly.

As the snapshots reflect only what is reported to us, rather than giving a comprehensive overview, caution has to be taken in comparing activity by subject area. However, some subject domains do appear to be making more use of virtual world technology than others. The biological, health and medical sectors, in particular, make up a large proportion of virtual world activity in UK academia.

Language learning, patient treatment, computer science, health and safety, and art, performance and design stand out as subjects where several institutions are actively using virtual worlds in teaching. Academics in a range of more specific subject areas, such as criminal detection, electrical engineering and midwifery, have used virtual worlds in their teaching.

All 13 of the JISC Regional Support Centres responded to the snapshot survey request for information. The picture they present is of virtual world use being much more isolated and infrequent in further education (FE) than in higher education (HE). Institutional technical barriers and support are still major issues for further education staff. Where institutions have overcome these, substantive virtual world developments have occurred.

The RSCs themselves are providing support in different ways, e.g. events, forming a national coordination grouping, and leveraging the experience of HE institutions to support FE colleges. Across the 13 regions, staff hold widely differing views on the effectiveness of virtual worlds in education.

As with all previous snapshots, Second Life is the predominant virtual world of choice. Having said that, OpenSim is being mentioned by more respondents than in previous snapshot surveys, though actual implementations in UK academia remain few and far between.

This is the fourth academic year covered by an Eduserv virtual world snapshot, as the first one covered the tail-end of the 2006–07 session. While cases of virtual world use in academia have steadily risen, evaluations and evidence of their effectiveness has been fragmented and low-key. Though the same observation could be leveled at many other technologies – take a bow, Virtual Learning Environments – used in education.

Many academics – possibly a significant majority – are still wary, sceptical or openly hostile to virtual world use in education. More visible proof of where it works may swing the more open-minded of them. With the mass of teaching and research activity currently under way in higher education, it’s only reasonable to hope for more (and better) evaluations, and clarity concerning where virtual worlds can be put to good use and where not. For proof, evidence, data and convincing arguments, 2009 to 2010 feels like the year of virtual world expectation.

# 1. Background

## 1.1 Data collection

This snapshot started by attempting to find data by searching virtual worlds (as the first snapshot did) rather than relying on responses from academics. This approach floundered, due to the inadequacy of search mechanisms within virtual worlds, especially Second Life. After a while, and with not much to show for it, Virtual World Watch reverted to questioning UK academic users of virtual worlds.

The usual calls were put out and a record number of responses were received. Many of these were detailed, substantive and subject or student specific.

However, a proportion had little or no substance, or talked purely of future work (okay) or hopes (not so useful). Some of these were not included in the snapshot. Several UK academics who were asked for contributions declined, as they have work in progress or about to start and wish only to contribute when it's completed. We look forward to their input in future snapshots.

A sizeable amount of data concerned research rather than teaching, although often it was difficult to separate the two, e.g. a research project which involves developing structures in a virtual world and evaluating their effectiveness in a teaching situation. The amount of research is too large to form an appendix and therefore has been put into a separate report which follows this one by a few days.

Previous snapshot surveys had failed to dig up any activity, apart from the odd isolated example, in further education. Was this a fault of the search methodology, or is there really little or no virtual world activity in this part of the education sector? For this survey, we received the help of those organisations in a better position to know than probably anyone else: the 13 JISC Regional Support Centres who assist FE institutions in their use of technology for learning. Their responses are in section four.

## 1.2 Categorising virtual world usage in education

In this snapshot report, we've tried to categorise responses according to subject domain, the logic being to highlight any areas of especially heavy or similar virtual world use.

However such categorisations are not always clear-cut. Take this response<sup>1</sup> snippet:

"We are taking a class of 84 second year undergraduate computing students into Second Life as part of a module on database applications and graphics. They will be studying human-computer interactions using e-learning as the context. They will be analysing the role of scenarios in e-learning and gathering evidence of how the use of virtual worlds can enhance the learning experience."

This covers computer science, e-learning, virtual world research and arguably psychology.

Section three of this report therefore categorises responses as best as can be done, bearing in mind that many responses cover several subject areas. Applications of virtual worlds in UK academia which aren't subject-specific can be found in section two.

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<sup>1</sup> Dr GR Barker-Read, Head of Academic Quality and Standards, University of Leeds.

### **1.3 The next snapshot**

Snapshot #8 is scheduled for a mid-March 2010 release. Contributions are welcome up to the end of February 2010; please see the Virtual World Watch website<sup>2</sup> for details.

If you are a UK academic who has developed or taught within a virtual world, then consider contributing to the Flickr pool of pictures. Simply create a free Flickr account, upload a few screenshots of education activity in your virtual world, then submit them to the group<sup>3</sup>.

### **1.4 Acknowledgements**

Thanks, of course, to the many academics and JISC RSC staff who responded to this survey, to Andy, Ed and Pete in Eduserv for support over an intense session of work, and to Scotproof<sup>4</sup> for proofreading some of this report.

Thanks especially to Shri Footring in her relentless quest to obtain responses from all 13 JISC Regional Support Centres; you have earned your meal at Burger King.

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<sup>2</sup> Virtual World Watch: <http://www.virtualworldwatch.net>

<sup>3</sup> Flickr picture pool of virtual world use in UK education: <http://www.flickr.com/groups/slsnaps/pool/>

<sup>4</sup> Scotproof: <http://www.scotproof.com>

## 2. Some virtual world uses

In this section, we've included some uses of virtual worlds that do not sit easily in the subject-based compartments of section three.

### 2.1 Developing an island

Athina Chatzigavriil<sup>5</sup> introduces the LSE's Second Life island:

"At LSE the Centre for Learning Technology<sup>6</sup> have bought and developed an island in Second Life called 'Castors Retreat'. Access to the island is restricted to LSE staff, students and invited guests, providing a private location for teaching and learning activities."

The University of Worcester<sup>7</sup> has been developing an island for its students:

"We have been working on our island now for about 18 months, creating what we hope will be a comfortable environment for our students. We have developed the usual zones, coffee lounge, seminar areas with display boards, sand box, acclimatisation area with activities and information for new avatars and chill out areas where people can go for a bit of peace and quiet."

The Second Life island at Teesside University<sup>8</sup> has been in existence for a while now:

"Teesside's island 'Teeslife' has now been open just a year. It has – is – being used for a variety of things. Some things are developmental, trying to identify how Second Life works and if it is good for x, some are surer and are building activities which cannot easily be done in a classroom or via an LMS. Some look to provide a support space – a virtual lounge for people to come together (digital champions) in a more physically co-present way than is offered by other social networks. Some use is by staff – and a few students – to move in residentially so that they have somewhere to feel at home while they explore or develop.

We have some things that are Teesside-specific and some things that we've developed or are developing to share. There are formal and informal spaces and activities, at module, programme and university level and on a personal, national and international collaborative level."

Individual departments in some universities have their own island<sup>9</sup>:

"Manchester Business School has now opened its island<sup>10</sup> to general access."

Universities such as the West of England<sup>11</sup> have a combination of open and closed islands:

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<sup>5</sup> Athina Chatzigavriil, Learning Technologist, Centre for Learning Technology (CLT), London School of Economics.

<sup>6</sup> Centre for Learning Technology, London School of Economics: <http://clt.lse.ac.uk/>

<sup>7</sup> Tim Johnson, Senior Lecturer, IHS, University of Worcester.

<sup>8</sup> Kate Boardman, Head of e-Learning, University of Teesside.

<sup>9</sup> Peter Lythgoe, e-Learning Specialist, Manchester Business School.

<sup>10</sup> Manchester Business School in Second Life: <http://secondlife.mbs.ac.uk>

<sup>11</sup> Dr Liz Falconer, E-Learning Development Unit Manager, University of the West of England.

"At the moment we use Second Life as the virtual world of choice, largely because it is easy and accessible, and because our focus is less upon technology development and more upon the potential that virtual worlds have for supporting students' learning. We have two islands at present; one that is open<sup>12</sup> and showcases our activities in Second Life and houses the accident and social work simulations, and one that is closed, owned by our faculty of health and life sciences where they are developing health-based scenarios."

As detailed later in this report, Glasgow Caledonian University<sup>13</sup> is building on previous work and developing a range of new projects:

"We are still using Second Life for several teaching and learning activities; pilots we had last year will continue this year. Jane Guiller's cyber-psychology module has integrated Second Life, the virtual ward will most likely be used by 80 students in semester two, and David Moffat's Artificial Intelligence asset (waypoint finding and flocking behaviour) will also continue.

The virtual x-ray machine is being beta tested by students (from year 1 till 4) and will be modified based on their findings and feedback. We're also developing new projects: The Eye in the Sky is under construction in collaboration with four students from visual neuroscience.

We're working together with South Lanarkshire College in creating a replica of 'Aurora' which is a highly energy efficient and 'green' house. Our virtual version can show the insides (insulation) of walls, the floor heating and all those features that are not visible or accessible in the real world version."

The University of East London<sup>14</sup> is another institution that possesses multiple islands in Second Life to house the range of virtual world teaching and learning activities:

"At University of East London (UEL), we have several projects on Second Life which includes a Polymerase Chain Reaction (PCR) and electrophoresis laboratory for analysing DNA, crime scene investigation for forensic science students, presentation and discussion venue for psychology students, and a polyclinic. These projects are spread over two islands sponsored by schools/units at UEL: UEL Island is sponsored by UELconnect, and UEL HABitat is sponsored by the School of Health and Bioscience."

An academy<sup>15</sup> at the University of Essex has been developing an island over the last year:

"The International Academy at the University of Essex has a virtual campus (called Wivenhoe Park) set up on Second Life which has been running since the start of the year. Good progress is being made to start training staff and introducing real world users to it."

Some universities, such as Newcastle<sup>16</sup>, have previously acquired islands which are now 'resting':

"Nothing has really changed at our end; we are still contemplating what to do with our island."

At the other extreme, the Open University has been developing and using a number of islands in Second Life for several years:

"The Open University has been exploring the potential of virtual worlds since mid 2006, and recognises a variety of affordances that they offer us for teaching, learning and research,

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<sup>12</sup> e-Learning at UWE Second Life island: <http://slurl.com/secondlife/Elearning%20at%20UWE/110/128/35>

<sup>13</sup> Ferdinand Francino, Project Manager, 'CU There', Glasgow Caledonian University.

<sup>14</sup> Remy Olasoji, Learning Materials Developer, University of East London.

<sup>15</sup> Sharmila Brown, Commercial Development Officer, The International Academy, University of Essex.

<sup>16</sup> Dr Savvas Papagiannidis, Business School, Newcastle University.

enabling us to work with students in activities that might be difficult, dangerous, expensive or even impossible elsewhere.

For a distance learning institution such as ours, there is an added dimension in the social capital available through the strong sense of presence in these environments: virtual worlds enable our students to meet socially and explore their identities as members of a student body or community. The Open University has put considerable support into exploring this aspect of virtual world potential: seventy five staff and students rent houses or allotments on OUtopia, our Second Life community 'village' island, which they are free to decorate and use as they choose. In the evenings they hang out in the pub or attend functions on the village green.

For example, we recently held a Halloween party, fireworks night and the OU second annual Christmas pantomime [editor: panto is excruciatingly awful to sit through in the real world; can it really be any better in a virtual world? :-)]. We are closely monitoring the development of this inworld community and it has already been the subject of a variety of research output."

Lancaster University<sup>17</sup> has owned island space in Second Life for several years; this forms the focal point for its virtual world teaching and research activities:

"Our long-term goal for several years now has been is to create a sustainable inworld presence. Our island is used for teaching/learning, research, and socialising; but also we are trying to build something that will continue to exist beyond the efforts of a dedicated few.

Looking at the big picture of Lancaster University's inworld activities, I have to say that the social aspects have been more commonly utilized than other affordances. Our island is sometimes a place where students, faculty and researchers hang out from time to time, not always associated with an objective. Sometimes we even meet inworld to avoid walking across campus when it's raining.

We have made great progress and our numbers continue to grow. We are proud of what we have accomplished with very little means. And we are excited about the future. Interest continues to grow, students are finding more and more uses for our Island, and teaching and research activities are becoming more common. Second Life at Lancaster University is no longer a fringe topic met with skepticism. It's part of who we are as an educational institution."

The University of Southampton<sup>18</sup> has an island which acts as a hub for various project and research activities:

"The island has two levels. The ground level has been designed for use by the communications department who have designed the island so that there are areas to explore and areas based loosely around the campus. There are also areas for information about the university, such as the 'info-hub' (an interactive 3D map of some of the campuses), plus meeting areas and video streaming facilities.

There are a few areas also for educational activities. For example, this year chemistry used the ground level to have a treasure hunt and to display some interactive objects as part of National Science Week. There were molecules scattered around the island and also an interactive fruit machine that generated DNA, which proved very popular. There is also an area called the Winchester Walk Way which displays works of art from the students at the Winchester School of Art.

The upper level, is for use by any school or service who would like to use the island. Within view of the ground level, there are a series of eyeball shaped platforms that are the introduction areas for the sandpit areas where the actual project work takes place. Each of the projects involved have dedicated spaces here where they can introduce what they have done

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<sup>17</sup> Michele Ryan, LUSLUG (Lancaster University Second Life Users Group).

<sup>18</sup> Fiona Grindey, Education Development Adviser, Learning and Teaching Enhancement Unit, University of Southampton.

and then teleport to their sandpit area (a lot higher up!) where the educational and research activity is taking place. Each of the projects are different, although all include educational aspects.”

## 2.2 Recruitment and marketing

One of the earliest applications of virtual worlds in UK higher education was to try and recruit more students. This continues in some institutions. The University of Sunderland<sup>19</sup> is developing an island for marketing to younger students:

“In addition to our main island, University of Sunderland now also has a TEEN island that we plan to develop as a reach out and recruitment aid, over the coming months.”

The University of Hertfordshire<sup>20</sup> has used an island in Second Life for recruitment purposes for several years:

“As computer literacy continues to grow amongst the general population, it is quite clear that the standards for degree programs will, likewise, need to reflect the changing times and continue to provide a challenge. As has been made evident from Second Life, people are able to learn scripting languages and the basic principles of 3D modelling without the need of an educational establishment.

It is because of this that engaging with individuals via Second Life, in order to promote the University, has become a primary objective of the presence. Showing that we are able to cater to such enthusiasm ensures that we miss fewer opportunities when recruiting new students.

No less important is the research side of things. Visual depiction has always been a part of human culture, and now we are moving into the realm of three dimensional interactivity. To ignore this development would be a woeful waste of an opportunity to further our understanding.”

## 2.3 Demonstrating virtual worlds to staff

In various institutions, staff unfamiliar with virtual worlds are being introduced to the technology. Web searches show many events, conferences and workshops in the sector over the last year, and a larger number of internal presentations. However, it is arguable that virtual worlds cannot be fully appreciated or understood until a person actually ‘has a go’.

At Staffordshire University<sup>21</sup>, a team of academics is in the early stages of demonstrating virtual worlds to other staff:

“At Staffordshire University there are a couple of small projects involving Second Life but they are very isolated, going a bit against the tide as we are not set up across the institution to cope with Second Life and have no personnel or funding dedicated to its development.

I don’t know much about the individual projects at the moment, but on the basis that I knew some members of academic staff were interested in Second Life and the possibilities it may offer from learning, I jumped at the chance to have some island space from JISC RSC West Midlands. Our contact is Jane Edwards and we are one of seven institutions with a plot on the island she is managing.

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<sup>19</sup> Shaun Allan, Web Developer, University of Sunderland.

<sup>20</sup> Andrew Marunchak, Virtual Campus and Real-Time 3D Lead Developer, University of Hertfordshire.

<sup>21</sup> Christa Appleton, e-Learning Development Specialist, Learning development and innovation, Staffordshire University.



At the moment we are just trying to build something on the plot ready to use it; time pressures make this difficult. I personally am not very experienced in Second Life either (I only signed up in September so steep learning curve!); my colleague (Hamza Badenjiki) is more experienced and the builder.

Hamza, myself and Helen Walmsley will be the main people involved in delivery to staff once I have something set up. Originally I thought it would be online at distance but due to access and the fact that some staff, although interested have never visited Second Life and may have difficulty installing and using it from their office, I think we will attempt face-to-face sessions first.

My main idea for delivery was to keep things pedagogical and simple, just to introduce virtual worlds and a glimpse at what may be possible with more commitment. We only have island space for a short while. That, and a lack of dedicated expertise, mean we cannot create elaborate spaces.

I hope to offer some orientation, ask the expert session and exploration of more established environments (Kate Boardman has agreed in principle to talk to us and let us visit Teeslife for starters), along with discussions and meetings in our space for the time being. Hamza is also going to demonstrate Second Life to a small cohort of students later this month at the specific request of a member of academic staff delivering to students on a games technology degree course."

## 2.4 Illustrating an environment

Lyn<sup>22</sup> at the South West RSC outlined how a local provider uses Second Life to illustrate the real world environment around their institution:

"One of our largest further and higher education providers in the south west used some Objective One funding to buy an island. The island's development team decided that the finished build should avoid being simply a visual representation of a real-life campus, but instead be an interactive depiction of the local geographical area, with the geology, architecture, history and culture of the county firmly imprinted on every part of the island. It is in this environment that tutorials with real life students' avatars have been held."

Bex Ferriday<sup>23</sup> describes the island run by her college:

"We have designed our sim (Cornwall College Island) to function as an interactive representation of the architecture, geology, geography, sociology and politics of Cornwall. As a result, visitors to the island are as welcome to surf, sunbathe on the beach, hang-glide, share a pasty or walk around a virtual tin mine as they are to enrol on a course of study, have a tutorial or join a class."

At Leicester<sup>24</sup>, remote environments have been recreated in Second Life:

"The Beyond Distance Research Alliance at University of Leicester began in 2007 to actively research the use of Second Life in learning, with its MOOSE<sup>25</sup> (MOdelling Of Second life Environments) project. MOOSE assisted the University of Leicester School of Archaeology and Ancient History by creating (on the Media Zoo Island, the Beyond Distance presence in Second Life) a Sami tent and a Kalasha village, neither of which can be easily visited or even visited at

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<sup>22</sup> Lyn Bender, e-Learning Adviser, JISC RSC South West.

<sup>23</sup> Bex Ferriday, Lead Teacher, School of Education and Training, Cornwall College.

<sup>24</sup> Terese Bird, Learning Technologist, Beyond Distance Research Alliance, University of Leicester.

<sup>25</sup> MOOSE project: <http://www.le.ac.uk/beyonddistance/moose/>

all in real life. Students were able to meet at these Second Life sites to do activities and discuss especially gender roles in ancient societies.”

