

JISC DEVELOPMENT PROGRAMMES

WP6 Game Application

This document provides the report detailing the user testing and evaluation for use of Second Life in the MyPlan project, Workpackage 6.

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Document

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1.0: Background to the report

The MyPlan system is a sophisticated personalised tool for supporting learners making educational choices and career decisions. This work includes an exploratory study to find out whether games and virtual world applications can be used to engage and motivate students, and provide support for their choices.

In **D6.1** we reviewed different games applications that can be used to support lifelong learners and identified Second Life as a suitable environment for conducting exploratory user studies as part of the MyPlan project. This report presents the main findings of this study. It outlines the results from the Learning Day session held at two sites in London on 9th May 2008, a summary of the evaluation findings of the efficacy of using Second Life for supporting learners with career choices and educational decisions, and some suggested guidelines for tutors using Second Life to inform career support with their learners.

In Section 2 of this report we explain how the session was structured and summarise our preliminary results. Section 3 reports on our findings while Section 4 discusses key issues identified. Section 5 presents a list of guidelines for tutors using Second Life that emerged from this study, and Section 6 highlights our conclusions. The appendices of this report include: supporting materials including: study invite (**A**), study details (**B**), informed consent form (**C**), images from the study (**D**), survey questions and responses (**E-F**).

2.0: MyPlan: Results for Learning Day session

The evaluation adopted an inductive methodology which requires researchers to construct theories and explanations based upon observations conducted using educational research approaches, including survey data and observations (Gill & Johnson, 1997). A similar approach has been adopted in the larger Serious Games – Engaging Training Solutions project co-funded by the Technology Strategy Board, Vega Group Ltd and TruSim (a division of Blitz Games), based upon measuring the efficacy of game-based learning. The methodology was selected to address some of the wider issues of efficacy and to highlight some of the main issues arising from this form of learning and support.

The Learning Day sessions were devised to produce structured activities functioning as focus group activities to highlight main issues arising from this mode of learning and to aid with producing guidelines for tutors using the tools.

The survey tool was developed to support the evaluation and surveys were completed by users before and after the learning sessions. The analysis of the survey data is undertaken below. The sessions were video-taped and the in-world sessions were also recorded.

2.1: The Learning Day sessions

The sessions were held in two computer labs at host institutions Birkbeck College (BBK) and Hackney Community College (HCC), and in Second Life. Student groups from both institutions were selected for the study. The students from Birkbeck College IT Applications programme were mature part-time students all over 18 years of age, they were self-motivated learners. The students from Hackney Community College were aged between 18-24 years and were studying for BTEC courses. The two groups offered a good counterpoint for the study, allowing the researchers to test a range of different responses to the learning activities under exploration.

Although the intention was that each learner had access to the Internet, some students' sessions at HCC were shared since not enough computers were available. User groups consisted of seven students at BBK and fourteen at HCC. A tutor with experience of Second Life guided the sessions which lasted between 2-3 hours. Although factors outside our control altered the sessions (see below), they aimed to take the following structure:

Session segment	Session description	Learning objective	Duration
Introduction to the session	Tutor will introduce the session, explain the timetable and answer any questions from the learners. Students will sign consent forms.	To induct the students into the main purpose of the session: To support MyPlan activities, to reflect upon career and educational choices, to provide support for learners using virtual world applications	20 mins
Introduction to Second Life	Tutor will take the students through the induction into Second Life: create avatar, go through induction session in Second Life	To teach the students how to use the system and to help them to adapt to the system.	30 mins
Learning Day sessions (blended approach with face-to-face and virtual sessions)	Tutor and learners will visit UCAS island first. Each learner will have a session with a UCAS advisor in Second Life. The second stop will be at the Serious Games Institute in Second Life. Here there will be a e-lecture from an IT professional with slides discussing the merits of an IT career. There will also be a short session with David Burden an expert in Second Life who will discuss the merits of using SL. Then the group will go to the IBM island / other appropriate location where they will walk around the virtual space.	To allow the learners to experience a virtual world application. To allow then to experience one-to-one career support session, e-mentoring with IT professionals and reflection upon their own pathway.	UCAS island: 30 mins SGI island: 30 mins IBM island: 30 mins
Debrief session	Tutor will then debrief the group, including a discussion about the experience and completion of survey.	To reflect upon the session and capture feedback from the learners. Sessions to be videoed, and feedback to be captured on flipcharts	30 mins

There were two sessions. Session 1 at HCC (13-16 hrs, 9th May 2008) was the most problematic since there were two factors outside our control:

- Firstly, fourteen students attended the session although only 11 computers were provided. Some students (who were not considered for statistical analyses) shared the sessions while the others interacted individually with the technology.