## 2.5 Teacher training

Using virtual worlds for teacher training has the advantage that teachers do not need to congregate in the same real world location at the same time. An FE provider supported by the South West RSC<sup>26</sup> is using Second Life for this purpose:

“In recent weeks students have enrolled on teacher training courses where they have interacted with three dimensional representations of teaching and learning theories. Based on the success of the providers blended learning approach to teaching the level 3 Preparing to Teach in the Lifelong Learning Sector Award (PTLLS), a new university module is being written to deliver the same programme at level 4 using a blend of Second Life and Moodle.”

Shirley Williams<sup>27</sup> outlines a brace of projects at Reading University:

“With virtual worlds, we have mostly used Second Life.

- Muvenation<sup>28</sup>: an EU funded project helping teachers understand the potential of virtual worlds. UK partners were Kings College, London and University of Reading. Over 100 teachers participated in Muvenation, starting from little or no experience. Those who completed became proficient.
- LLL3D: a multilateral project in the Transversal Programme of the EU’s Lifelong Learning Programme. The project aims to support European practitioners (individuals as well as the existing communities) that work in the field of education and training using Second Life within a lifelong learning perspective. UK partners were Kings College London and the University of Reading.”

Cornwall College<sup>29</sup> is also using Second Life in teacher training:

“Cornwall College’s School of Education and Training (SET) has been delivering a successful introductory teacher training programme using blended learning methods for a little over three years now. Course members study using a mix of asynchronous online sessions uploaded to the college’s Virtual Learning Environment (moodle) and attendance at traditional classroom based sessions.

In February 2010 the college will pilot a version of this course whereby all classroom based sessions will be delivered in Second Life. This opens the course to students from all over the globe, and also asks the question – can traditional teaching skills learnt in a virtual world transfer to practice in the real world?”

## 2.6 Virtual graduations

Not every student can make graduation, especially if people live distantly or are working. Several UK universities have tried virtual graduations, including Edinburgh<sup>30</sup>:

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<sup>26</sup> Lyn Bender, e-Learning Adviser, JISC RSC South West.

<sup>27</sup> Dr Shirley Williams, Senior Lecturer, School of Systems Engineering, University of Reading.

<sup>28</sup> Muvenation project: <http://muvenation.org>

<sup>29</sup> Bex Ferriday, Lead Teacher, School of Education and Training, Cornwall College.

<sup>30</sup> Fiona Littleton, Educational Development Adviser for Virtual Worlds, University of Edinburgh.

"For the School of Education graduation in November, we held a parallel event in Second Life for our MSc in E-learning graduates who are in absentia.

We have been working with central Information Systems to take the live stream of the graduation into the Venue@Vue, where graduating E-learning students, current students and colleagues gathered to congratulate them.

We think this is the first time this has been attempted at the University, but it could be a model that would work well for students on other distance learning programmes in the University."

Manchester Business School<sup>31</sup> is using Second Life for a range of activities, including graduations:

"We are using Second Life for virtual graduation ceremonies, taking part in conferences, role playing and researching interview behaviour and within a Business Information Systems undergraduate course for group work."

## 2.7 General teaching

Eloise Pasteur<sup>32</sup> is one of several people who have used virtual worlds for teaching across a wide range of disciplines:

"I use Second Life for teaching. I provide learning support to a student at the University of Glamorgan which is 100% in-world. In addition I advise this student on her final year project. I also act as a teaching assistant for various other courses taught in Second Life; these are mostly on the Teen Grid this year, but have been on the main grid in years gone by.

In all cases I use a virtual world to provide distant learning. I have not met any of my students outside of the virtual world, although this may change in the Spring and Summer terms of 2009–10 when I am going to offer a meeting in Second Life as an optional tool for a new blended learning programme I will be delivering with the University of York.

With most of the teaching that has been done in Second Life we have adapted the materials and the teaching to use Second Life. For example, when teaching Dante's Inferno and Linden Hills, we created a virtual environment that duplicated parts of the inferno and then required the students to create some materials that related both to the inferno and Linden Hills. This helped the students gain a better understanding of the choices that Naylor had made in her book and why it was structured as it was, and why the various characters were portrayed as they were.

I also assisted on a citizenship course in Second Life, which, as part of the curriculum, required the students to consider health care, responses to acts of war/terrorism and disaster. We created a tool in Second Life that simulated the spread of an epidemic, provided housing and then deliberately vandalised them (setting fires and the like). This made for a much more visceral response than running the course in a classroom could ever have achieved."

Academics at Lancaster University<sup>33</sup> have used Second Life in a variety of subjects and situations:

"Both masters level and undergraduate courses use virtual worlds as part of their curriculum. Some have continued from year to year while others were abandoned.

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<sup>31</sup> Peter Lythgoe, e-Learning Specialist, Manchester Business School.

<sup>32</sup> Eloise Pasteur, teacher/trainer and educational developer.

<sup>33</sup> Michele Ryan, LUSLUG (Lancaster University Second Life Users Group).

Looking at how our teachers have been using it in conjunction with their course material, boils down to three primary categories. The first are those who are teaching a subject that has an obvious link to virtual worlds. These include computer/psychology courses, educational technology, computer animation, and other computer science courses. In most cases, these classes use SL to explore the world to have inworld experiences that they can reflect upon, or to apply technical knowledge and compare it to other software applications.

The second usage is that of a connection device for distance learners. Often these classes have no SL specific tasks to perform. They are using the virtual world as a meeting place and way to add a sense of presence to their group meetings and team projects.

Finally, we have several traditional classes that use Second Life as part of their coursework. Sometimes the world serves as a backdrop for what they are studying; such as identity issues. Students engage in the experience but are not 'required' to do anything too technical. They may be assigned the task of 'randomly explore the world with an avatar of the opposite gender'. These classes usually require students to write an essay on the experience.

Other times students may be given task-specific assignments with learning objectives that do not relate to the task. This is often seen in business classes and other social sciences. For example, students learning about teamwork may be required to build something. These students must learn how to build, divide the workload, get over the learning curve as a group and solve their own problems. Or a management class that used the process of planning and making machinima in order to teach production management."

## 2.8 Supporting distance learners

Dr Shailey Minocha<sup>34</sup> describes how virtual worlds, as one of a range of technologies, are useful in the teaching of distance learners:

"The Open University (OU) is a distance-education institution and on most of the courses, students don't meet one another face-to-face. Our empirical research on the pedagogical role and effectiveness in the context of wikis and blogs in distance education has shown that inadequate socialisation at the start of the collaborative activity was a key obstacle in conducting group projects or activities at a distance.

Our objective of using 3D virtual worlds, such as Second Life, is that a three dimensional virtual environment provides a real-life-like setting or 'place' for socialisation, real-time collaboration and synchronous communication. We view Second Life as a part of a blended learning environment where students come into Second Life to attend meetings and tutorials and use other social software tools in conjunction with Second Life, such as a blog for reflection and note-taking, a wiki for recording the notes of the Second Life discussions and for collaborative authoring, or a forum for asynchronous discussions.

On one of the courses, our students have conducted course-related activities in small groups in Second Life (such as visiting islands related to some aspects of the course followed by a panel discussion in Second Life), and then have continued to carry out discussions in the course forum."

Northampton University<sup>35</sup> is at an early stage of using virtual worlds for this application:

"The Learning Technology team at the University of Northampton (LT@UoN) are investigating the potential of using Second Life for supporting small group discussions for distance based modules. At this time, we are looking to develop an enclosed seminar room with space for groups to trial interactive discussions using voice."

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<sup>34</sup> Dr Shailey Minocha, Department of Computing, The Open University.

<sup>35</sup> Rachel Fitzgerald, Learning Technology Manager, University of Northampton.

## 3. Virtual world use by subject

Here we have attempted to categorise responses by subject area. This isn't an exact science – many practitioners use virtual world technologies across several subject domains.

### 3.1 Health and medicine

The University of East London<sup>36</sup> is using Second Life for health, and other applications, within the bioscience and health subject domains:

“Teaching staff in UEL’s school of Health and Bioscience are using Second Life as a means of exposing healthcare and bioscience students to situations that are unavailable or in limited supply in the physical world e.g. patient interactions, expensive molecular biology experiments and crime scene scenarios.

A polyclinic, laboratory and crime scene house associated with our various activities are currently located on (or are in the process of moving to) our recently acquired UEL HABitat island in Second Life.”

The University of Worcester<sup>37</sup> is developing a virtual hospital:

“One of the main things we are doing is creating a hospital for our healthcare professions to use. It is intended that there will be short and long scenarios that students will be able to interact with, either with lecturers as part of normal university interaction, or on their own as part of their own study time.”

Using Second Life medical simulations constructed at Glasgow Caledonian University<sup>38</sup>, nursing students practise heart-related exercises:

“I am using Second Life to enable post-registration nursing students to take diagnostic histories via a virtual patient using AIML bots and voice synthesis software. The students also listen to heart sounds which are embedded in the avatars chest. They must click on the correct anatomical position and link what they hear back to the history they have just taken.

This allows the students to supplement their face-to-face practice at a time convenient to them in an authentic immersive environment.”

Pathology is an ongoing virtual world project at Sunderland<sup>39</sup>:

“Work continues on the Virtual Pathology Lab Project with myself and Dr Anne Cunningham.”

Anne<sup>40</sup> details some of the medical work:

“We have made contact with the group who have developed a virtual ward for nursing students at Glasgow Caledonian University so will hopefully collaborate on the patient at the bedside

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<sup>36</sup> Rose Heaney, Learning Technology Adviser (UELconnect), Schools of Psychology and Health and Bioscience, University of East London.

<sup>37</sup> Tim Johnson, Senior Lecturer, IHS, University of Worcester.

<sup>38</sup> Evelyn McElhinney, Lecturer in Nursing, School of Health, Glasgow Caledonian University.

<sup>39</sup> Shaun Allan, Web Developer, University of Sunderland.

<sup>40</sup> Dr Anne Cunningham, Senior Lecturer, Biomedical Science, University of Sunderland.

scenario – then the sample would go into a pod system on the ward for delivery to specimen reception (as in real life).

We are also busy getting the finer details of things we need from colleagues who work in the NHS (like blood tubes, request forms, standard operating procedures and documentation on storage on retention) to link together the pilot process (blood sample).

Shaun Allan is continuing with the build and I hope it will be ready to pilot with 60 second year Biomed students next term. We have a big pharmacy degree in Sunderland (180 students/year) so ultimately I would like a virtual pharmacy by the ward, and the students could prescribe drugs and then see the effect on the blood sample results. Sounds easy – but probably horribly complicated and will take ages.”

St George’s University of London<sup>41</sup> is using Second Life in the education of paramedic students:

“We are using the virtual world Second Life to deliver PBL (problem-based learning) scenarios. Currently we have five scenarios for paramedic students on a foundation degree programme. These are for small group learning, facilitated by a tutor, whether for distance learning or for campus-based tutorials. They could also be adapted for self-directed learning.

Within these virtual PBL scenarios, students are able to talk to the patient, assess them by touching various parts of the patient’s body, and treat the patient using their paramedic equipment kit. The scenario is responsive to the actions of the students. Resources such as image, sound and video are embedded within the scenario at different points, and various ‘counters’ (e.g. heart rate) record actions and can change the patient’s vital signs accordingly.

Originally we started looking at using Second Life as a way to deliver problem-based learning – a type of educational model that relies heavily on group collaboration – to students based at a distance. We thought that the immersive nature of Second Life would help students to feel present within the scenario and so actively contribute to group discussion. Now we are also trialling a delivery model in which students meet in together in real life, and use a single avatar to interact with the Second Life scenarios on a large interactive whiteboard.

Using a virtual world allows us to do things that simply aren’t possible in other delivery systems. Firstly, we are able to simulate situations and put the student at the centre of those simulations. Secondly, the scenario can actively respond to choices the students make, but there are no real life repercussions on making bad mistakes. And thirdly, students are able to carry out actions in any order, rather than needing prompts, which is more faithful to real life than a menu of options used with similar web based virtual patients.

The technology running the scenarios is called PIVOTE<sup>42</sup>. It is modelled on existing web-based ‘virtual patient’ systems which follow the medbiquitous virtual patient standard. Most of the case content is web-based, which means it is possible to use in other virtual worlds, although we haven’t attempted this ourselves.”

The University of the West of England<sup>43</sup> is also using PIVOTE in the modelling of emergency situations, including medical ones:

“Colleagues in Health and Social Care are developing scenarios using the PIVOTE system. These scenarios will take place in an environment that includes a hospital, some domestic dwellings, roadways and other simulated scenes. Students will be able to interact with patients and each other, to work as teams on particular medical emergencies or with patients presenting with a range of health issues.”

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<sup>41</sup> Emily Conradi, Manager for e-Learning Innovation, Centre for Medical and Healthcare Education, St George's University of London.

<sup>42</sup> PIVOTE (Virtual learning authoring system): <http://www.pivote.info/>

<sup>43</sup> Dr Liz Falconer, E-Learning Development Unit Manager, University of the West of England.

Imperial College has created a virtual hospital<sup>44</sup>, part of which includes a respiratory ward:

“Imperial College London started looking into developing a virtual hospital in August 2006. The initial concept design was partly developed in 2007 when a respiratory ward with one virtual patient suffering from pneumothorax was developed following a game-based model. This initial concept was presented at the International Association for Medical Education conference in 2007.

Soon after that, the respiratory ward was extended into several virtual patients. The same game-based learning approach was followed and a series of pilots were carried out to assess student attitude when learning in Second Life. Suggestions generated from the pilots have driven the design of user friendly game-based information displays such as the 'Heads up Display' available at the respiratory ward which provides personalised information about the patients treated, current diagnosis status, scores and top scorers.”

On a more squeamish level, Glasgow Caledonian University<sup>45</sup> is developing a virtual eye:

“The Eye in the Sky. This is a project involving 4 students in 2 teams developing a virtual eye to:

- Show progress and effects of disorders (both in a model of the eye, enlarged & animated details as in 'first person view' effects).
- Show muscles and muscle functions (for which they currently use a tennis ball).

Students involved with the 'Eye in the Sky' proposed to mimic the actual visual effects of a disorder so that other people could experience what the patient is seeing, like a black spot in the centre of your view. Now go and walk around in first person view. See how it affects the visual perception of your environment. Make some tea. You can't do that in the real world. There are many more reasons to use a Virtual World.”

At the same university, a virtual X-ray machine has been built:

“Virtual worlds offer benefits that are hard or costly in the real world. Once I've created one x-ray machine I have countless x-ray machines. Students can practice with them and familiarise themselves with the machine before trying their hands on the real one. This reduces the load of the real world asset and generates an understanding. Students find the thing 'cool'. They think it's fun to play with, to test all kinds of settings and positions. When they see the real machine they have the feeling they know it already, to a certain extent.”

### 3.2 Biological sciences

Several universities, such as East London, are using virtual worlds in both the health and biological science domains, where there are many overlapping applications. Laboratory simulations are being explored in several institutions, such as at Leicester. Academics at this university<sup>46</sup> are developing a virtual world-based genetics laboratory, partially to teach health and safety aspects to new students:

“The SWIFT<sup>47</sup> project at the University of Leicester uses the three-dimensional, virtual world of Second Life to help undergraduates studying genetics. To achieve this, we are creating a

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<sup>44</sup> Maria Toro-Troconis, Senior Learning Technologist, Faculty of Medicine, Imperial College London.

<sup>45</sup> Ferdinand Francino, Project Manager, 'CU There', Glasgow Caledonian University.

<sup>46</sup> Dr Paul D Rudman, Research Associate, SWIFT, University of Leicester.

<sup>47</sup> SWIFT project: <http://www.le.ac.uk/SWIFT>

virtual genetics lab in Second Life. Phase one of SWIFT uses this virtual lab to help first year undergraduates become acclimatised to working in a laboratory; in particular, the many health and safety factors involved. Understanding the culture of lab work before even setting foot in the physical lab should give students more confidence and reduce the teaching time spent on induction.

For example, students must wear lab coats whenever they're in the lab; there are correct times to wear, and not to wear, protective gloves; hands and equipment must be washed in the correct sinks, and the proper safe operation of each piece of equipment must be understood. Students will attend one taught induction session in this virtual lab, and can return as they choose to review their learning before their first regular lab class.

In later phases of the project, students will use the virtual lab to work together in small groups, carrying out problem-based learning scenarios. They will design and carry out sequences of experiments. This would take too long to do in a physical lab, and is currently achieved using paper and web pages. Thus, the SWIFT project uses the sense of reality that virtual worlds can create, to extend the laboratory experience beyond what is possible in existing lab time."

At the University of Liverpool<sup>48</sup>, Peter Miller uses Second Life in the teaching of biology.

"This is the second and final year of the pilot being run by myself and funded by the university library and the school of biological sciences. As per last year, we are using it in three contexts:

1. Level 3 honours course for 15–20 microbiologists.
2. Level 3 project students (two this year).
3. M-Level awareness session (about 35).

Some more details about the Level 3 honours course, for those with a biological disposition:

The students worked in small groups to produce a display on a particular species of the bacterial genus *Mycobacterium*. Initially they compared their species to the major human pathogen *M tuberculosis* which is the subject of an ongoing build by myself and the subject of the other two images, one showing a metabolic browser that rezzes molecules and the other the giant touch-sensitive (when the server is working) genome of *M tuberculosis*, adjacent to which are rezzed drugs used to treat the disease and their target structures.

They did this using a web application called Geneplot which basically plots the location of the equivalent gene in the two species. Where the species are closely related, you get a diagonal line. In many cases the relationship is much more tenuous and in some cases you also see genome segment inversions shown as diagonals in the opposite orientation.

The sculpted proteins represent the equivalent structures from *M. tuberculosis* for their gene and are touch-sensitive, a menu allowing students to rotate the prim, map-teleport to the equivalent gene on the giant genome (via a landmark they set), and follow a link to a bioinformatics website for further info, The networks are derived from a database called STRING which predicts the proteins likely to interact with theirs.

The giant genome (on a good day) is set to display the same info for *M tuberculosis* as a set of prims that sit-teleport you to the gene encoding the putative interactor. One of the primary authors of STRING is actually inworld although I didn't have time to rope him in for a talk to the students."

### **3.3 Religious and spiritual education**

Religious and spiritual applications of virtual worlds can be found with little searching in Second Life, with examples of church, monastery, temple and mosque recreations, as well as

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<sup>48</sup> Dr Peter Miller, Lecturer, School of Biological Sciences, University of Liverpool.



many memorials. In the University of Aberdeen<sup>49</sup>, a virtual world-based resource for teaching and learning about aspects of religions is under development:

"The religious studies group within the college of arts and social sciences at the university of Aberdeen have built a virtual monastery in Second Life. At present it is a collaborative project between staff and students, with staff supervision. The space is used in several ways:

- As a meeting place for distance and off-time learning, and for special project teams.
- As a resource centre with links to other internet resources and SLOODLE facilities for teaching.
- As a venue for assessment: in one class, students have as one option for an assessment to build something that helps other people learn a difficult concept in Buddhist philosophy.
- As a role-playing area: we use the monastery as a setting for virtual temporary monastic ordination. Past students have begun to take on the roles of uncles who sponsor the ritual, temple guardian spirits and other actors in the drama."