- Secondly, Linden Lab, the company in charge of running Second Life did system maintenance work that day which prevented new avatars from logging in. This caused a problem that, if logged out for some reason, those students already in Second Life could not log back in.

Session 2 at BBK (18-21 hrs, 9th May 2008) on the other hand, ran without problems in general. At the beginning and end of both sessions individual students were asked to answer an online survey (see **Appendices E and F**)

2.2: Preliminary results, pre-activity survey

A total of 18 students answered the pre-activity survey, 7 (38.89%) were BBK students and 11 (61.11%) were from HCC. The average for self-rated ICT skills (using a scale from 1-5, where 1=not very good and 5=excellent) was 3.94 where BBK students' skill was rated as 3.57 and HCC students' skill was 4.18.

66.67% of students do play video games (28.57% from BBK and 90.91% from HCC) of which 70% from HCC play every day. Video games are played once a week by 50% of BBK students and 10% of HCC students. 2 to 5 times a week by 20% of HCC students and once a month by 50% of BBK students who play video games.

The students who play video games answered that online games were the most popular (40% from HCC and 100% from BBK), followed by PC (30% from HCC) and console (30% from HCC and 50% from BBK). Other forms of video games that are played are mobile games by 20% of HCC students and virtual games by 10% of students.

Only 22.22% of the sample had used virtual worlds before. Broken down by school 28.57% of BBK students and 18.18% of HCC students had used this type of applications before. All of the students who had used virtual worlds had chosen Second Life and none had used a different platform such as Olive. All of the students had used Second Life only once. When asked whether they enjoyed the experience two students answered:

- 'Don't remember, just looking around'
- 'Had a brief look around. I enjoyed the experience.'

2.3: Preliminary results, post-activity survey

A total of 16 students answered the post-activity survey, 2 students from HCC left after the session without having completed the survey. All 7 students from BBK and 9 from HCC completed this survey. When asked how much they had enjoyed the Second Life session (using a scale from 1-5, where 1=didn't enjoy the session and 5=really enjoyed the session), BBK students averaged 3.14 while HCC students 3.22.

The survey asked students about enjoying different aspects of sessions using the same scale as before:

1. The face-to-face sessions, BBK students averaged 3 while HCC students 2.5

2. Using the SL application, BBK students averaged 3.14 while HCC students 2.66
3. Creating avatars, BBK averaged 2.2 while HCC 3.14
4. Moving in the virtual space, BBK averaged 2.42 and HCC 2.75
5. The visit to UCAS island, BBK students averaged 2.83 and HCC 3.125
6. The SGI presentations, BBK students averaged 3 and HCC 3.125
7. The visit to IBM's island, BBK students averaged 2.85 while HCC 3
8. Meeting the experts, BBK students averaged 3.14 and HCC 2.87
9. Reacting with your fellow learners in-world, BBK students averaged 3.5, HCC 3.14

43.75% of the sample (42.88% from BBK and 44.44% from HCC) would recommend the use of Second Life to their friends. When asked whether Second Life sessions helped them to reflect upon your educational choices and career decisions only 12.5% of the sample answered positively (14.29% from BBK and 11.11% from HCC). However, when asked whether they would like to use Second Life or another virtual world as part of an educational environment for international collaboration with students globally the majority of the sample 81.25% answered affirmatively (100% from BBK and 66.67% from HCC).

Final comments include:

- 'Movement was a bit sluggish, but I suppose that's more to do with the internet connection I think.'
- 'it is fascinating to create such a virtual world - all those possibilities. i have not yet understood how actual business works there though'
- 'I am afraid that I cannot relate to the virtual world'
- 'I think anyone new to SL would need someone to show them how to use it, as it is not intuitive to non computer games players.'
- 'the overall game was good but i found it a waste of time'
- 'can improve on graphics'
- 'The gestures and interaction was enjoyable.'
- 'I work with drama/theatre and people with a disability - acquired brain injury - who are on a programme getting them back to work. I think there are some really interesting possibilities in helping to develop confidence among such clients interacting virtually before or as an adjunct to 'real' life social interaction and skills development.'
- 'My worry is that it would exclude people who weren't technologically

sophisticated.’

- ‘If the graphics are clear and there is proper signposting.’
- ‘brings all people from every aspects of the world together and learn about each other’

When asked what would they do to improve the experience, they answered:

- ‘A better internet connection would have allowed us to have a "fuller" experience. I think that would have made it better’
- ‘Participants should be allowed more time to explore the SL environment and practise to move around and personalise their avatars [sic]’
- ‘quicker connection. clearer instructions how to move around’
- ‘We couldn't use voice on this trial, but I'm sure this would help quite a bit.’
- ‘Easier navigation of my avatar through the virtual world.’
- ‘make it so it dont [sic] glitch as much and add a few more features to the island’
- ‘Better information signposting and more use of the islands' environments and better text as graphics in general were OK’
- ‘as i said earlier the gestures should be based on the station[sic] at hand’
- ‘Clearer direction or signposting towards the educational and career information.’
- ‘Improving the cameras and movement.’
- ‘Less glitches when moving.’

When asked to complement the things they had enjoyed some of them answered:

- ‘It would be really useful to be able to drag-and-drop your avatar’
- ‘it was interesting to see what all the fuss is about.’
- ‘This technology has huge educational benefits, but there is clearly quite a lot of work to be done in ensuring that the resource is reliable, accessible and easily usable by the full range of learners.’
- ‘I can't relate to a virtual world and imaginary people; it makes me restless and want to be with real people.’
- ‘It was supposed [sic] to be an educational experience. I did not find

signposting or direction to these.’

- ‘Although I found the scenery [sic] eye-catching, I feel this virtual world is underused as a learning tool and the mini-games are just a passing attraction. I also felt the movement was a little blocky. In sort [sic], this application does have promise but requires more thought being put into it.’

When asked to complement the things they had least enjoyed some of them answered:

- ‘Speed on hardware / connection’
- ‘Was not very responsive, due to slow network connection’
- ‘i think the connection was too slow. it was painfull [sic] to navigate and fall down the cliffs’
- ‘I found moving about difficult and off-putting (but it may be better on a faster pc).’
- ‘I did not like the islands in general because I could not see how they serve other purpose rather than looking nice’
- ‘it was very good and interactive [sic] very funning [sic] but i think gestures should be based on the station [sic] of the player’
- ‘I disliked the UCAS island because I could not see the learning potential of it.’

3.0: Findings from the observations and chat logs

We video recorded the sessions, and used this material to assess how users were reacting to the virtual world and to their fellow participants and tutors. We also logged the text chat logs from the session of the BBK students during the session with David Burden, who was an in-world guide and expert on Second Life, and summarise the findings here. Chat logs are the recording of the live text-chat that participants typed.

3.1: Observations using video footage from HCC

The following table includes qualitative analyses based on video recordings taken on the day for HCC.

Issues	Description
Gender differences	The students are quite engaged with it throughout the exercise, but the group included more males than females. At some point all the females gave their computers to the males and they started observing what their classmates were doing. The males who were interacting were also interacting in the real world, exchanging tips on how to do things and looking for help when they were stuck. Because of their body language (positions while sitting down) it is easy to see they are enjoying the experience. When the male students became familiar with how to alter their avatars, they started competing to tailor their avatar to their own taste and compared the results with the others, both in-world using the

	avatar and in the real life chatting among them.
Career progression and mentoring in-world	At some point the instructor asked the students to go to the UCAS island at which point the students stopped competing and only talked to each other to ask for help on how to operate their avatars.
Independent exploration	After a while in the islands, the students discovered more options (fly for example) and started having fun. However, two students were not joining their classmates but it seems that they were exploring the island (they shared an avatar) themselves. The same two students were observed from this point on. They were really engaged in their own activity and it is possible to hear the other students' voices discussing and enjoying the interaction whereas these two students were quieter.
Visit to IBM islands	The students were directed to the IBM business centre but they seem to be able to find it relatively easily.
Collaborative learning	Because these two students were sharing the avatar, it is interesting to see how they are collaborating to achieve different tasks. One of them is controlling the mouse and keyboard, but following the suggestions of his classmate.