### **3.4 Art, fashion and design**

Since the first snapshot, it's been evident that art, fashion and design applications are popular in UK universities and colleges – although at Southampton Solent University<sup>50</sup> one course from last year won't be running again:

"Currently the use of Second Life within courses is at quite a basic level. Last year we ran a project with first year media fashion styling students. However, it was decided not to continue that use of Second Life as it was not successful. It was felt that the students found Second Life too much of a challenge when they were also trying to understand how to be a student and their real life identity in the new setting of higher education."

However, students of interior design and fashion merchandise will be using virtual worlds in their studies<sup>51</sup>:

"The interior design project will run again in the same format as last year. Unfortunately, there was low participation because of a clash with deadlines so this will be addressed. The students find suitable locations in Second Life and then roleplay a consultancy conversation – one as student and one as designer.

This discussion is recorded, the locations photographed and the students produce a written report. Second Life will again be available as an option for fashion school third year projects (already some uptake). The MA fashion merchandise management students really grasped the concept last year so the use has been developed further for this year. The students will research retail environments in Second Life and present their findings as both a guided tour within Second Life, and a complementary written guide."

A further education institution<sup>52</sup> supported by the JISC South West RSC is using its Second Life island within the art and design subject domain:

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<sup>49</sup> Dr Will Tuladhar-Douglas, Director of the Scottish Centre for Himalayan Research, University of Aberdeen.

<sup>50</sup> Clare Denholm, e-Learning Support Officer, Learning Technology Unit (LTU), Southampton Solent University.

<sup>51</sup> Clare Denholm, e-Learning Support Officer, Learning Technology Unit (LTU), Southampton Solent University.

<sup>52</sup> Lyn Bender, e-Learning Adviser, JISC South West Regional Support Centre.

"Many more projects are underway, including a display of three-dimensional art work to be held on the island by foundation degree arts and media students."

The University of Sunderland<sup>53</sup> continues to be active in this area:

"We still have activity in both our design and business faculties within Second Life."

Joff Chafer<sup>54</sup> at Coventry University runs a course where students learn how to use Second Life, culminating in in-world creations:

"I run a module that is open to anyone across the university; the course focuses on using Second Life as a place to try out and explore ideas, collaborative working and problem-based learning. It is only 2 hours a week for 10 weeks, so given that most students have never used Second Life before the first few weeks are devoted to orientation, visiting places, the basics of building and scripting, and so on.

Students then work in groups of 2s and 3s and put forward a proposal for a project that they would like to work on. At the end of the term they give a presentation on their initial idea, how it changed or developed over the term, how far they got, and what they had to learn in order to fulfill the task.

In the past they have had fashion shows, building design, machinima, galleries, fireworks, shops, and assorted games. I currently have a group of dancers working on a choreographed ice skating routine."

Northampton University<sup>55</sup> is considering using Second Life within this particular subject domain:

"We are interested in using the learning space we are developing to display media developed by students from art and design. This is at a very preliminary stage at present."

A long-term user of virtual worlds, Leeds Metropolitan University<sup>56</sup>, is planning another year of activities using Second Life:

"We are currently planning virtual worlds teaching and learning activities for art and design students, which we aim to roll out in semester two. We are drawing on findings from the Open Habitat project to guide the design of the inductions and subsequent activities.

Virtual worlds (such as Second Life) enable users to easily create content, and provide art and design students with a good virtual equivalent to their traditional studio and workshop based learning environments. They have the advantage of being cheaper and easier to create stuff in than in real life, on campus studios, but also help students to learn how to use real life studios more effectively."

Cornwall College<sup>57</sup> is taking advantage of the flexibility of gravity in virtual worlds:

"Arts and media students are looking to hold an exhibition of three dimensional art and sculpture in the gallery that floats above the island as part of their assessed coursework, making work that defies the laws of physics in the real world yet still adheres to assignment briefs and course requirements in the real world."

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<sup>53</sup> Shaun Allan, Web Developer, University of Sunderland.

<sup>54</sup> Joff Chafer, Lecturer, Performing Arts, Coventry University.

<sup>55</sup> Rachel Fitzgerald, Learning Technology Manager, University of Northampton.

<sup>56</sup> Ian Truelove, Principal Lecturer, School of Contemporary Art & Graphic Design, Leeds Metropolitan University.

<sup>57</sup> Bex Ferriday, Lead Teacher, School of Education and Training, Cornwall College.

Virtual worlds are used for live performance at Exeter University<sup>58</sup>:

"2ND LIVE is an ongoing programme<sup>59</sup> of activity that aims to explore the potential of live performance in the Second Life world. It hosts a website, a virtual community group of avatars and an island.

2ND LIVE attempts to answer the following questions through a programme of practice-as-research projects and professional development opportunities for artists:

- What can be learnt through the transference of Real Life practices into a Second Life context?
- How can we construct space and event in order to exploit the potential of the virtual environment, rather than simply mimicking everyday dynamics?"

### 3.5 Information management and librarianship

Unlike in the US, where many information science and library units have experimented with virtual worlds, the number of examples in the UK is still quite small with some librarians struggling to make progress. Southampton Solent University<sup>60</sup> is developing an information skills teaching aid:

"There is also another project developed by two of our librarians, which is an underwater maze aimed at helping with information skills."

Students<sup>61</sup> in the information studies department at the University of Sheffield use the Infolit iSchool Second Life island in their work:

"For the BSC Information Management level 1 in a core module Information Literacy:

- Exhibiting presentations which describe their advice or solution to an information problem to do with swine flu, in groups, on 3D models of the SCONUL 7 pillars model of information literacy. This is a formative exercise, aiming to develop their understanding of information literacy through having to relate their presentation 'physically' to the 7 pillars and explain their ideas to visitors.
- Carrying out a research interview with a resident in Second Life, and analysing the transcript in relation to existing research models of information literacy and information behaviour. This includes a summative assignment, developing their inquiry skills, and developing understanding of theories of information behaviour through a meaningful inquiry task.

• Masters level students (librarianship and information management) use Second Life in an elective module, educational informatics. They will be learning about educational uses of Second Life, undertaking a formative task inworld. Last year they had to set up a poster guide to a location, and participate in an exhibition and tour. This year there may be an interaction with students in the US. As their main summative task, students propose a way of using Second Life for a specific learning outcome."

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<sup>58</sup> Stephen Hodge, Senior Lecturer, Centre for Intermedia, University of Exeter.

<sup>59</sup> 2nd LIVE programme of activity: <http://2ndlive.org/>

<sup>60</sup> Clare Denholm, e-Learning Support Officer, Learning Technology Unit (LTU), Southampton Solent University.

<sup>61</sup> Sheila Webber, Senior Lecturer, Department of Information Studies, University of Sheffield.

At the University of Worcester<sup>62</sup>, Second Life is going to be used in plagiarism awareness:

"Another item which is completed but needs to be installed on our island is the Plagiarism Fun Fair where students can engage in activities to help them learn how to avoid plagiarising their own or other peoples' work. The Fun Fair has been created by our information and learning services department."

Other librarians are experimenting with virtual worlds. For example, Bangor University has a library room<sup>63</sup> in Second Life. The technical services librarian at the University of Chichester<sup>64</sup> developed using Second Life, but a negative reaction locally did not help progress:

"I had created a virtual library building based on our real building some time ago and a colleague from the JISC RSC very kindly allowed me to place it on their privately-owned land for a set period. This expired a while ago, so recently I removed the building as the land was needed.

I originally created the library building, in my own time, to explore and learn about Second Life for myself (being very interested in Web 2.0 tools), and thinking that it had potential for learning and teaching here. I gave a presentation and showed it to a number of staff, but unfortunately nothing much came of it.

After some staff changes here, I don't know of any institutional activities in Second Life, and, to be perfectly honest, I have become a bit disillusioned! I'm still interested in virtual worlds and believe they do have great potential in learning and teaching, but I will pursue further exploration on my own, rather than try to get others interested, since unfortunately I have not had the positive reaction that others seem to have had in their own institutions! I had taken a number of pictures of my library and submitted them to the Flickr group, so now those pictures are all that's left of the library."

A librarian at the University of Oxford<sup>65</sup> looked into a virtual world option that would make effective use of staff resource, but at this time was unsuccessful:

"Recently, on behalf of the OULS (Oxford University Library Service) Web 2 working party, I looked at the possibility of using the Openlife standalone to allow individual libraries to host their own virtual environment if they wished and to cut out the costs of hosting on Second Life. We considered using Openlife standalone server (from 3DX) in the hope that a local virtual environment would save money. It proved impractical as it would have used local staff time which might end up costing more than using a hosted service like Second Life or Reaction Grid."

However, at the University of Edinburgh<sup>66</sup>, Second Life is used as a literacy teaching aid and as a way of accessing information services:

"We use Second Life as a tutorial space in courses for online learning, language, culture and communication, and e-Learning politics and society as well as an informal space for social gatherings within the MSc.

In late 2009 we launched the 'IS Cream Van' project which is a collaborative project between colleagues in information services and colleagues on the MSc in e-Learning programme. The aim of the project is to provide an information services help function within the virtual

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<sup>62</sup> Tim Johnson, Senior Lecturer, IHS, University of Worcester.

<sup>63</sup> Bangor University Library Room: <http://thecabinetofcuriosities.wordpress.com/2009/09/01/bangoruniversitylibraryinsecond-life/>

<sup>64</sup> Lindsay Da Silva, Technical Services Librarian, University of Chichester.

<sup>65</sup> Penny Roberts, Radcliffe Science Library, University of Oxford.

<sup>66</sup> Fiona Littleton, Educational Development Adviser for Virtual Worlds, University of Edinburgh.

university of Edinburgh in Second Life. The IS Cream Van is permanently parked on the beach area of Holyrood Park, VUE and offers an information service aimed at supporting students' information needs. The van is also manned at certain times by an information services professional allowing for a more personal service when required. This is very much in its pilot phase and formal feedback is currently being gathered."

### **3.6 Operations and project management**

Previous snapshots have highlighted virtual factories and warehouses operated by the Universities of the West of England and Teesside. Edinburgh University<sup>67</sup> has also developed such a facility, in this case for the teaching of operations management:

"The University of Edinburgh Business School are still using the virtual factory on Second Life to run an operations management simulation, teaching planning and control, use of ERP systems and quality management techniques.

When we have time we continue to develop it, with the main developments being in the websites that give students access to the system information. The simulation will next be used for a degree-level class in the semester after Christmas."

A masters degree in project management is offered at some universities; Bedfordshire's<sup>68</sup> course uses virtual worlds:

"In a unit on Project Management we ask students to build a showcase in Second Life (this are students in the 3rd year Undergraduate and students on the Postgraduate level). In 2009/10 this activity will now go into its 3rd year."

### **3.7 Law**

Law departments and groups at the London School of Economics and Southampton Solent University are active in Second Life, though details are sketchy. At the LSE<sup>69</sup>:

"Law students studying issues in intellectual and cultural property law will have the opportunity to explore the subject in the context of virtual worlds. This will be achieved by participating in a number of activities (including ownership of objects in Second Life, transactions etc.). The pilot will take place in the second term of this year."

The Law School at Strathclyde University<sup>70</sup> uses SIMPLE<sup>71</sup>:

"We are still using SIMPLE in depth at Strathclyde Law School, giving workshops on its use in the University and elsewhere. We are extending its use to Northumbria and Plymouth law schools, to six law schools in the USA, to the Australian National University and others. We are also linking up with our sister project in the Netherlands, Cyberdam. We don't use any other virtual worlds."

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<sup>67</sup> Shale Bing, e-Learning Developer, University of Edinburgh Business School.

<sup>68</sup> Dr Marc Conrad, Lecturer, Department of Computer Science and Technology, University of Bedfordshire.

<sup>69</sup> Athina Chatzigavriil, Learning Technologist, Centre for Learning Technology (CLT), London School of Economics.

<sup>70</sup> Professor Paul Maharg, Glasgow Graduate School of Law, University of Strathclyde.

<sup>71</sup> SIMPLE: <http://www.ukcle.ac.uk/research/projects/tle.html>

### 3.8 Language learning

Students of French and Spanish at the LSE<sup>72</sup> undertake some of their learning using the local Second Life island:

"The LSE language centre (Spanish course) used Second Life last year for an 'NGO simulation in Latino America'. The pilot included a number of tasks and activities which were completed in Second Life in 10 consecutive teaching sessions (each session lasting 2 hours). Participation was restricted to a specific number of students. Support and training were provided by the CLT.

This academic year the LSE Language Centre (for both Spanish and French courses) as well as the Law department are piloting teaching activities in 'Castors Retreat'. The Spanish teachers will use Second Life again with changes based on their findings and experiences from last year. Students of French will focus on developing an art exhibition (curation) in Second Life."

There is some interest in the FE sector in using virtual worlds to support language teaching. The JISC Regional Support Centre for Northern England<sup>73</sup> supports language learning within Second Life:

"We have created an area for Modern Foreign languages on RSC Northern Learning Second Life Island."

...while the RSC for Scotland South and West<sup>74</sup> reports:

"One FE college has recently asked us for advice on how they might use virtual worlds to support ESOL students."

Masters students at the University of Teesside<sup>75</sup> have experimented with using Second Life in their French classes:

"One of our MSc students explored whether the immersiveness of virtual worlds provided a better space to learn a foreign language than by using the BBC website or teach yourself materials. A market and a café were created, and language classes took place in them. These were recorded and both students and tutor subsequently took part in an evaluation of the exercises compared with doing similar exercises via BBC videos. Results suggested that although some of the students encountered some difficulty with using their microphones, they all approved of the method and said they would be likely to try it again."

And virtual world technology is used for teaching Spanish at the University of the West of England<sup>76</sup>:

"We have incorporated Second Life into the teaching of a second-year Spanish Language module. Our goal is to facilitate the preparation of students for real life situations by means of using the social environments and communication tools available in Second Life. Through this experiential learning it is envisaged that students will improve not only their Spanish language skills but also will increase their cultural awareness and general knowledge of the target community. Additionally, Second Life may have an important impact in building up students' confidence and increasing their motivation."

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<sup>72</sup> Athina Chatzigavriil, Learning Technologist, Centre for Learning Technology (CLT), London School of Economics.

<sup>73</sup> Paul Miller, e-Learning Adviser, JISC RSC Northern.

<sup>74</sup> Joan Walker, Senior e-Adviser: curriculum/deputy manager, JISC RSC Scotland South and West.

<sup>75</sup> Kate Boardman, Head of e-Learning, University of Teesside.

<sup>76</sup> Susanna Romans-Roca and Maricarmen Gil Ortega, University of the West of England.

The University of Leicester<sup>77</sup> is experimenting with virtual world use for teachers of English to speakers of other languages:

"The school of Education is bringing its masters in applied linguistics and TESOL students into Second Life language learning classes, to experience and evaluate such classes as a potential TESOL environment."

### **3.9 ICT and digital media**

Sheila Webber<sup>78</sup> is using Second Life at Sheffield in the study of Information and Communications Technology (ICT):

"In the School of Education, Second Life is used in a module offered by the Institute for Lifelong Learning on Working with Information and Communication Technologies."

At Newman University College<sup>79</sup>, Second Life is being used by media undergraduate students:

"We are using virtual worlds as part of our Media and Communication undergraduate programme at Newman University College.

Specifically, the MC502 Media Futures module aims to give students a critical understanding of developments in new media, interactivity as well as virtual experience. Students will also look at the effects of this on society now and in the future. The module encourages students to partake in original primary research to help inform their own understanding of developments within this area.

This module ran for the first time last academic year using Second Life, and primarily focused on giving students an experience of a series of lectures within a virtual world."

At the University of Hertfordshire<sup>80</sup>, undergraduates on a media course are using Second Life:

"I'm currently using Second Life on the '3D Interactive Media' module of a degree course named 'Software Systems for the Arts and Media'. Students must learn how to navigate the environment, find information and produce interactive structures for the purposes of developing the autonomy which is crucial to survive in industry."

### **3.10 Drama and performance**

At the University of Worcester<sup>81</sup>, an external company has produced Second Life materials for the drama department:

"We will shortly have the Library of Babel, based on the book the Library of Babel by Jorge Luis Borges. The Library has been created by UK performance company Void Projects as an experiment in the fusion of storytelling and architecture and will hopefully be used by some of our drama students."

Some virtual worlds provide tools for recording text, video, sounds and conversations. This is particularly useful for meetings and conferences – and also for training people in

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<sup>77</sup> Terese Bird, Learning Technologist, Beyond Distance Research Alliance, University of Leicester.

<sup>78</sup> Sheila Webber, Senior Lecturer, Department of Information Studies, University of Sheffield.

<sup>79</sup> Richard Sanders, Lecturer in e-Media and Media Production, Newman University College, Birmingham.

<sup>80</sup> Andrew Marunchak, Virtual Campus and Real-Time 3D Lead Developer, University of Hertfordshire.

<sup>81</sup> Tim Johnson, Senior Lecturer, IHS, University of Worcester.

communication-critical subject disciplines. One example of this is the Comedy Club at the University of Teesside<sup>82</sup>:

“New for 2009–10 is a building for the School of Arts and Media, specifically for Performing Arts, where there are a number of staff interested in the potential for performance of varying kinds in Second Life, not least in providing the stand up comedians with a ‘safe’ rehearsal venue prior to their summative assessment of a live recorded session. This building has been created as a flexible space including galleries and a bar, and replaces the gallery and bar previously in separate buildings on the island. It is hoped that the bands, DJs and radio production students will also move in to this building from the Tower over the course of the next few months.”

At the University of Hull<sup>83</sup>, students will be using Second Life in theatre studies in the next academic year:

“The use of virtual worlds is not an essential element in our curriculum at the University of Hull's School of Arts and New Media, which is on the Scarborough Campus. However, as a campus that strives towards innovation, and a department that offers programmes in Digital Media and Creative Technologies, exploring virtual worlds is something we want to make sure our students have access to.

So far there has been a relatively limited uptake by our students. This is particularly because no assessment element has required students to use virtual worlds. However, this is about to change in the 2009/10 academic year and students on one particular module called Applied & Interactive Theatre 2 will be using Second Life (or another virtual world) as a performance environment.”

At the University of Teesside<sup>84</sup>, Second Life is being used to create a police awareness film:

“We're embarking on a new film-making adventure in Second Life. We're working with the local school (Whitecliffe Primary), the Skinningrove Community, and Cleveland Police to produce a movie called ‘The Force is With You’. We have some high profile figures on board who will be portrayed by their own voices and hand made avatars. The villain of the piece is ‘Arthur Vador’. We're building one of the sets, Skinningrove Village Square on our Teesside University's Second Life Campus ‘Teeslife’.

We have a really tight schedule working towards a screening on February 11th 2010. The script is unfolding on a wiki<sup>85</sup>. This project is working with a pilot project run by the Home Office on ‘Crime and Justice’ and we're working with Redcar and Cleveland's Crime and Justice coordinator. They're keen to see how delivering the message in an entertaining way might reach more people.”

### 3.11 Midwifery

Midwifery is, to many, a surprising application of virtual world technology. In the UK alone, at least four universities are using Second Life in the training of midwives. Some particularly graphic screenshots of birthing can be seen in the Flickr photo group for virtual world activities in higher and further education:

<http://is.gd/5eQ7B>

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<sup>82</sup> Kate Boardman, Head of e-Learning, University of Teesside.

<sup>83</sup> Dr Toni Sant, Lecturer in Performance and Creative Technologies, University of Hull.

<sup>84</sup> Steve Thompson, Community Media Manager, Institute of Digital Innovation, Teesside University.

<sup>85</sup> Wiki for “The Force Is With You”: <http://straad2010.wikispaces.com/>



The University of Teesside<sup>86</sup> is one of the UK universities using Second Life for midwifery training:

“The Virtual Maternity Unit is an embedded part of the midwifery training at Teesside. It has 36 ante- and post-natal rooms and two birthing suites. Each cohort of student midwives have complete ownership of the ‘Unit’, choosing its name, décor, layout of some rooms and working through – with roles which include community midwives with home birth duties – case scenarios of a variety of girls and women for whom to establish care plans and identify mother or baby health problems in monitoring their progress.

Unfortunately the ‘virtual’ maternity unit wasn’t. But Second Life now offers the opportunity to engage in a much more realistic manner with many of the exercises, and – similar to the SLENZ Birthing Centre in New Zealand – undertake research and make choices as to the environment as well as the medical issues.

The greater learning however – and testament to the ‘reality’ of the virtual world – is that squeamish men have backed off from the actual birthing activity, so it’s been a fantastic antenatal resource for the two about to become new fathers on my team :)”

### **3.12 Fraud and crime analysis**

Several universities, such as East London, are using virtual worlds in taught courses concerning fraud, criminal activity and crime detection. The developer of their virtual crime scene<sup>87</sup> facilities describes some of the features:

“We developed the first floor in the style of an apartment (the setting for the scenarios), with a space for instructional information boards outside. The scenarios themselves consist of a drugs bust and a suspected rape, and the relevant paper-based information was provided to us by the forensic academic involved in the project. The apartment is laid out differently depending on which scenario is running so we implemented a holodeck style system where the apartment transforms depending on which button is pressed.

We created all the relevant kit items, clothing and evidence and implemented all of this into a HUD-based system. Essentially, everything is controlled via this simple HUD where different messages are sent between all the objects involved. The HUD also has a built-in logging system that keeps track of all the relevant action, and submits this in the form of a readable paragraph to UEL’s database for assessment purposes.

We also implemented photo labelling and fingerprint gathering within the system as this was all key to how the real forensic practitioners would work. Another important part of the project was the development of an AI avatar bot, that would act as the first attending police officer. His role is to answer questions, sign the practitioners report form and provide a key to the bedroom door when asked.”

The University of Teesside<sup>88</sup> is using Second Life in fraud investigation courses:

“Fraud investigation students have to learn – obviously among other things – the key skills of reflection and analysis which direct their seizure procedures. There are as many office environments as there are individuals’ offices, and though one can broadly expect to find the same equipment and items in each the location, description and sizeable state will vary. The lecturer in charge of this programme wanted to be able to put students into many more environments than he can create in real life for them to engage in the discussions around if, why and how they should seize specific items.

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<sup>86</sup> Kate Boardman, Head of e-Learning, University of Teesside.

<sup>87</sup> Gemma McLean, Developer, Geminix Ltd.

<sup>88</sup> Kate Boardman, Head of e-Learning, University of Teesside.

Whilst a photograph, panoramic video picture or flash-based virtual scenario might be easier technologically to access for the students, creating the variety of environments students may find themselves in is still resource intensive. In Second Life the scenarios can be changed, cloned, modified endlessly. Because most of the interaction beyond an item providing information about itself occurs between the students, for example discussion whether a personal diary should be seized or how to secure a PC with active screensaver, then these are exceptionally easy to create. Additionally, because you can use the integration with Blackboard discussion boards, students can return to reflect on your decisions later without needing to log in to Second Life.

Although some of the students were initially sceptical, they soon saw that not only did they gain an opportunity to practise, individually and collaboratively, in between teaching blocks (these are all serving criminal investigators) but the introduction of the Second Life element opened up their understanding of the potential of virtual worlds to launder money similarly to through other electronic means and thus offered an entirely additional unexpected learning outcome."

At Coventry University<sup>89</sup>, Graham Steventon is using a virtual world within his criminology course. Here, he details how it will work and the advantages of using such an environment:

"I lecture in Criminology at Coventry University and am using Second Life to develop a dysfunctional community as a teaching and learning resource on a module called 'Community Safety and the Environment. The project has been funded by Coventry's Centre for Inter-professional e-Learning (CIPeL), which has covered the purchase of a dedicated island and the development of the infrastructure by a CIPeL technologist.

Still under development, the project initially will be for the benefit of criminology students but because CIPeL's remit is to promote inter-professional learning using e-resources, it is intended to develop this resource for use by students on other courses who are likely to be involved in issues relating to dysfunctional communities (for example, we have students on courses at Coventry covering social work, youth work, mental health nursing, community nursing and so on).

The aim is to promote interdisciplinary working and learning among students on these various courses so that they can appreciate the complexities involved in 'real-world' decision-making and not only the importance of 'joined up' thinking and practice, but also the barriers to implementation of effective strategies for dealing with issues and how these may be overcome. Second Life provides a platform that allows immersion in a relatively realistically simulated neighbourhood without the ethical dilemmas and potential risks of field studies. The facility of constructing an apparently physical environment with buildings, streets, spaces and other artefacts that students through their avatars can walk around, negotiate, meet others and so on is a valuable facet of this type of platform.

Students will engage with a range of issues involving antisocial behaviour and crime in a series of scenario-based exercises that will allow them to design, implement and evaluate strategies to deal with the issues encountered. We are currently working towards a pilot evaluation in which we can compare students' impressions of using the virtual community with their experience of carrying out these exercises using paper-based communities that they create at the start of the module. Working with me in the development of the Second Life project have been three students from the Criminology course who have undertaken the module previously and they have secured a small C-SAP grant to set up and run the pilot evaluation under my supervision. We hope to disseminate the outcomes of this evaluation in due course."

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<sup>89</sup> Dr Graham Steventon, Department of Social and Community Studies, Coventry University.

### 3.13 History

The University of Teesside<sup>90</sup> Second Life island houses a particularly detailed and lovely reproduction of the Bayeux Tapestry, with contextual audio guides:

“There are few medieval modules on the Teesside history programme, but the department is known for engagement with new approaches and technologies. The digital Bayeux Tapestry visit offers an example of a learning experience not usually available to students. Presented to scale with audio guides, it pushed the boundaries of audio capability in Second Life, in order that per-person guidance can be offered to an avatar without them needing to be located within a particular land parcel.

This has great potential for HUD-based learning scenario support as it is developed. Links to additional web-based resources and literary/research works are available in the entrance. This exhibition is unique in allowing the visitor to see the whole of the Bayeux Tapestry at the same time, which is not possible even in real life due to the nature of its display case. Guided visits and talks are available by sending an IM to Kattan Hurnung.”

At Oxford University<sup>91</sup>, materials pertaining to the Great War have been incorporated into a virtual world part-memorial, part-learning environment:

“The First World War Poetry Digital Archive and the learning technologies group at the University of Oxford have collaborated on a project in the Second Life environment, modeled to simulate areas of the Western Front 1914–18. Into this environment a range of digitised materials from the major poets of the First World War (such as poetry manuscripts, letters and diaries), including Wilfred Owen, Isaac Rosenberg and Vera Brittain, along with contextual primary source materials have been imported. These materials have been supplemented with new interpretative content and a spectrum of interactive tools and tutorials, streaming video and audio effects.

Virtual worlds create opportunities to do things that are impossible in real museums. By simulating parts of the Western Front, the archive can embed an entire exhibition's worth of content within in the space. This can be further enhanced by placing digital versions of real archival materials and narratives along the paths that visitors take. The result is an immersive and personal experience. It's not 'real' but it does offer possibilities for understanding a part of history that is now beyond human memory.”

### 3.14 Computer science

At Heriot-Watt University<sup>92</sup>, virtual worlds are used by new computer science students:

“We’re using Second Life for a class of 100 first year computer science and interactive systems students. The students seem to enjoy it. They get inspired from seeing what the other students build. It is also an interesting programming environment which gives them extra experience. The learning objectives are for them getting experience in creative projects from design to evaluation. Second Life enables them to do this for a virtual pet.

It can be frustrating from an administration point of view, but in my view the students benefit from it. It’s fun. They are proud of what they do. It seems appropriate for first years; last year we had a mixed first and second year class, and the second years didn’t like it so much.”

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<sup>90</sup> Kate Boardman, Head of e-Learning, University of Teesside.

<sup>91</sup> Dr Stuart D Lee, Director, Computing Systems & Services (OUCS), Oxford University.

<sup>92</sup> Judy Robertson, Lecturer, Computer Science, Heriot-Watt University.

At the University of Ulster<sup>93</sup>, using virtual worlds helps students to learn to work as a team:

"We have integrated the use of Second Life into a Multimedia Computing and Design undergraduate course which involves students gathering in teams to re-create individual buildings from the Magee campus; this is now its third year. The project takes place over six week period. The learning outcomes are:

- Learn to work collaboratively in a virtual environment.
- Understand the possibilities and limitations of this platform.
- Create 3D content and learn a scripting language.

The project will continue next year and will expand to look at new areas e.g. Machinima."

At the University of Bedfordshire<sup>94</sup>, students learn how to write and use scripts in Second Life:

"As part of a unit Comparative Integrated Systems (3rd year, BSc Computer Science) we teach LSL (Linden Scripting Language) as an example of event driven programming for a period of about three weeks."

At Greenwich University<sup>95</sup>, use of virtual worlds in Computer Science has been minimal of late, but this may soon change:

"In the School of Computing and Mathematical Science, we have maintained our Second Life island, although have struggled to develop it much this year. One student built an 'Aztec disco pyramid' for a coursework project. Interestingly, the multimedia programme leader reported that the first year students seemed very well informed about Second Life which is a sea change from last year, so we look forward to further possible developments in year two."

Second Life is used in Computer Science at Anglia Ruskin University<sup>96</sup>:

"I'm using Second Life in two modules which are part of the Computer Science and Computer Gaming and Animation Technology pathways at Anglia Ruskin.

- Introduction to Electronic Content Origination. We look at tools (mostly open source) that students can use to create artefacts for their games/web sites/applications, so we start off with the Gimp and Inkscape for graphics and then Audacity for audio. We then come into Second Life and do a little building and texturing. Students then work in groups of two or three to make a short machinima.
- Last time around (Spring 2009) they made music videos using music licensed to them under Creative Commons from sites like Jamendo (one or two used tracks by their own or their friend's bands). Throughout the entire process, from the introduction to the Gimp to the final cut of the machinima students are encouraged to write a blog to document and reflect on the experiences and the learning.
- Virtual World Environment Applications. In this module we look at programming in LSL and how we might communicate with applications hosted on off-world web servers to download configuration or upload data for persistent storage. This time around (Autumn 2009) the students are building levels for a Doom-type game. They work individually to create one or monsters and together as a group of three to build the level.

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<sup>93</sup> Kerri McCusker, Research Associate, Intelligent Systems Research Centre (ISRC), University of Ulster.

<sup>94</sup> Dr Marc Conrad, Lecturer, Department of Computer Science and Technology, University of Bedfordshire.

<sup>95</sup> Simon Walker, National Teaching Fellow, Head of Educational Development, University of Greenwich.

<sup>96</sup> Marie Gordon, Department of Computing and Technology, Anglia Ruskin University.

- The protocols and back-end will be agreed by the class as a group (about 20 students) but it'll probably be me that does the programming/db on the server. They will then have an API from me that they can use to make calls to store/retrieve config or high scores. (The reason that I end up doing the back end is that there is usually quite enough for them to get to grips with in the LSL programming. The first time I ran this I tried to teach them Linux, PHP and MySQL too. It was a lot for a 15 credit module.)"

At the Open University<sup>97</sup>, virtual world use is an integral part of a new MPhil course:

"For the past two years we have been working on a project to create a new part-time MPhil<sup>98</sup> for distance students to be delivered online. The programme has just been launched (October 2009) and is offered by the Computing Department."

At Glasgow Caledonian University, Second Life is used for students to explore algorithms in Artificial Intelligence (AI):

"In a module on AI and games, I've been using Second Life to support learning some abstract algorithms, and in practical lab activities. Two rooms in the virtual world have been made, each one showing an AI programming technique: one for pathfinding, and one for flocking.

- The 'pathfinding' program drives a robot car to its destination, choosing an appropriate route as a sequence of waypoints. Using a head-up display, students can set some parameters for the algorithm, and they can move obstacles to block some paths if they wish.
- The 'flocking' algorithm controls a flock of six tiny 'birds' that fly around another room, in a naturalistic manner, staying together but not colliding into each other. Again, some parameters can be set to experiment with the algorithm.

The intention was to help students visualise what the algorithms were doing, and let them play with the settings to build intuition about what can be achieved. The students had three hours experience only in the virtual room, because it was not clear how helpful it would be to them, and they might have found it difficult simply to become accustomed to the Second Life virtual environment. In the event, the students soon became proficient enough in Second Life, and then were able to negotiate the demonstration rooms well enough, playing with the algorithms and enjoying the experience."

At Bromley College<sup>99</sup>, younger students developed a knowledge-based game using Second Life:

"Castle Bromlestien was developed by BTEC National students on the Developing Computer Games course. The students were divided into groups and presented with an outline scenario from which they would develop their own details. As a requirement the game would have to include either learning, or some test of knowledge, coupled with combat.

The result was the game Castle Bromlestien. The objective was to have objects placed at random around the castle (these could be invisible) that would present the visitor with a question. Correct answers would add a score to an external MYSQL database. While this is taking place, predators could arrive that attempt to make contact with you, in so doing subtracting from your score. Predators were short lived and could not be destroyed, though guns could be used to repel them."

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<sup>97</sup> Dr Lucia Rapanotti, Senior Lecturer, Department of Computing, The Open University.

<sup>98</sup> Virtual MPhil in Computing: <http://virtualmphil.open.ac.uk/>

<sup>99</sup> Barry Spencer, Programme Area Leader, Bromley College.

### 3.15 Engineering

The University of Ulster<sup>100</sup> has created an island for engineering education:

"The Engineering Education Island<sup>101</sup> project investigates the effectiveness of three dimensional immersive virtual worlds for teaching complex engineering related material. It examines how computing, electronics/electrical engineering can be taught in new, engaging and interactive ways. Engineering Education Island is comprised of a dedicated virtual island and virtual laboratories which house large scale interactive technology related simulations and demonstrations.

This virtual world project and interactive demonstrations facilitates the following:

- Demonstrates how engineering material can be taught using new, innovative and highly interactive platforms.
- Allow users to participate in group activities/collaborative working.
- Allow users to interact with engineering related teaching material.
- Raise awareness of the potential uses of virtual worlds for education and industry.

Demonstrations and simulations on the island include:

- Giant PC. The objective of this project was to teach students about computer architectures, components and hardware by recreating a Dell XPS 710 personal computer as a building. The scale of the building allows users to wander around inside the PC, discovering how it is structured internally and the physical layout/characteristics of the internal workings. The model created is complex and detailed, using over 1500 prims.
- Project Fetch, Decode and Execute Process of a Central Processing Unit. This is an interactive simulation to assist in the teaching of an undergraduate topic – the Central Processing Unit of a computer (CPU), on a Computer Hardware Architecture module – this project was developed to visualise a topic/concept within engineering which is typically difficult for first year students to understand. By developing this project in Second Life, the student is able to visualise and interact with the concept in a unique way, either alone/collaboratively with other students. A step by step dialog is provided for each student and at the end, the students are provided with a quiz, which pose questions about the process of the execution.
- AC generator action (Interactive).
- DC motor operation (Interactive).
- Half wave rectification.
- Remote lab (Interactive)."

### 3.16 Health and safety

At the University of the West of England<sup>102</sup>, students use virtual worlds as part of their learning about health and safety:

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<sup>100</sup> Kerri McCusker, Research Associate, Intelligent Systems Research Centre (ISRC), University of Ulster.

<sup>101</sup> Engineering Education Island: <http://slurl.com/secondlife/Ulster%20Magee%203/128/125/23>

<sup>102</sup> Dr Liz Falconer, E-Learning Development Unit Manager, University of the West of England.

“Students on the MSc in Environmental Health undertake an accident investigation in Second Life, where witnesses see an accident play out in front of them in a building in Second Life, and then the students investigate the accident by interviewing the witnesses in-world, taking photos of the scene and inspecting the premises and collecting documentation that relates to the organisation where the accident took place.

They have just completed this part of the simulation this year and will be interviewing the ‘depot manager’ inworld in a few weeks time. The witness and manager roles can be undertaken by a mixture of tutors and students from other courses. It is important to stress that the witnesses really do see the accident and have no other information about it before they are interviewed by the students. They have background orientating information about the organisation to make their roles more realistic, but their recollection of the accident is real.

The accident investigation builds as a case study to support the EH students' studies in risk measurement and management, and the scene in Second Life acts as the focus for this exercise. Our partners in this project are Citrus Virtual Ltd.”

The same university is extending its use of virtual worlds to cover an elderly persons’ care home:

“Colleagues in Social Work have developed a simulation in an elderly persons care home, using the same simulation "engine" as the accident investigation. Here, students can work through an incident that occurs in the home, resulting in the injury of one of the residents.”

At Leicester<sup>103</sup>, safety in the dangerous environment of an oilrig is being modelled in Second Life:

“The School of Psychology is bringing its distance Masters in Occupational Psychology students onto an oil rig constructed on our Second Life Media Zoo Island, where they will experience something of the real work problems, ethical challenges, and health and safety issues that workers on an oil rig would encounter.”

While most academic institutions have chosen Second Life, Coventry University is also using OLIVE (NB response from platform provider<sup>104</sup>):

“We are working with Coventry University who are using the Forterra Systems OLIVE platform to design and conduct emergency response strategic training.