3.2: Chat logs

The question and answer session between BBK students and David Burden, a virtual world consultant who helped with the experiment, is reproduced here:

Person live texting	Transcript
David Burden	'what we've seen instead over the last year or so is increasing interest in how sl can be used within organisations'
Student A	'have any organisations reported significant benefits from a sl presence?'
David Burden	'for instance Diageo, the people who own lots of drink brands, have set up a presence here which is totally private they use it to hold international meetings instead of flying people across the globe it saves money, time and co2 - so yes real benefits'
Student B	'what about educational use'
David Burden	'in terms of education there is a lot of work going on - many uk universities have sl presences and projects, we're working with about 5 of them at the moment each is taking things a different way, its early days and people are still trying to find what works and what doesn't' 'apart from using things like skype, video conferencing still hasnt really taken off in business, its still expensive and hard to set up good question, also people down like looking down a camera, it puts them on edge, and theres no sense of being at the same meetings then sharing documents, 3d models and powerpoint is an extra level of complexity some virtual worlds like Qwaq have been set up purely to support virtual meetings'
Student B	'will it undermine personal relationship'
David Burden	'it's hard enough to get people to stop emailing and start speaking where i work they let you use your own photo as the avatar face, and are working on streaming web cam video onto your avatar face too, we find that sl is more about social interaction rather than pure transactions or information exchanges... most of the people i know are finding that sl and web 2.0

	technologies are enriching our social contacts, not reducing them. virtual worlds will never reduce face to face, but they enable us to meet and talk and develop relationships with people that it would be impractical to physically meet, but with whom we may have far more in common than many of those around us'
Student C	'have any studies been done with disabled users of second life'
David Burden	'there's quite a lot of anecdotal evidence around disability. one of the guys who works with paul and i has cerebral palsy, but he runs a night club in sl and finds it incredibly liberating but he still goes around in a wheelchair in sl, in fact more than in rl. but i know other people with cp in sl who don't "show" their disability in sl at all that's fascinating. we think there are some real opportunities to get disabled people more involved in many aspects of life through places such as sl'
Student C	'if we wanted to a virtual open evening (for my university) how could we ensure that all our prospective students could take part'
David Burden	'if you wanted to run a virtual open evening them you need to have 3 main things. a place in sl for the people to go to with your own people there to meet and talk to them. i guess minimum speed on computers would be a good thing too ;-) and that marketing needs to be on 3 levels, within the virtual world to the media that covers the virtual world, and then to the real world media'
Student C	'v interesting please go on..'
David Burden	'and finally you need to try and make the process of registering onto sl and then getting into sl and to your location and painless and easy as possible good written guides, video on the web, useful links'

4.0: Discussion of evaluation findings

The study threw up many of the findings emerging from a range of studies evaluating Second Life, in particular issues around accessibility including the quality of broadband connectivity and usability including the user interface design were highlighted in the users' comments. It is undeniable that using Second Life behind the institutional firewalls is a difficult and imprecise undertaking, and negative first impressions can be off putting to the extent that some will not return. Linden Lab estimate that half of all users never return after their first hour in Second Life (Lorica et al., 2008). However for those that do there are interesting applications that can be investigated (de Freitas, 2006, de Freitas, 2008). See **Appendix D** for images from the study. A summary of the key issues arising from the study are presented here in tabulated format:

Issue	Consideration of the issue in relation to this study
ICT skills	HCC students self-rated their ICT skills considerably higher than BBK students, this may be attributed to the difference in age groups, HCC students were all college students between 18-24 whereas BBK were mature students.
Previous game experience	It seems the most popular choice of video game are online games (100% gamers at BBK and 40% from HCC), but other forms of gaming such as consoles and PC-based games are also popular. HCC students are heavy gamers but only a few (18.18%) had seen or experienced a virtual world, this is partly attributable to the comparatively higher numbers of users using multiplayer online game when compared to virtual worlds. While multiplayer