They are using OLIVE because it is private, secure, and provides a better user experience with regards to communications as the avatars are more natural than alternatives and the exercises involve a lot of interactions with participants. The ability to record the sessions for instant feedback, exercise design input and auditing is another requirement met by OLIVE. Data interoperability is critical so GIS data and 3d models from a variety of sources are imported for more realistic scenarios.

These could be exported to other platforms if required in the future. The platform will support extending and scaling the training service from senior decision makers to the emergency responders themselves.”

### **3.17 Psychology and mental health**

The University of Derby<sup>105</sup> has been using virtual worlds in psychology teaching and research for several years:

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<sup>103</sup> Terese Bird, Learning Technologist, Beyond Distance Research Alliance, University of Leicester.

<sup>104</sup> Ron Edwards, CEO, Ambient Performance, European distributors for OLIVE virtual world platform.

<sup>105</sup> Simon Bignell, Lecturer in Psychology, Centre for Psychological Research, University of Derby.

“We are using virtual worlds for teaching Psychology at undergraduate level. It allows us to provide a custom environment that we can shape quickly for our teaching needs.

We’ve also been developing expertise in problem-based learning using virtual worlds. We’ve constructed a number of avatar-driven scenarios where students can find out about clinical mental health conditions in small groups by interacting with programmed avatars designed to mimic commonly occurring mental health symptoms. We also see the advantage in virtual worlds when it comes to asynchronous learning. We have a number of teaching locations where students can access psychological materials related to teaching content.”

### **3.18 Ethics**

The University of Leicester<sup>106</sup> uses Second Life as a focal point for the ethical use of images:

“The MOOSE project assisted the London South Bank University Faculty of Arts and Human Sciences by taking students into Second Life and asking them to create ‘story cubes’ – large cubes with photographs of other avatars on each surface. Discussion was then centred around the ethical issues of not having to seek permission to photograph one’s avatar in Second Life even though permission is required in real life. Among research outcomes was Second Life participant training guides and guidelines for embedding 3D Multi User Virtual Environments in institutional systems and policies.”

### **3.19 Diversity and identity**

At Greenwich<sup>107</sup>, virtual worlds have been used for the awareness of gender, race and other differences between people:

“In The School of Education and Training, work in Second Life developed understanding around representation on the BA Youth and Community Studies programme, which has the most diverse student body of any similar programme in the UK. For this project students created avatars to explore the relationship between age, gender, race and sexuality and other social divisions/differences.

Students and tutors have used representations (Avatars) and experiences in Second Life to inform shared critical understandings of ‘Reality’ in first lives. Individuals have chosen their avatars but there has been a group process in actually creating them. The diversity of the student and tutors has been reflected in the avatars that have been created. The educational process has also allowed for students to explore the use of Second Life as informal educational tool in their one to one and group work.

The tasks were geared towards promoting pedagogical intervention utilising Second Life as a virtual environment. The tasks undertaken have been fun, challenging and paced linked to the training and support available throughout the project. The group now want to become mentors in promoting the use of Second Life in informal educational settings.”

At Glasgow Caledonian University<sup>108</sup>, a psychology course involves students exploring issues of in-world identity:

“I have just started using Second Life for teaching and learning about self and identity on my new honours-level Cyberpsychology module. Using Second Life on this module, a large part of which includes psychological research and theory on online environments, identities,

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<sup>106</sup> Terese Bird, Learning Technologist, Beyond Distance Research Alliance, University of Leicester.

<sup>107</sup> Simon Walker, National Teaching Fellow, Head of Educational Development, University of Greenwich.

<sup>108</sup> Dr Jane Guiller, Lecturer in Psychology, Division of Psychology, Glasgow Caledonian University.



relationships and communities, facilitates students' understanding of the module content. At the start of the module, barely any of the students had experience of virtual worlds such as Second Life (mostly only World of Warcraft) and some students asked me what an avatar was after the first lecture!

Using Second Life gives students essential firsthand experience of a virtual world and the process of avatar creation. This fits with the curriculum as students are expected to be able to understand how and to what extent psychological theories can be applied to online environments. One of the module learning outcomes is specifically 'students should gain knowledge and experience relating to popular internet tools and virtual environments, as well as the ability to reflect upon and critically evaluate their use from a psychological perspective!.'

### 3.20 Construction

With building being a fundamental activity in virtual worlds, it's perhaps not surprising that the technology is being used as part of construction teaching, as at Cornwall College<sup>109</sup>:

"Construction lecturers are setting up a project which involves a group of students building a house in Second Life while peers studying for accreditation in other construction-based trades such as plumbing and carpentry work closely together in order to make the house function. This will have the dual benefit of honing students' skills in a safe environment and giving them the opportunity to learn how to work as a team."

### 3.21 Teaching about virtual worlds

The University of the West of Scotland<sup>110</sup> is one of several running classes or courses focused on virtual worlds:

"In teaching, there are two undergraduate computing classes that use virtual worlds – Introduction to Virtual Worlds (distance learning) and Collaborative Virtual Environments (honours year, campus based). The CVE class is not running 2009–10, but should be running again 2010–11. The main virtual world used is Second Life, but teaching has also used Metaplace, Tapped-In and some game-based virtual worlds.

In both classes, virtual worlds are both a topic of study as well as a tool used to support class activities."

Another Scottish university, Glasgow Caledonian<sup>111</sup>, will run courses about using virtual worlds:

"I'm (starting in semester B) going to teach \*about\* virtual worlds (Second Life and Open Simulator; hosting, content creation, and so forth). It \*is\* the curriculum :)"

At the University of Sheffield, Sheila Webber<sup>112</sup> is using virtual worlds in teaching about education:

"In the School of Education, the MA New Literacies course use Second Life when learning about educational uses, and undertaking small scale ethnographic studies."

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<sup>109</sup> Bex Ferriday, Lead Teacher, School of Education and Training, Cornwall College.

<sup>110</sup> Daniel Livingstone, Lecture, School of Computing, University of the West of Scotland.

<sup>111</sup> Ferdinand Francino, Project Manager, 'CU There', Glasgow Caledonian University.

<sup>112</sup> Sheila Webber, Senior Lecturer, Department of Information Studies, University of Sheffield.

At the University of Leeds<sup>113</sup>, computing students will be exploring how virtual worlds are used in education:

"We are taking a class of 84 second year undergraduate computing students into Second Life as part of a module on database applications and graphics. They will be studying human-computer interactions using e-learning as the context. They will be analysing the role of scenarios in e-learning and gathering evidence of how the use of virtual worlds can enhance the learning experience. In small groups they will select a Second Life learning scenario and design a poster describing it which is to be displayed within Second Life.

We're going to be using four or five of the small offices on Education UK for the students to use as a base and to house the posters. There will be a Linden dollar prize for the best poster determined by peer assessment within Second Life using a voting system."

The Open University<sup>114</sup>, a long-term user of virtual worlds, is also studying how Second Life can be used in education:

"A number of courses have explored using Second Life for teaching, most notably T175: Networked Living: Exploring Information and Communication Technologies, which will be piloting SLOODLE in its next presentation (February). We have recently installed SLOODLE into the core OU VLE, enabling virtual world content to be embedded seamlessly into an online course presentation, and we see this as a fundamental link in bringing virtual worlds closer to the sort of mainstreaming that sees it used as 'just another tool' in the suite of resources available to course teams.

Virtual worlds are also starting to make an appearance in the next generation of courses now in production, both as topics for study (e.g. in a new level 1 course about digital divides and as an insertion into an existing masters course about technology-enhanced learning) and as a medium for study (e.g. as an immersive tool for a new science course)."

At the University of Edinburgh<sup>115</sup>, Second Life is also used both as a mechanism for communication and as a focal point of study:

"The MSc in E-learning is an online distance programme with over 130 students based all over the world. We use a virtual world in various courses across the entire programme from an Introduction to Digital Environments for Learning (IDEL), where we introduce virtual worlds and discuss online identity to dissertation supervision, where supervisors meet with their students for virtual meetings.

Before Second Life launched we used virtual worlds like Palace, Active Worlds and There as a space to meet students, but because Second Life was multi platform and more immersive we began to use Second Life on our programme more than any other virtual world. This semester has been the first time that all our students on IDEL have been able to access Second Life. Before, we would have to provide tutorials in There or Active Worlds in parallel with Second Life for those students who couldn't access Second Life."

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<sup>113</sup> Dr GR Barker-Read, Head of Academic Quality and Standards, University of Leeds.

<sup>114</sup> Anna Peachey, COLMSCT Associate Teaching Fellow, Open University.

<sup>115</sup> Fiona Littleton, Educational Development Adviser for Virtual Worlds, University of Edinburgh.

## 4. Further Education

It was pleasing to receive responses from all 13 of the JISC Regional Support Centres (RSCs) for this snapshot survey. For those unfamiliar with the RSCs, here is their remit (from the JISC RSC website <sup>116</sup>):

“JISC RSCs (Regional Support Centres) exist to advise the learning providers of designated sectors to realise their ambitions in deployment of Information and Communications Technologies (ICT) to achieve their organisational mission. The network of JISC Regional Support Centres operates as a national service responsive to local needs through a strong sense of local ownership.

RSC teams comprise of 6–12 individuals. Each team includes a manager, administrator and specialist advisers covering technical, curriculum and learning resources issues, as well as some with sector-specific responsibilities.”

The RSCs largely cover further education colleges, and the often fuzzy area between FE and HE, and FE and other sectors. Their semi-autonomous status means they operate at a local (regional) level, and nationally as a network.

It has previously been very difficult to judge the level of virtual world activity in the UK college/further education sector. Therefore, the JISC RSCs were asked a few questions about virtual world activities, and service provision, in their regions.

### 4.1 RSCs’ virtual world groupings and staff development

We tried to get an idea of how the RSCs organised themselves to support virtual world activity. Lyn <sup>117</sup> at the South West RSC commented on their involvement with the MUVE group:

“The RSC South West has kept a watching brief on the use and various pedagogical instances of virtual worlds for some time. Our manager is mentor for the RSC UK MUVE (multi-user virtual environment) group. We are keen to continue to investigate regional progress, use and development in the use of virtual worlds (predominantly Second Life) for educational purposes and to develop RSC support provision in response to providers’ needs.”

RSC Wales <sup>118</sup> is also involved in the MUVE group:

“Virtual worlds have been an area of interest for some time (involvement of members of the team in the RSC MUVE group) and we set up a Google Lively room (before it's demise) to start to find out how it felt (as a team) to work and learn in such an environment.”

RSC Eastern <sup>119</sup> is involved in a UK programme for RSC staff:

“The focus of the 'RSCs in Virtual Worlds' UK wide staff development programme is to provide an opportunity for all RSC staff to gain experience of the Second Life virtual world environment first hand and learn about how it is being used to support learning, teaching and communication. We have a Second Life island and are offering a series of events, workshops and meetings over the coming months.”

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<sup>116</sup> JISC Regional Support Centres: <http://www.jisc.ac.uk/rsc/>

<sup>117</sup> Lyn Bender, e-Learning Adviser, JISC RSC South West.

<sup>118</sup> Helen Hodges, e-Learning Adviser (Learning Technologies), JISC RSC Wales.

<sup>119</sup> Shri Footring, Adult and Community Learning, JISC RSC Eastern.

The two Scottish RSCs<sup>120</sup> have initiated a forum:

"Following our 2008 conference, the two Scottish RSCs formed the VIRTUAL Education Worlds Scotland (VIEWS) forum. Though there has only been one meeting of the group so far (March, 2009), hopefully there will be another early next year."

Staff have 'tooled up' in RSC Eastern<sup>121</sup>:

"Individual advisors in this region have undertaken personal research in this area and developed their own expertise and skills."

...and in RSC Northern Ireland:

"I have participated in some 'orientation' type activities with colleagues in other RSCs – using land purchased by RSC Northern<sup>122</sup>."

## 4.2 Tracking regional virtual world use

Importantly, we were keen to find out what virtual world activity the RSCs have detected. Some RSCs have been actively looking for such activity, whilst others only notice it if providers approach them. The South West RSC<sup>123</sup> has only noticed virtual world use recently:

"It is only during the last few months that we have become aware of significant developments within our region."

One Scottish RSC<sup>124</sup> confirms a familiar pattern of heavy use of virtual worlds in higher but not further education within their region:

"Most of the higher education Institutions in our region have invested in virtual world technology (Second Life generally); our supported further education institutions make use of the technology, but to a much lesser extent. For example, some do make use of freely available virtual world platforms, such as the simulations developed as part of the e-Construction Transformation project, which trains students in aspects of fire safety, wallpaper hanging, bricklaying and stone masonry.

Other colleges use Skills2Learn products, such as their Gas and Plumbing units, which allow students to practice maintenance and installation in virtual homes. There is also interest in games-based technology, elements of which are based in virtual environments, but take-up is limited so far."

RSC Wales<sup>125</sup> has so far seen some FE interest but less take-up, possibly due to technical constraints:

"So far we have had a number of people who have expressed an interest in joining us in Second Life but as yet we have only had one college take us up on our offer and that had to be done when the person concerned was at home because the college firewalls blocked all things Second Life!"

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<sup>120</sup> Kenji Lamb, e-Learning Adviser (e-Assessment), JISC RSC Scotland North and East.

<sup>121</sup> Shri Footring, Adult and Community Learning, JISC RSC Eastern.

<sup>122</sup> Mike Moran, e-Learning Adviser, JISC RSC Northern Ireland.

<sup>123</sup> Lyn Bender, e-Learning Adviser, JISC RSC South West.

<sup>124</sup> Kenji Lamb, e-Learning Adviser (e-Assessment), JISC RSC Scotland North and East.

<sup>125</sup> Helen Hodges, e-Learning Adviser (Learning Technologies), JISC RSC Wales.

...while use in HE in the region seems more widespread:

"In HE, the University of Wales Newport is one of the organisation within Wales that has a presence in Second Life. The School of Health and Social Sciences has an island as does the Institute of Digital Learning<sup>126</sup>, who are in the process of building their island. I am also aware that Bangor University has a Second Life Island but as it is not one of our supported organisations I don't have any more details."

RSC East Midlands<sup>127</sup> reports little sustained activity in its region:

"We haven't conducted any surveys of the use of MUVES in post-16 L&S education in the East Midlands, so I can't give you much detail. A subjective view, based on the contacts we have and activities we engage is, however:

- A small number of regional FE colleges have explored the use of Second Life and a smaller number of these have bought islands. The only examples I am directly aware of seem to now be very quiet/redundant.
- We are not aware of any significant development work being done in Second life across the region.
- Not aware of anyone using Second Life for actual teaching and learning activities.
- Not aware of any providers from the other sectors we cover showing anything more than a very provisional interest in Second Life – tends to be 'what's that all about, do I need to look into it?'
- Not aware of anyone doing more than having a very provisional look at other MUVES, including open source.

This is only a very crude overview, but we haven't found the need to offer any specific support or services on the use of MUVES at this point. Issues of access to Second Life, the cost/commitment of inworld development and the perception of questionable educational benefits are probably major factors in the very limited use among the learning providers we support."

On the other hand, the RSC covering the western half<sup>128</sup> of the Midlands is aware of more activity in its region:

"As far as I am aware, all of the nine universities [in the West Midlands] are, or have recently been, active in virtual worlds, in particular, Second Life.

Staff from some FE colleges have registered in Second Life (75% of colleges have attended either the forum or introductory workshops.) Two out of the three university colleges have also expressed an interest in using a virtual world as part of their teaching and the third may be implementing access to Second Life next year. Four out of nine specialist colleges have attended either one or other virtual world events. In addition to the HE and FE sectors, Local Authorities and Work Based Learning have also shown interest in exploring the possibilities of virtual worlds."

RSC London<sup>129</sup> is not aware of activity in the A&C sector:

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<sup>126</sup> Institute of Digital Learning: <http://idl.newport.ac.uk/>

<sup>127</sup> Ben Williams, Adviser, Learning Technologies, JISC RSC East Midlands.

<sup>128</sup> Jane Edwards, e-Learning Adviser (ACL), JISC RSC West Midlands.

<sup>129</sup> Martin Sepion, ACL Adviser, JISC RSC London.

"Use or plans to use virtual worlds do not exist in the Adult and Community sector. It is way off the current list of priorities and realities."

The HE advisor<sup>130</sup> in the same RSC sees little sustained use of, and a series of barriers to, the use of virtual worlds in education:

"HE in FE – significant barriers – development time, acquiring necessary staff skills, seamless linking in with pedagogic curriculum outcomes and cost (the last is very important: I would question whether return on investment has yet been adequately demonstrated by any provider or study of virtual worlds). The Serious Games Institute at the University of Coventry did some JISC supported research on this in 2009.

HE involvement – many larger HEs, including the University of the Arts in London, experimented with virtual worlds a few years ago. Many of these projects/trials were not sustained institutionally as run by enthusiasts and not supported by official IT infrastructure. There is, I think, still a latent desire amongst some creative arts institutions to use it where appropriate, but they are still facing internal debates.

Smaller HEIs do not see virtual worlds as something that concerns them."

RSC Eastern<sup>131</sup>, on the other hand, is aware of more activity in its region:

"I am aware of two FE colleges that have made a substantial investment in Second Life and are using it with learners. As far as I know, every University and at least one of the smaller HEIs in this region have an active presence in at least Second Life and possibly other virtual worlds as well. We have a great deal of established expertise in the region. There is a JISC funded project at Essex University. I know that both Essex and Anglia Ruskin have been using virtual worlds to support learning and teaching on certain degree level modules for a number of years. There is also much published research from other universities in the region as well."

RSC Northern Ireland<sup>132</sup> is aware of one local institution active with this technology:

"In Northern Ireland we have six multi-campus FE/HE colleges formed two years ago by the merger of sixteen existing colleges. Of these, there is only one that we are aware of that is doing any virtual world or Second Life work, namely SERC."

James Bell<sup>133</sup> from SERC (South Eastern Regional College) confirmed this:

"South Eastern Regional College is still using Second Life for HE and OpenSim for FE students."

...and indicated a blog<sup>134</sup> of virtual world activities at the college.

RSC Northern<sup>135</sup> paints a mixed picture of some activity but some barriers:

"One college reported to us: 'We used six months of RSC Northern-granted access to try and get it working inside our college network. Our efforts for a solution were unrealised in the end. Also, graphic cards were an issue for many machines in our estate. We are now considering using OpenSim, but are awaiting new servers and virtualisation being set up in college'.

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<sup>130</sup> Evan Dickerson, HE Adviser, JISC RSC London.

<sup>131</sup> Shri Footring, Adult and Community Learning, JISC RSC Eastern.

<sup>132</sup> Mike Moran, e-Learning Adviser, JISC RSC Northern Ireland.

<sup>133</sup> James Bell, SERC (South Eastern Regional College), Northern Ireland.

<sup>134</sup> SERC virtual campus project: [http://strangfordmultimedia.com/wordp/?page\\_id=2](http://strangfordmultimedia.com/wordp/?page_id=2)

<sup>135</sup> Paul Miller, e-Learning Adviser, JISC RSC Northern.

I would say that is a fairly typical picture from the Learning and Skills sector. A few of the providers on our island have either pulled out or have been unable to develop things further. Access to online virtual worlds is a particular problem for Local Authority provision due to network restrictions. Some plans by Durham and the Tees Valley ACL services to create an area of 'Accessible Learning' were foiled by failure to secure Transformation Funding.

Another college of art and design, which has significant higher education provision, have indicated that they are hoping to acquire an island in Second Life."

The RSC for Scotland South and West<sup>136</sup> reports virtual world use across HE institutions, but not so much across FE colleges:

"In our region I believe all the HEIs are exploring Second Life and have islands. I'm sure you are aware of the SLOODLE work the UoWS is developing, integrating Second Life and Moodle assessments as I understand it.

FE colleges are members of our forum but to my knowledge mostly as observers, although one FE college has recently asked us for advice on how they might use virtual worlds to support ESOL students. Discussions are at an early stage."

Likewise, the RSC<sup>137</sup> for the Northwest reports regional activity at the HE level, but less so at the FE level:

"This picture I'm drawing of the Northwest RSC activity and HEI/FEC virtual world activity in the region is anecdotal – we haven't carried out any survey and as a RSC we haven't got up any head of steam yet.

As an RSC we only directly support two HEIs, neither of which are using Second Life or other virtual worlds of this kind (though there are signs of interest from one). There are a range of other HEIs in the region that are pretty active. Lancaster University (our host institution) has pockets of activity and enthusiasm and there has been an offer from one member of staff to support newcomers to Second Life by regularly timed 'drop in' sessions to meet and chat: an invitation she extends equally to users from RSC supported institutions in this region.

There are many colleges in the Northwest region – something like 54 in total. To my knowledge none of them is using Second Life for HE work. Preston College and Myerscough College (an agricultural college) are the only FECs I am familiar with where Second Life has been taken up in any notable way. As I understand it where Second Life is used in these FECs it is for FE 'curriculum enhancement' rather than for core teaching."

### **4.3 RSC island space provision**

Some RSCs have islands in Second Life for use by academics, predominantly in FE but also HE:

"...we are one of 7 institutions with a plot on the [JISC RSC West Midlands] island."<sup>138</sup>

In October, RSC South East<sup>139</sup> opened two islands in Second Life:

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<sup>136</sup> Joan Walker, Senior e-Adviser: curriculum/deputy manager, JISC RSC Scotland South and West.

<sup>137</sup> Hilary Thomas, e-Learning Adviser (Higher Education), JISC RSC Northwest.

<sup>138</sup> Christa Appleton, Learning development and innovation, Staffordshire University.

<sup>139</sup> Harold Fricker, e-Learning Adviser to HE, JISC RSC South East.

“We opened Staff<sup>140</sup> and Community Islands, as a strategic initiative aimed at enabling providers to explore and develop innovative approaches to learning and teaching in response to opportunities resulting from technological change.

The design of RSC SE Islands aims to encourage discovery learning and problem solving. Staff Island in particular functions as the site of a game in which participants are able to create interactions through a range of learning resources. The structures function like a stage set with props waiting for participants to enact their roles in an open-ended, user generated narrative.

Staff Island includes a number of buildings designed to hold events and exhibitions related to curriculum content.

Community Island is landscaped to house up to eight resident from HE and HE-in-FE organisations that are allocated a free plot of land for a period of three months. Participants are encouraged to develop relevant learning and teaching projects and at the end of the period are expected to share their knowledge through an in-world dissemination event.”

The developer<sup>141</sup> of the two islands provides further details:

“We’ve just completed a two-island build for the JISC RSC South East England which is focussing on letting teaching staff explore how they can use virtual worlds. They have been set up so that there is space for experimental construction together with spaces which have been designed so that they can be used for a variety of purposes.

For example, there is a Victorian school which can be used to explore learning spaces, running role plays or used as meeting space. There is a warehouse which could be used for exhibitions, presentations, role plays etc. The buildings become starting points to be used to explore the way different environments can be used for virtual learning.”

RSC Wales<sup>142</sup> has an office<sup>143</sup> used by RSC staff and learners in the region:

“We felt it important as a team that we were comfortable being, walking, flying, talking, leading sessions in a virtual world before we even offered anything regarding virtual worlds to our learning providers. Over the last few months I would say that our confidence has grown and we are now at the point where we have had a Second Life RSC Wales office developed for us by Paul from UWN's School of Health and Social Science (at a cost) and are inviting our interested learning providers into the office to give them a 'safe' experience in Second Life.”

Not every RSC has, or can offer, land for development or experimentation. Northern Ireland<sup>144</sup> is one such RSC:

“Due to having only a very small non-staff budget we have not been able to purchase any land in Second Life, and do not plan to purchase any.”

RSC Northern operates an island<sup>145</sup> as one of a range of Second Life activities:

“On the plus side, we have created an area for Modern Foreign languages on RSC Northern Learning Second Life Island and this will be promoted at our in-world Christmas event. We also currently have an exhibition of two dimensional artwork from City of Sunderland College, and

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<sup>140</sup> RSC South East Staff Island: <http://slurl.com/secondlife/RSC%20SE%20Staff/128/128/22>

<sup>141</sup> Pauline Randall, Developer, Virtual-e.

<sup>142</sup> Helen Hodges, e-Learning Adviser (Learning Technologies), JISC RSC Wales.

<sup>143</sup> RSC Wales office in Second Life: <http://moodle.rsc-wales.ac.uk/secondlife/>

<sup>144</sup> Mike Moran, e-Learning Adviser, JISC RSC Northern Ireland.

<sup>145</sup> Paul Miller, e-Learning Adviser, JISC RSC Northern.



hosted one of the in-world sessions at the JISC 2009 Online Conference. We continue to offer providers the opportunity to 'have-a-go' in Second Life and have delivered a 'getting started workshop'."

RSC West Midlands<sup>146</sup> offers space on its island for providers, an offer which has been taken up by several:

"RSC West Midlands purchased an island in the summer with a view to offering a free plot, on a short-term basis, to any of our supported learning providers who want to experiment, develop staff skills or take in a small group of learners. This would then enable them to make an informed decision about whether a virtual world, such as Second Life, is worth exploring further."

This offer was taken up by a variety of learning providers. We have also kept a section of the island as a sandbox area for any West Midlands learning providers to use and it is also a meeting place for RSC West Midlands staff."

RSC Northwest has an arrangement with a university concerning the use of its Second Life island:

"RSC Northwest<sup>147</sup> is involved with some of the staff at our host institution who are keen Second Life users. In particular, the RSC was instrumental in bringing together parties to discuss university funding for the Lancaster University island. There was a positive outcome, and in the process it was agreed that RSC Northwest supported institutions could take equal advantage of the opportunities this afforded."

#### **4.4 Events on virtual worlds for education**

One of the two Scottish RSCs<sup>148</sup> held a large virtual worlds education event last year, and plans to hold more:

"RSC Scotland North and East organised Virtual Worlds 2008 (29th October) in collaboration with RSC Scotland South and West, the Higher Education Academy and Eduserv; the event attracted 120 delegates from FE and HE and featured a variety of virtual world platforms, from Second Life to educational modifications of commercial games such as Neverwinter Nights.

To support the event, we held a series of six 3-hour Second Life orientation workshops, introducing the platform to around 70 members of staff. Pauline Randall, an independent Second Life developer, helped to design the orientation and deliver the workshops.

The SQA have been working on a summative-based exam conducted within Caspian Learning's Thinking World platform – this was officially launched at our eAssessment Scotland 2009 event. Another presentation at the conference, Daniel Livingstone's SLOODLE, highlighting the work he's done to meld Moodle and Second Life.

We have plans to offer another short virtual worlds event at the end of February/beginning of March, focusing on the work of the SQA and practical-based solutions, such as the Skills2Learn products, but the date is still to be confirmed."

The other RSC<sup>149</sup> for Scotland (covering the South and the West) has also held events:

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<sup>146</sup> Jane Edwards, e-Learning Adviser (ACL), JISC RSC West Midlands.

<sup>147</sup> Hilary Thomas, e-Learning Adviser (Higher Education), JISC RSC Northwest.

<sup>148</sup> Kenji Lamb, e-Learning Adviser (e-Assessment), JISC RSC Scotland North and East.

<sup>149</sup> Joan Walker, Senior e-Adviser: curriculum/deputy manager, JISC RSC Scotland South and West.

"We held a virtual worlds conference last year jointly with our sister RSC based in Edinburgh and complementary workshops were offered to all delegates prior to the conference – I think we held 3 here in the training suite we have. We have held 3 face to face half day workshops – An Introduction to Second Life – although I think candidates for this one are tailing off."

JISC RSC South West<sup>150</sup> is one of several RSCs that has been promoting the use of virtual worlds in education:

"Our intention is to support and help maintain momentum and enthusiasm by showcasing/ demonstrating and case-studying the (relatively few) instances from providers within the south west region.

We are also planning a one day workshop to introduce the use of Second Life for educational purposes. The use of virtual worlds will also feature in our forthcoming annual conference."

One of England's RSCs<sup>151</sup> uses events and consultations to support and promote virtual world use:

"At RSC Yorkshire and Humber, we have supported RSC UK virtual worlds activities, such as the JISC online conference and the CPD programme. We raise awareness and share practice within the region of the use of virtual works through our events and, where appropriate, during individual consultation support."

RSC Wales<sup>152</sup> has been promoting the use of virtual worlds in education at events:

"Over the last few months we have been introducing the idea of using virtual worlds to our learning providers, at the ACL Building Bridges conference in March and the 'Integration Learning Together' event in July, as well as gauging interest and offering support during visits to providers and via our other communications."

RSC Eastern<sup>153</sup> ran a virtual worlds conference in Spring 2009:

"We held a Virtual Worlds conference<sup>154</sup> at Anglia Ruskin University which focussed on the reality of using environments such as Second Life to support learning and teaching. We offered delegates the chance to take part in hands-on workshops, all of which were led by learning providers from this region. We used this as an opportunity to offer presentations from national leaders in the field as well as to showcase regional achievements."

RSC West Midlands<sup>155</sup> holds regular open events for providers in their region:

"At RSC West Midlands we continue to run termly face-to-face forums (Virtual Worlds in Education) and 'Introduction to Second Life' workshops. This year we will also be offering a more advanced workshop as a follow on from the introductory sessions. There have been several requests for further information and/or attendance at learning provider meetings to talk about virtual worlds."

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<sup>150</sup> Lyn Bender, e-Learning Adviser, JISC RSC South West.

<sup>151</sup> Marion H Miller, Manager, JISC RSC Yorkshire and Humber.

<sup>152</sup> Helen Hodges, e-Learning Adviser (Learning Technologies), JISC RSC Wales.

<sup>153</sup> Shri Footring, Adult and Community Learning, JISC RSC Eastern.

<sup>154</sup> The Reality of Virtual Worlds regional conference: [http://info.rsc-eastern.ac.uk/events/event\\_details.asp?eid=621](http://info.rsc-eastern.ac.uk/events/event_details.asp?eid=621)

<sup>155</sup> Jane Edwards, e-Learning Adviser (ACL), JISC RSC West Midlands.

## 4.5 Current RSC support

RSC Eastern<sup>156</sup> offers virtual world advice:

"We offer individual advice to interested learning providers as requested. This often takes the form of brokering appropriate expertise. We have no plans to offer a supported in-world space for our regional learning providers at present. My initial advice to anyone wishing to explore the environment with learners is to organise 'field trips' into Second Life in the first instance so that learners can experience places of pedagogic interest."

RSC Northern Ireland<sup>157</sup> can offer a skeleton service to local enquiries:

"Our own RSC has only six members of staff – one of whom is our administrator. Therefore, we can do no more than keep a 'watching brief' on developments so that we could make some kind of sensible response to any enquiries we might get from colleges about this new(ish) platform for learning. That tends to fall to me."

RSC Northwest<sup>158</sup> is at an early stage with virtual world activities and support:

"Second Life related activities over this last year show the early stage we are at:

- A meeting last year between colleagues from RSC NW, Palatine (HEA subject centre for performing arts), Preston College and Lancaster University to establish potential for collaborative development opportunities.
- Podcast created and located on our website on using Second Life at Myerscough College.
- Second Life session at the RSC NW annual event (Jane Edwards from RSC West Midlands presented this for us).
- Interview with Shelly Waco in July on using Second Life for educational purposes combined with video in world for webcast via RSC NW TV."

## 4.6 Future RSC support

Throughout their responses, the RSCs demonstrated an interestingly varied set of opinions on future virtual world use in education.

The RSC<sup>159</sup> for Scotland North and East sees virtual world use increasing within the education sector:

"The RSC continues to support investigations into the use of virtual world platforms, and plans to collaborate with other RSCs to develop resources for interested parties. As the new SQA exam becomes more established, it's likely that the FE institutions may take a greater interest in the area."

Harold Fricker<sup>160</sup> leads on the RSC South East island project. His rationale for this development:

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<sup>156</sup> Shri Footring, Adult and Community Learning, JISC RSC Eastern.

<sup>157</sup> Mike Moran, e-Learning Adviser, JISC RSC Northern Ireland.

<sup>158</sup> Hilary Thomas, e-Learning Adviser (Higher Education), JISC RSC Northwest.

<sup>159</sup> Kenji Lamb, e-Learning Adviser (e-Assessment), JISC RSC Scotland North and East.

<sup>160</sup> Harold Fricker, e-Learning Adviser to HE, JISC RSC South East.

"The project works through a collaborative framework in relation to education in virtual worlds as a community of practice. Sharing is a vehicle for becoming better competitors in a rapidly changing world.

We are now at a time where we are able to go beyond the media hype surrounding virtual worlds. HE and FE organisations need to be aware of value added that virtual worlds has on offer to enriching the learner's experience. At a time of intense competition for education markets, the drive to apply innovative learning technologies within cost effective parameters, virtual worlds are a real world solution for distance and experiential learning."

RSC East Midlands<sup>161</sup> takes a more cautionary approach:

"We have had a brief play with the development of rudimentary objects/buildings in public sandpits and on a small island owned by our host organisation. Some team members have joined in-world meetings and events. Personally, I have looked closely at what Second Life can offer education, with a particular focus on the representational affordances and social interaction it offers. I am tracking ongoing thinking and developments via the various forums/ mailing lists but don't feel it's time to start committing serious time/effort to supporting the use of MUVes."

The RSC for Yorkshire and Humber<sup>162</sup> has in-house expertise, if required in the future:

"Although we have no plans at this time for using virtual worlds as a mechanism for providing support, individual advisors are experienced in their pedagogical use."

RSC Wales<sup>163</sup> will encourage local providers to try Second Life:

"We are hoping that over the coming months, with sufficient reminders and support from us, that we may have more providers take their first steps in Second Life with RSC Wales – more to see how it feels and what all of the 'fuss' is about initially, so that they can make more of an informed choice about whether they want to progress with this further ... or not."

Despite being aware of little interest in its region, RSC London<sup>164</sup> is tracking virtual world developments:

"We are adopting a watching brief – ready to support providers with sources of expertise and examples of current practice."

RSC Northern<sup>165</sup> is also continuing to offer support, but is aware of the barriers providers in the region are facing:

"We are still plugging away, but the key barriers to Learning and Skills providers are still:

- Development time and cost for organisations on tight budgets and with more compelling priorities.
- College and Corporate networks' security policies.
- 'Under 18' issues in Second Life."

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<sup>161</sup> Ben Williams, Adviser, Learning Technologies, JISC RSC East Midlands.

<sup>162</sup> Marion H Miller, Manager, JISC RSC Yorkshire and Humber.

<sup>163</sup> Helen Hodges, e-Learning Adviser (Learning Technologies), JISC RSC Wales.

<sup>164</sup> Rosemary Leadley, Information Officer, JISC RSC London.

<sup>165</sup> Paul Miller, e-Learning Adviser, JISC RSC Northern.

## 5. Issues surrounding virtual world use

Snapshot respondents have never been shy to speak forth on various issues pertaining to virtual world use in education. This particular survey was no exception.

### 5.1 Evaluation and reporting

Several respondents described what has emerged from their use of virtual worlds in teaching.

Kate Boardman at Teesside University summarises what they have learnt from their virtual world activities so far:

“We’ve learnt a lot over the last year. That cooperation and collaboration works better for us as a development model than contracting out and competition. That there is neither time in the day (or night!) to achieve everything that is dreamt of or suggested, nor an end to the stream of ideas and possibilities. That one island isn’t enough!

That some ideas are way more complex than they need to be to effect the desired learning outcomes. That, despite some cynical comments, treasure hunts/quests/game-style design can be very effective, especially in orientation. That sometimes it’s easier to buy than make, and sometimes it’s faster to grit your teeth and get your mouse dirty building than unsuccessfully trailing round shops!

That kinaesthetic and visual learners can get a lot from activities in virtual worlds, so we shouldn’t be put off by those who say some people will ‘never get it’. That there are a surprising number of fellow professionals who seemingly feel that ignoring (commercial or open-source) virtual worlds’ real potential for learning enhancement is okay. It’s not.

That the opportunities for building blocks to connect Blackboard with Second Life e.g. for kicking off a PBL scenario in Second Life and writing all local chat direct to the discussion boards, is the start of hopefully a SLOODLE-sized tool set for Blackboard users which will be great for beginning to think about assessment of the virtual world activity.

That we can be proud of what we’ve achieved with no funding beyond the island purchase and no external help beyond those colleagues ready to offer advice and tips. Clearly this isn’t sustainable to provide the full support for all the opportunities that are brought to us, so it will be interesting to see how quickly developments continue over the next few months.”

The University of East London<sup>166</sup> has started formal evaluation of its developments:

“The Second Life laboratory has already been subject to some evaluation and findings reported in a paper<sup>167</sup> published by HEA Biosciences subject centre. A further related evaluation is currently in progress to compare Second Life and Flash as alternative delivery platforms for virtual laboratory experiments.

Evaluations are planned for the virtual patient system, both in terms of the student learning experience and staff perceptions of its viability as a manageable and effective addition to the teaching of clinical skills.”

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<sup>166</sup> Rose Heaney, Learning Technology Adviser (UJELconnect), Schools of Psychology and Health and Bioscience, University of East London.

<sup>167</sup> A Second Life PCR lab evaluation, Stephanie Cobb, Rose Heaney and Stephanie Henderson-Begg, <http://www.bioscience.heacademy.ac.uk/journal/vol13/beej-13-5.aspx>

Southampton Solent University<sup>168</sup> is pulling together its previous virtual world work:

"We also have an intern this year who will be looking at developing our use of Second Life whilst putting together the research from last year. Hopefully this will result in a publication."

Glasgow Caledonian University<sup>169</sup> reports a positive, though problematic, experience:

"Teaching using a virtual world fits well into our curriculum, being no more work than any other online virtual learning environment. Ours was a very good positive experience. However, there are some challenges in getting the students to initially engage. There are also some scripting and computer issues to overcome both locally and remotely."

The SWIFT<sup>170</sup> project will evaluate how effective its virtual biological laboratory has been:

"The evaluation we carry out within SWIFT will show just how effective this experience is in benefitting students' learning."

The University of Worcester<sup>171</sup> is undertaking evaluation in a few years' time:

"We have recently set up a two year project for supporting staff using or interested in using Second Life for teaching and the activities of this will also be evaluated and published at the end of the project."

The Open University<sup>172</sup> provided some student evaluation feedback:

"We have evaluated experiences and perceptions of students and educators by applying a number of techniques in-world: observations, interviews, focus groups, tours, and via descriptive phenomenology.

These are some of the representative quotes from students about their experiences:

*'I get a feeling of meeting you [the tutor] face-to-face...even though I engage with avatars, I am aware that behind them there is a real person...'*

*'Sense of realism [in Second Life] which is hard to match in other online environments; feeling of space, context and environment persists and this makes a very real-experience.'*

*'I particularly enjoyed meeting in the library as it was fitting to the topics under discussion.'*

The students have expressed that Second Life enables them to get to know one another better and yet there is an element of privacy because of the avatar-based communication. They have also stated that they were able to take decisions related to their group project sooner than they would have been able to do if they were using discussion forums or other asynchronous technologies. They felt that the sense of presence in Second Life and being able to see one another gave them a sense of commitment towards one another in the team.

*'It is a lot more personal, particularly because you can see the person you are speaking to... and the avatars mean you get a picture in your head about what person is like...''*

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<sup>168</sup> Clare Denholm, e-Learning Support Officer, Learning Technology Unit (LTU), Southampton Solent University.

<sup>169</sup> Evelyn McElhinney, Lecturer in Nursing, School of Health, Glasgow Caledonian University.

<sup>170</sup> Dr Paul D Rudman, Research Associate, SWIFT, University of Leicester.

<sup>171</sup> Tim Johnson, Senior Lecturer, IHS, University of Worcester.

<sup>172</sup> Dr Shailey Minocha, Department of Computing, The Open University.

At the University of Ulster<sup>173</sup>, a course involving recreating buildings in Second Life has been largely positively received:

"Feedback from students was encouraging:

- 64% found the project interesting/exciting.
- 71% stated they would use Second Life (or another virtual world again).
- 78% were willing to undertake another Second life project.
- 78% rated the project successful/very successful.
- 89% thought virtual world have a future."

The use of Second Life in the teaching of Spanish at the University of the West of England<sup>174</sup> has also been received positively:

"Feedback from the students so far shows that they are enjoying the experience and, in particular, they can see how the experiences they have in Second Life help to increase their confidence when communicating with native Spanish speakers."

The tutors themselves<sup>175</sup> describe the data collection tools:

"Data is being collected by means of individual and focus groups interviews, electronic learning diaries both from students and tutors, questionnaires and an interactive regular process of observation. A comprehensive evaluation of the information collected will be carried out."

Simon Bignell at the University of Derby<sup>176</sup> discusses the output measures of using virtual worlds in teaching:

"All of the teaching we have offered in virtual worlds at University of Derby has been a supplementary and optional component of existing teaching modules. If students do not wish to engage with the in-world content they are given an equivalent alternative. We have found that it is easier to teach generic skills than specific knowledge-based content.

The traditional teaching formats (lectures and seminars) are, from our experience, still better than virtual world platforms when delivered effectively. The essential component of virtual worlds for teaching is the often misunderstood notion of interactivity. When the barriers to engagement are removed (e.g. good inductions, suitable hardware, timetabling) students learn in a qualitatively different way than traditional teaching methods allow. Participation becomes an adventure and the activities are often reframed as 'fun'.

It is still hard to quantify this as an output measure but the students tend to claim they have understood concepts in a different way. I think the learning that is happening in a virtual world activity is more akin to real-world (experiential) learning than academic learning. What comes naturally to us as children is play, discovery, learning by trying things out. These are all essential components of a well-developed three dimensional multi-user virtual learning environment.

Much the same as academics learnt to avoid reading word-for-word from their presentation slides when giving a lecture, we now appreciate that just uploading material to the virtual

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<sup>173</sup> Kerri McCusker, Research Associate, Intelligent Systems Research Centre (ISRC), University of Ulster.

<sup>174</sup> Dr Liz Falconer, E-Learning Development Unit Manager, University of the West of England.

<sup>175</sup> Susanna Romans-Roca and Maricarmen Gil Ortega, University of the West of England.

<sup>176</sup> Simon Bignell, Lecturer in Psychology, Centre for Psychological Research, University of Derby.

world and housing it in a pretty building that looks similar to those in which we teach is not adequate.”

At Anglia Ruskin University<sup>177</sup>, Marie Gordon points out some of the learning aspects she has observed when her students have been using virtual worlds:

“I have always seen Second Life as a land of opportunity. It matters not whether you are technical, artistic, neither or something else entirely. There is opportunity to meet, learn, discuss, inspire (and be inspired), experiment, implement, create, cooperate, buy, sell, develop and all with an international audience. The big attraction for me is the user created content. We are making the world. I don't know if Second Life will be overtaken by something else in the future. Perhaps it doesn't matter, for virtual worlds are, presumably, here to stay.

There is a lot of other learning hidden in between the points that I highlighted in describing the modules. For example, coping with and organising the group work elements. Second Life is not perfect and although it is a lot easier and cheaper to make a music video in Second Life than it is in Real Life, it doesn't hand it to you on a plate. You still have to scout for locations, build sets, source props and solve problems. Problem solving skills come into play again in the programming tasks. The LSL language doesn't do everything for you, you have to find workarounds. Programming in LSL also brings in some ideas that I think are overlooked these days when students create applications.

With the (soon to be) massively multi-core processing power on our desktops and the massive storage space and bandwidth that allows us to share audio and video with barely a thought for how large it might be or how long it might take, it's easy to forget that it was only a few years ago that the things we take for granted now were science fiction. In a real time massively multi user environment we have to think about economy of clock cycles, available memory space and limited data transfer again. I'm not saying that I want to go back 720k floppies, but I do think that programming in Second Life has improved my techniques and resource usage when it comes to writing code.

I guess what I am saying is that I think there are a lot of transferable skills hidden in what the students are doing in Second Life, from reflective writing to organisation of team work to efficient program design.”

Using a virtual world enabled students to have a more realistic experience on the cyberpsychology course at Glasgow Caledonian University<sup>178</sup>:

“Use of a virtual world enables me to provide a quality learning experience to students that otherwise I would not be able to do – before Second Life I was giving students a lecture on 'gender issues in cyberspace' but now I can design activities in Second Life to support their learning and give them first-hand experience of the environment and the issues under scrutiny.”

At the same university<sup>179</sup>, success and failure factors in using a virtual world in an AI algorithm class were explored:

“There were three criteria for success that we were looking for in the AI class:

(a) Could the students become comfortable with the Second Life world and rooms? Yes, they could, quite easily and quickly, especially given expert support in their first hour.

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<sup>177</sup> Marie Gordon, Department of Computing and Technology, Anglia Ruskin University.

<sup>178</sup> Dr Jane Guiller, Lecturer in Psychology, Division of Psychology, Glasgow Caledonian University.

<sup>179</sup> David Moffat, School of Engineering and Computing, Glasgow Caledonian University.



(b) Was the experience acceptable or even positive for the students? By observation and querying the students, they did enjoy and value the experience, and thought it could help more learning in future.

(c) Was the experience helpful for their learning itself? Analysis for this question is yet to be done, but I'm not hopeful that Second Life will turn out to have been very good in this respect, simply based on my observations of the class.

Perhaps the main issue was that students didn't direct their efforts at the two AI rooms sufficiently, and instead spent a lot of time playing with other aspects of the SL world. They went to Second Life shops and bought lots of clothes, had virtual sword-fights, raced cars and so on.

No doubt this playful activity contributed to the enjoyability of the world, which was one success criterion (b); but at the expense of another one (c). It may be that students need more direction in a virtual world than they do in the real one, and this exposes deeper questions about the suitability of Second Life for education, to which I expect both positive and negative answers, subject to further research."

## 5.2 Future plans

Are academics planning to continue using virtual worlds in teaching? Some who have responded to previous snapshots have discontinued using the technology for a wide range of reasons. Others have been using it for several years, some planning to carry on.

The University of the West of England<sup>180</sup> sees a future in the use of virtual worlds for online simulations:

"We are developing online projects that are simulations of real life situations and events as part of our technology enhanced learning strategy. The university has a great many students who are studying for entry into professions as diverse as health care, law, planning, architecture, languages, environmental health and many more. As such, work-based learning, placements and connections to the world of work form an important part of the students' learning experience. We see online simulation as another opportunity to enable students to synthesise theory with professional practice."

The University of East London<sup>181</sup> has a long-term approach to its Second Life work:

"We plan to be active in Second Life with all of our current activities for the next year at least."

A response with requested (verified) anonymity from a Scottish university indicates an institution grappling with the different requirements of institutional staff:

"Off the record, but not surprisingly, the college is working its way slowly towards buying an island, and one of the big questions has been how we reconcile public access, the desires of the marketing side of the university, and the need to do messy play, development, or closed workshops where people can't see."

The heart-monitoring Second Life exercise at Glasgow Caledonian University<sup>182</sup> looks like it will be repeated next year:

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<sup>180</sup> Dr Liz Falconer, E-Learning Development Unit Manager, University of the West of England.

<sup>181</sup> Rose Heaney, Learning Technology Adviser (UELconnect), Schools of Psychology and Health and Bioscience, University of East London.

<sup>182</sup> Evelyn McElhinney, Lecturer in Nursing, School of Health, Glasgow Caledonian University.

"Yes, we'll do it again next year. The potential for healthcare clinical simulation is vast and the students who have used it find it much more engaging and immersive than other virtual learning environments they have used. I have also enjoyed creating the scenarios."

Heriot-Watt<sup>183</sup> University plans to repeat its virtual pet creation next year:

"We'll do our computer science Second Life activities again next year. I have now ironed out various problems in how we deliver this module and I am happy with it. So I want to capitalise on it."

Newman College Birmingham<sup>184</sup> is expanding the use of virtual worlds on its new media course later this academic year:

"In Feb 2010 we are looking to do something a little more ambitious:-

- Production of a piece of Machinima within virtual worlds. This is where students would be given the opportunity to produce a Machinima video around the future of virtual worlds and computer games. (using virtual worlds, video editing software, Fraps and a high end gaming PC)
- Creation of three dimensional objects within Second Life, and using three dimensional modelling tools to experiment with creating objects for Second Life that have an entertainment or educational application.
- Design of a level for a commercial game. Many gaming virtual worlds now provide modding tools for users to create their own levels within established PC games. Also, we are looking to use the Unity virtual world/game development tool. Students will be given the opportunity to produce their own virtual/game environment."

Manchester Business School<sup>185</sup> is looking to hold a virtual world event next year:

"We are investigating the PIVOTE system and in 2010 may be hosting the SLACTIONS conference."

The Open University<sup>186</sup> is continuing with Second Life, both in teaching and as a subject of research:

"Our evaluations have shown that, as intended, Second Life is facilitating team working, interactions with students and the tutor, collaborative formal and informal learning, and community building. Therefore, we plan to continue with our investigations about the pedagogical effectiveness of Second Life. We would like to make the induction easier for both students and educators.

Further, we would like to continue to develop guidance for educators about designing Second Life activities that match with the learning outcomes of the course and activities which exploit (or take advantages of) the 'affordances' of Second Life, and how to design or choose learning spaces in Second Life which match with the pedagogical strategies of the learning activities."

St George's University of London<sup>187</sup> is continuing the education of medical students:

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<sup>183</sup> Judy Robertson, Lecturer, Computer Science, Heriot-Watt University.

<sup>184</sup> Richard Sanders, Lecturer in e-Media and Media Production, Newman University College, Birmingham.

<sup>185</sup> Peter Lythgoe, e-Learning Specialist, Manchester Business School.

<sup>186</sup> Dr Shailey Minocha, Department of Computing, The Open University.

<sup>187</sup> Emily Conradi, Manager for e-Learning Innovation, Centre for Medical and Healthcare Education, St George's University of London.

"We are now working on developing two medical scenarios, using the PIVOTE system. With the change in discipline, the objects and situations the students can undertake will be very different, but the concept of the learners actively making decisions with a responsive scenario is the same."

At the University of Hull<sup>188</sup> there are plans to move a problem-based learning environment into Second Life:

"During a faculty away day, we looked at Second Life and there was a lot of interest. We intend to set up our virtual village 'Aisling' (used for problem-based learning) in a three dimensional environment as it is only in two dimensional format at the moment. I don't think that will commence before the new year though."

...and at the same university<sup>189</sup>, Second Life will be used next year within the arts faculty:

"Our use of virtual worlds (particularly Second Life) will continue next year. We are finding that more students are active in these outside a scholarly context, so offering an academic angle to something they're already familiar with is fully in line with other things we do in relation to arts and new media within our department."

Again at Glasgow Caledonian University<sup>190</sup>, academics are planning further activities:

"We will keep doing it, yes, and expanding our activities. We will also continue with our OpenSim efforts and hope to contribute toward an OpenSim based Hypergrid of virtual worlds for the UK educational field at large. I've created a web-based user registration (that will be released under the GPL) to ease this part of the process."

The University of Hertfordshire<sup>191</sup> will continue virtual environment development into next year:

"We hope to continue the development of applications using the browser based Unity 3D engine. We have proof of concept builds for networked environments with voice communication and the means to host said spaces on our own server(s). If there is demand for it, the technology can also be integrated into *studynet* (our online student resource) for added security and ease of use."

The University of Derby<sup>192</sup>, a long-term user of Second Life, is carrying on:

"Yes. It's an ongoing process of development and rethinking. The use of virtual worlds for education isn't a linear route to a satisfactory end result. It's a slow series of increasingly less spectacular failures. This perspective is mirrored by funders such as JISC who view the development cycle as critical in the success of virtual world projects. The point eventually comes when one realises that the skills struggled with at the beginning are less challenging and the problems exist at a higher level; pedagogical considerations rather than implementation issues."

The University of Edinburgh<sup>193</sup> has many future plans for virtual world use, including one in the arts sector:

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<sup>188</sup> Kate Dagleish, e-Learning Development Administrator, Health & Social Care, University of Hull.

<sup>189</sup> Dr Toni Sant, Lecturer in Performance and Creative Technologies, University of Hull.

<sup>190</sup> Ferdinand Francino, Project Manager 'CU There', Glasgow Caledonian University.

<sup>191</sup> Andrew Marunchak, Virtual Campus and Real-Time 3D Lead Developer, University of Hertfordshire.

<sup>192</sup> Simon Bignell, Lecturer in Psychology, Centre for Psychological Research, University of Derby.

<sup>193</sup> Fiona Littleton, Educational Development Adviser for Virtual Worlds, University of Edinburgh.

"Next year we will be working on a new collaborative project between the MSc in E-learning team and colleagues in the Centre of Film, Media and Performing Arts, University of Edinburgh. This project will assist students in creating a virtual film festival (within Second Life) as part of the new screen cultures course, on the MSc in film Studies programme."

### 5.3 Cost effectiveness and reuse

Using (and re-using) virtual worlds as a more cost-effective way of teaching and learning was mentioned by several respondents.

Southampton Solent University<sup>194</sup> focused on design:

"Our research into the use of Second Life was initiated by interest from lecturers in the School of Design due to the opportunities it offers for creating contents, design and collaboration. Of particular interest was the potential for using second life to offer opportunities for modelling design without the need for very expensive real life creations and fashion shows."

The University of East London<sup>195</sup> is developing its structures so they can be re-used, and not necessarily in Second Life:

"Conscious of the costs of developing in Second Life, one of our aims is to design sustainable solutions that academics and other in house staff can maintain once the funds for specialist developers have dried up. To that end our prototype virtual patient can be edited by academics with no Second Life scripting skills.

Another strength of the virtual patient system is that it has a web-based back end so could potentially use delivery platforms other than Second Life."

Coventry University<sup>196</sup> has also made 'stuff' in Second Life which others can use. This includes:

- "Reusable machinima designed for a multitude of courses made available as open content on the university's repository system CURVE.
- Educational objects we have developed in Second Life also made free, open content on the repository system: this includes scenery and characters used in above mentioned machinima."

### 5.4 Replacement for travel

Virtual worlds are used as an alternative to traveling to meetings and events, saving on time, expense and environmental damage. Sheila Webber<sup>197</sup>, in the Department of Information Studies at the University of Sheffield, uses Second Life for this purpose:

"Second Life is still providing an effective venue for professional development, networking and dissemination. Given shrinking travel and conference budgets in higher education, this is becoming increasingly valuable. Examples are:

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<sup>194</sup> Clare Denholm, e-Learning Support Officer, Learning Technology Unit (LTU), Southampton Solent University.

<sup>195</sup> Rose Heaney, Learning Technology Adviser (UELconnect), Schools of Psychology and Health and Bioscience, University of East London.

<sup>196</sup> Dr Lesley Gourlay, Research Fellow, Learning Innovation Applied Research Group, Coventry University.

<sup>197</sup> Sheila Webber, Senior Lecturer, Department of Information Studies, University of Sheffield.

- A proposal for a Second Life event as part of the ESRC Festival of Social Science has been accepted by the ESRC as part of its programme (March 2010).
- The Centre for Information Literacy Research discussion series continued, with participants from various countries.
- Infolit iSchool was the headquarters for Information Literacy Week in Second Life (with events organised by people from the UK, Colombia and the USA) in November 2009.

At a personal level, I have also put in a small scale research bid with an American academic that I only know via Second Life, as well as getting speaking invitations to professional and research events in Second Life."

An FE institution supported by the South West RSC<sup>198</sup> is using its Second Life island to connect students who study in different countries:

"The institution is planning a linkup between business degree students between the college and other international universities using the island as a base to share ideas, lessons and resources."

Despite JISC RSCs being regional, distances within one such geographic area can still be large enough to make virtual worlds a viable alternative to face-to-face meetings, as JISC RSC Wales<sup>199</sup> has found:

"The purpose of our Second Life office, when we decided to have one built, was two-fold – to offer opportunities to our learning providers to experience Second Life with our guidance but also to provide us with an online meeting place as a team. We are spread across the country (Swansea, Newport, Aberystwyth and Bangor) and although we use Skype, video conferencing, discussion boards, email, etc. to communicate, having experimented with Second Life for a few months (and got voice chat to work in all locations) a number of us decided that we liked the visual, interactive nature of Second Life and have since been meeting up in our Second Life office for small and larger team meetings."

Second Life will be used to connect University of Worcester<sup>200</sup> students with students from the USA:

"We will be taking a few students in to Second Life this January to engage in shared learning with students from Ball State University in the USA. This activity is being used not only for this small group of students to meet with the Americans but for us to evaluate our support practices for students and staff."

The Open University<sup>201</sup> is one of several which uses Second Life for research-supervisor meetings:

"A couple of my part time PhD students don't live in England, and are able to travel to the university's campus for a face-to-face meeting only once or twice in a year. We regularly meet in Second Life for supervision meetings."

The University of Edinburgh<sup>202</sup> is supporting the Scottish Sensory Centre in using Second Life to enable communication between geographically distributed people:

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<sup>198</sup> Lyn Bender, e-Learning Adviser, JISC RSC South West.

<sup>199</sup> Helen Hodges, e-Learning Adviser (Learning Technologies), JISC RSC Wales.

<sup>200</sup> Tim Johnson, Senior Lecturer, IHS, University of Worcester.

<sup>201</sup> Dr Shailey Minocha, Department of Computing, The Open University.

<sup>202</sup> Fiona Littleton, Educational Development Adviser for Virtual Worlds, University of Edinburgh.

"In late 2009 the online part time course 'Modifying Written Texts for Deaf People' which is run through the Scottish Sensory Centre began using Second Life as a space for the tutors to meet with students to discuss their portfolio.

The people on this course are a mixture from across the UK of teachers of deaf children, tutors of deaf adult learners and communication support workers – people who interpret between British Sign Language and English in college or school settings. Most of the students are hearing but there are about 4 deaf people on the course (of 17)."

## **5.5 Providing learning access where none is available**

Virtual world use can provide experiences that are otherwise difficult to obtain for students in the nursing and midwifery sectors, as Tim Johnson<sup>203</sup> writes:

"Our department of nursing and midwifery is part of a very large Institute of Health and Society. Reasons for looking at a virtual world for creating learning opportunities for these students are many and various. There is much in nursing and midwifery that is difficult to accommodate in the normal way either because the practice placements do not exist or are over subscribed with students.

There is also the problem of students not being able to gain experience in some clinical situations or not having enough time to practice the decision-making skills they need. Some of our students take their elective in another country and we would like all students to have the opportunity to interact with students from around the world. The experience of talking to people from other healthcare cultures helps to shine a light on their own country's practices, policies and healthcare provision. It really is not a matter of choice; nurse and midwife education (and many other healthcare professions) currently have nowhere left to accommodate the needs of students except in virtual worlds.

At the moment we have only a general idea how this will fit into the student curriculum. We are in the process of rewriting our courses and the use of virtual worlds and e-learning in general will be more explicitly written in this time. It is expected that virtual worlds (in our case Second Life) will increasingly be used in student education and socialisation."

## **5.6 Increasing student attendance**

Using virtual worlds helped with attendance on the new media course at Newman University College<sup>204</sup>:

"Last year, students were highly engaged with virtual lectures, and punctuality and levels of attendance were greatly improved. We hope to build on this positive outcome when the module runs again early next year."

## **5.7 Looking at other virtual worlds**

Many academics using Second Life, the predominant virtual world in the sector, keep an eye on what else is developing.

After a negative experience with developing and promoting content created in Second Life, the technical services librarian<sup>205</sup> at Chichester is investigating an alternative virtual world:

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<sup>203</sup> Tim Johnson, Senior Lecturer, IHS, University of Worcester.

<sup>204</sup> Richard Sanders, Lecturer in e-Media and Media Production, Newman University College, Birmingham.

<sup>205</sup> Lindsay Da Silva, Technical Services Librarian, University of Chichester.

"I have also ventured into MetaPlace, and was quite impressed, and do feel that it too has potential. The main advantage is not needing to download anything – this is a great advantage over Second Life, especially for those of us with 'locked-down' computers, and means that you don't have to worry about whether the most up-to-date client is loaded on a particular PC, etc. It's not truly three dimensional yet, and the ability to create unique content within the world doesn't seem as advanced as Second Life, but I have to explore it some more. You can import textures for free, and there is also a scripting language which I haven't looked at yet, but generally I think it probably is much less 'immersive' than Second Life.

However, some of these features may actually encourage some people into MetaPlace, since it's easier to create a simple world, and maybe has potential for being much more like a 3D website. I think an interesting use could be for creating a 3D world, where part of it could focus on directing visitors to specific useful websites and information, part of it could be for more 'fun' aspects like games, and you would also have the social networking aspects, such as chat, etc.

I do like the way performing certain tasks, such as building or exploring other worlds, adds to you coin total, so you can then 'buy' other items. This provides some good motivation for remaining and interacting with the world. You can also link to other worlds, so you could link to other education-related worlds and form an interesting 'universe'? As I say, I have just started exploring MetaPlace, and I haven't really looked at all of its developing aspects."

Northampton University<sup>206</sup> is also looking at an alternative to Second Life:

"LT@UoN are also evaluating Playstation Home as a comparison to Second Life."

The University of Edinburgh<sup>207</sup> continues to evaluate a wide range of virtual worlds:

"The Virtual University of Edinburgh (Vue<sup>208</sup>) is using Second Life as its principal virtual worlds platform. The initial Vue facilities in Second Life were funded for a three year period which will end in mid 2010. It is anticipated that usage and interest is such that this will continue.

OpenSim is being explored as a potential supplement to Second Life where larger spaces are needed at lower cost.

Edinburgh educators and teachers have explored a wide range of other virtual worlds platforms, but none are yet in widespread use, and some will not provide appropriate facilities and flexibility to support educational and research uses."

At Glasgow Caledonian University, Ferdinand Francino<sup>209</sup> continues his search for an alternative to Second Life:

"I'm liking Linden Lab less and less. White listing the university is a persistent problem, their maintenance and update schedule is a pain – if it's a schedule. We've managed to get the Second Life viewer on all our labs using an Application Virtualisation so we only need to update on one place but even then the timespan in which this has to be done is annoying. They don't communicate well at all. I've tried to get access to the 'behind the firewall' solution but get a support ticket as reply; a support ticket I can't access because I didn't make it. They don't seem to want to email.

Linden Lab seems to want to 'push' (corporate, institutional) users toward Gold Solution Providers and not cater for the 'do it yourself' branch. A bit like you deal with your ISP and not

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<sup>206</sup> Rachel Fitzgerald, Learning Technology Manager, University of Northampton.

<sup>207</sup> Austin Tate, Director, Artificial Intelligence Applications Institute, University of Edinburgh.

<sup>208</sup> Virtual University of Edinburgh: <http://vue.ed.ac.uk>

<sup>209</sup> Ferdinand Francino, Project Manager, 'CU There', Glasgow Caledonian University.

the makers of the software your ISP uses (Microsoft IIS or Apache). This is one of the main reasons for us to seriously investigate OpenSim and start exploring it, see which parts of our developments need to be in Second Life, and which don't and can be moved to OpenSim."

...which Kathryn Trinder<sup>210</sup> goes along with:

"Still pretty much on Second Life. There is development working going on for OpenSim but my esteemed colleague has already given you the lowdown on that, and I've mentioned before my views on going that way (how it resolves many issues of confidence, security, control, access, etc). The team have been working on a web based registration system, which will be excellent for mass student registration and remove what I believe is currently a tedious manual process for registration in OpenSim."

Leeds Metropolitan University<sup>211</sup> would like to make more use of OpenSim:

"Ideally, I would like to have had a proper OpenSim installation sorted by the time we get going with the inductions in semester 2, but finding the time and resources is proving difficult. We'll probably go with the OpenSim standalone/Second Life induction approach that we developed in Open Habitat. One day, we'll have our own 'training wheels' virtual world. You mark my words."

The University of Derby<sup>212</sup> is looking at this alternative to Second Life too:

"We are using Second Life and trialling OpenSim."

Alternatives to Second Life are being investigated in the University of Sunderland<sup>213</sup>:

"We are investigating OpenSim, Wonderland, Twinity plus others and will be interested to hear what the final entry costs are for Nebraska."

The Computer Science department at St Andrews University<sup>214</sup> is exploring a range of virtual worlds:

"We are actively interested in several virtual worlds, and aspects of their use:

- Virtual world interoperability, focusing on Linden Labs' Open Grid Protocol, OpenSim's Hypergrid, and Cable Beach (which appears to be primarily led by Intel and the IETF).
- Evaluating use of Blue Mars, with a focus on suitability for our projects, feasibility (especially hardware and operating system requirements), and what advantages it has over Second Life. This is on hold however until Blue Mars leaves beta.
- Examining use of 3D game toolkits such as Unity 3D or Unreal Engine as an alternative to online virtual worlds, for cases where multi-user functionality is not considered important."

David Burden<sup>215</sup> outlines his development company's approach with regard to the various virtual worlds currently available:

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<sup>210</sup> Kathryn Trinder, Educational Development Adviser (e-Learning), Glasgow Caledonian University.

<sup>211</sup> Ian Truelove, Principal Lecturer, School of Contemporary Art & Graphic Design, Leeds Metropolitan University.

<sup>212</sup> Simon Bignell, Lecturer in Psychology, Centre for Psychological Research, University of Derby.

<sup>213</sup> Shaun Allan, Web Developer, University of Sunderland.

<sup>214</sup> J Ross Nicoll, Research Fellow, Computer Science, University of St Andrews.

<sup>215</sup> David Burden, Manager, Daden Ltd.



“Increasingly for us Virtual Worlds are two things – large consensual social environments, and 3D development platforms (or at their most extreme just 3D user interfaces). Worlds like Home, Blue Mars, Twinity tend to be just the social experience. Olive, OpenSim and Wonderland are just development platforms (although of course you could use them to develop a social space). Whereas Active Worlds, Metaplace and Second Life have the ability to be either (and hence a lot of confusion about what Second Life is).”

## 6. Barriers and perceptions

Although there is a steady increase in the number of UK academics using virtual worlds, this doesn't mean it's 'plain sailing' for all. We finish off this snapshot with a round-up of quotes and thoughts on some of the barriers to using, and perceptions of, virtual worlds in education.

Despite using Second Life for several years, Sheila Webber<sup>216</sup> at Sheffield University is still finding the lack of ease of access to be an issue:

"Barriers still continue to be technology-related, and the lack of adoption of Second Life for the managed desktop in the university is a continuing problem."

The Open University<sup>217</sup>, although a user of virtual worlds for several years, has also encountered technical barriers:

"Students face a steep learning curve when they first come into Second Life. They experience difficulties with the voice and they find that the hardware requirements for Second Life are quite demanding in terms of graphics card, memory, and a broadband connection."

Kathryn Trinder<sup>218</sup> from Glasgow Caledonian University details some of the issues she's encountered:

"I'm more involved now in evaluation/research of the work that has gone on in GCU, though most projects are carrying out their own (i.e. nursing). I've been mainly talking to students and staff in computing to find out how their use of SL went. Its thrown up some intriguing angles, but I don't think anything that is not coming up elsewhere. Hmm, main issues that have come up...

'Computing students will understand virtual worlds better than any others.' Nope. Complete myth. They are as confused and bamboozled as the rest of us, though with possibly different reasons (they already see it as a game, therefore it can't be serious for their learning? :) ) The whole 'digital native' thing is a myth as far as 3D virtual worlds are concerned, or at least it is at this time.

Virtual worlds are still very new, and the 18 age restriction on many mean our current intakes of students are not familiar with this stuff, if they have even heard of it. So there is still a big learning curve about the environment to get them through before they can even begin to 'learn' any subject discipline stuff. Kids of 10 though, they will come to university having spent their childhood immersed in three dimensional virtual worlds (Club Penguin FTW!), they are not just technically but socially adapted to how to behave and use these worlds. We are not. They will arrive with expectations that we should attempt to meet.

Perhaps more the issue is that we (staff) are also not natives to this stuff so we need to learn about these worlds (not just building, but how to 'be' in these places). They are not one technology, they are social spaces and huge tool kits, so its more than just learning how to use a VLE....

Control of a class. Students mess about in Second Life. They go shopping, dancing, they play with their avatars (changing their hair and clothes, gender, species, etc.) We think this is less to do with a requirement for actual control and more to do with a shared understanding of the space, socially, behaviourally, etc. More about etiquette. There were discussions about using some sort of software to 'control' student avatars, but really, perish the thought of forcing

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<sup>216</sup> Sheila Webber, Senior Lecturer, Department of Information Studies, University of Sheffield.

<sup>217</sup> Dr Shailey Minocha, Department of Computing, The Open University.

<sup>218</sup> Kathryn Trinder, Educational Development Adviser (e-Learning), Glasgow Caledonian University.

adults to stay in one place! We don't lock the lecture theatre doors in the physical world, so why would we wish to do that in the virtual one?

Our thinking is more now that it is an issue of novelty and lack of understanding of the space/world, and I mean us as much as our students! So this is something we need to work on. Shared understanding and etiquette, looking at the design of learning activities and authentic uses. For example the nurses set up their scenarios and the students get very immersed in those and do not wander off. There is purpose, as there would be in the physical world when a student enters a classroom or lab, or when a student goes online into their LMS/VLE etc. It's parallel to that experience in a way – when a student is at a computer, they can also wander off, go shopping, chat to their mates, do other things, but if they have a purpose to go to the VLE then they will do so. Or more importantly for us to recognise, they will do so *\*intertwined\** with shopping. In the virtual world though we *\*see\** this mixed activity. It's actually nothing new, just much more visible (We uncovered some of this kind of online activity in the learner experience study (LEX) in 2006).

Virtual Worlds can be weird, strange, chaotic, uncomfortable places, but they can be fun, and we need to (learn/recognise/accept??) that having fun *\*can\** be a part of learning, as can being thrown out of your comfort zone. Learning does not have to be serious. The outcome may be serious, but the process should be satisfying, motivating, encouraging, and if having a little fun in class helps, then hey, go for it.

Fear of the unknown. We still see this. Not so badly now, but it still is there. It's new, it is so weird still for many folk, it is so outside of peoples experience and very outside of peoples comfort zones ... therefore we still get the (natural, human) negative attitudes. But most folk are now willing to at least look and be a little more open to the idea.

Patience. Yes, we've had this stuff a few years now, but think back to how long it took us to get good embedded uses of the online environment. 10 years? More? How long have we had Web 2.0 tools, and how embedded are they?

This technology has appeared very suddenly (comparatively), and many seem to think we should by now know exactly what we can do with Virtual Worlds and we should stop wasting time exploring and experimenting. Rubbish – we have barely scratched the surface. These are evolving, developing technologies that are in their infancy.

This is why they are still exciting...but don't get me started on a rant. :-)"

Andrew Marunchak<sup>219</sup> has his own take on whether gamers find virtual worlds easier or harder to use than other people:

"The students who are familiar with the medium, by way of gaming, flourish in this sort of environment. For everyone else, there will always be a learning curve associated with introducing someone to a concept they are alien too.

As a 'new' and, perhaps, confusing medium, online virtual worlds still lack the standardization we have come to appreciate from games fortunate enough to fit into something resembling a defining category. As an example, first person shooters share a common keyboard layout yet the complications involved with different iterations of the same title appearing on different systems, with their respective interface devices, brings to light the same old problem; that we have not yet found an ideal means through which to interact with the 3D environment."

On the biology course at the University of Liverpool<sup>220</sup>, some of last year's identified barriers have been remedied:

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<sup>219</sup> Andrew Marunchak, Virtual Campus and Real-Time 3D Lead Developer, University of Hertfordshire.

<sup>220</sup> Dr Peter Miller, Lecturer, School of Biological Sciences, University of Liverpool.

"This years biology course is quite different from last year. Although it is too soon to evaluate fully, I identified a number of issues last year that needed fixing:

- Session length: this is sub-optimal but could not be altered.
- Team-working: as the students are face-2-face, this is a little contrived as an exercise in Second Life; doubtless more interaction takes place in Real Life.
- Sub-goals: there were sub-goals this year but not everyone achieved them.
- Support: yet again, it was just myself but this time I was (a) more relaxed generally, (b) happy to be in the teaching centre helping the students rather than inworld. We did, however, adopt a standard venue for meeting inworld at the centre of the island so everyone knew where to go at the start of the class.
- Testing last minute changes for details such as permissions and disseminating them: this continued to be an issue.
- Appearance editing: giving up some time early on to appearance editing seemed to reduce its perceived negative impact subsequently.
- Navigation: this was simplified as we worked on the ground level rather than a sky platform.

Although the series is only just concluding, I think progress has been made, albeit that significant issues remain and it is clearly not a mature sub-course as yet."

The attitude of peers is an issue for many academic users of virtual worlds, such as those at Cornwall College<sup>221</sup>:

"Spreading the word' is still proving to be difficult. Despite a flurry of interest at the college's annual ILT Fair held in July (with four Second Life introductory workshops being full to capacity) teaching staff with packed schedules and low confidence in their personal ICT abilities feel that they don't have the time or ability to engage with Second Life – and many fear they don't have the imagination to use it effectively or dynamically.

Reasons cited commonly include the lack of time because of workload pressures, the perceived (or real) steep learning curve that is attached to learning to navigate in a virtual world, age (it being seen as something for 'young people' despite the suggested average age of a typical Second Life user as being 36) and it just being 'weird'. Typically, this 'weirdness' boils down to a group assumption that Second Life is a glorified orgy of virtual sex, drugs and rock 'n' roll, though in recent months this world view hasn't been as vehemently stated as, say, this time last year. A sign that attitudes are changing, perhaps?"

At Sunderland University<sup>222</sup>, technical considerations are still a problem for Second Life use:

"My IT technicians are not hopeful that the old-ish computers in my building are up to specification (graphics card wise) – but they will be replaced sometime."

Funding is a perpetual issue, especially for institutions such as Lancaster University<sup>223</sup> where most virtual world work has been voluntary:

"Funding is, of course, a big issue. We have not had any funded projects university-wide and our use of Second Life has been primarily driven by individual interest. Several of us have

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<sup>221</sup> Bex Ferriday, Lead Teacher, School of Education and Training, Cornwall College.

<sup>222</sup> Dr Anne Cunningham, Senior Lecturer, Biomedical Science, University of Sunderland.

<sup>223</sup> Michele Ryan, LUSLUG (Lancaster University Second Life Users Group).

been part of larger projects involving other universities, FEs, regional research groups, and EU funded projects.

We have made a concerted effort to battle the fragmentation by keeping in touch with one another, hosting seminars, and even had an Second Life activities newsletter for awhile. We have a lot of interested parties that we try to accommodate. I'm sure we could do even more if we had more financial support.

That being said, this year the university agreed to pay our island fees centrally. Previously we took turns paying them from whoever could find the money at the time the bill was due. So we are very excited about that."