	<p>games may have educational potential in the future, however, virtual worlds are generally regarded as having greater educational potential currently due to their more open-ended nature. The convergence between games technologies and educational uses is occurring in the shape of serious games and simulations, but as this study has shown there is still a learning curve to overcome when using virtual world applications to support learning. Game experience may in fact have a negative impact upon learning with virtual world applications, as game-players are used to much higher levels of fidelity and interactivity than are presently available in virtual worlds such as Second Life.</p>
Avatar use	<p>In contrast with other studies, the least liked aspects of the interaction in Second Life were creating avatars and moving in world. This was certainly due to extremely slow connections as a result of maintenance work that day at HCC and due to multiple users on the network at BBK both of which caused slow download times. In general the research indicates that control over avatars can be a critical aspect of allowing users to become engaged and motivated through empowerment of controlling their own representation in-world. Although work by Diane Carr for example has indicated that for some learners this can be off putting and produce a ‘pain barrier’ to be overcome¹. From our study it was clear that the college students felt more familiar with the process of avatar creation and that this held their attention.</p>
Supporting educational choices and career decisions	<p>The research team found real challenges with assessing the efficacy of the tool for supporting educational choices and career decisions, in terms of the structuring of exercises, providing the best support for the students and in terms of technical issues. While the students were clearly engaged and motivated with the tool, more work is needed to better structure the activities and greater support in advance of testing is required. More rigorous frameworks and metrics would also be useful for supporting future efficacy studies. The research team would like to undertake further studies towards that end. Reflecting these difficulties, only a handful of students (12.5% of students) said Second Life helped them to reflect upon their educational choices and career decisions. This indicates that the platform is one that in the structured format used with users would not be appropriate for mentoring students. In particular the technical issues such as accessibility and usability were too jarring for the students, and got in the way of them appreciating the value of the form. Problems with Second Life were connection speed, difficulty to move around, orientation, lack of signposts, and not using voice as in a classroom setting impeded the study. The HCC did visit the UCAS island, but needed more support with their interactions with the information there. They also thought more signposting on the island would be helpful. They enjoyed visiting the IBM island but also needed more support and guidance in-world. Due to technical issues this was not provided.</p>
International	<p>On the other hand, 81.25% of students saw Second Life as part of an</p>

¹ Carr, D. (2008) ‘Learning to Teach in Second Life’, report for Learning from Online Worlds; Teaching in Second Life. Institute of Education/Eduserv Foundation, April 2008. Last accessed online 13th October 2008 at: <http://learningfromsocialworlds.wordpress.com/learning-to-teach-in-second-life/>.

collaboration	educational environment for international collaboration with students globally. This indicates that there are other aspects of Second Life that may be used in the future for supporting MyPlan and other learning activities designed for students.
Social dimension	The social dimension of Second Life is undeniably a powerful component of the format, and when the technology becomes more stable, and broadband can be guaranteed within institutions then it could be used for role play, mentoring and for social skills acquisition. Other academic institutions in the UK are finding positive outcomes from studies using Second Life (e.g. Kirriemuir, 2008).
Accessibility	The issues of accessibility were highlighted by the users, one argued that users needed to have a good understanding of technology to gain the most from Second Life. While the entry requirements for accessing Second Life are relatively low, to maximise your enjoyment good connectivity speeds are essential. At present most institutions do have issues with firewalls and broadband to compete with and these can be prohibitive.
Usability	There were usability issues with Second Life and other virtual worlds beyond the connectivity issues highlighted by the participants of the study. In this study the connectivity impeded full usability of the system, beyond this users would need to familiarise themselves with the software in advance of holding sessions to get used to the interface.
Virtual worlds for supporting learning	In summary the use of Second Life for supporting learning needs is problematic while accessibility and usability issues remain. The use of the system for supporting mentoring has not been fully proven, although using the system as a social component to the system or for creating links with global groups of students needs to be more fully explored in later studies supporting the system.

4.1: Relation to other studies

Other studies with Second Life have demonstrated similar findings to this study. In particular the study undertaken by Diane Carr observing the use of Second Life with Masters students at the Institute of Education are outlined on the Learning in Social Worlds project blog² demonstrated some similarities, such as problems with using text chat, disorientation and ambiguity, the need to spend time getting used to the interface and the complexity around structuring experiences that are useful for supporting learning. Carr summarises this:

A great deal of ‘structuring’ was going on during the sessions – the tutors’ frantically [sic] use of Instant Messenger, for instance, that was not visible to the students. Also, there were 2 or 3 tutors at each session, taking on different roles in relation to content and class management (Carr, 2008).

² For full report of the EduServe-funded Learning in Social Worlds study see: <http://learningfromsocialworlds.wordpress.com/learning-to-teach-in-second-life/>. Last retrieved online on 20th August 2008.

The study also pointed to strengths of using Second Life in terms of enhancing social interactions, useful for distance learners and adding a greater sense of presence than traditional virtual learning environments such as Blackboard, with which the use of Second Life was compared (rather than face-to-face learning). Carr's study also found that some students were unable to adapt to the use of virtual worlds.

4.2: Lessons from the study

Lessons can be learnt from this short study include the following reflections:

- 1) Future studies under evaluation need to adopt:
 - a. larger sample of students
 - b. more structured activities
 - c. better orientation for learners and tutors in advance of the study
 - d. more concerted technical support and resource needs to be applied
- 2) The inductive methodology of data collection was effective for providing information about the use of Second Life, the combination of chat logs, video footage and surveys was useful. The use of in-depth semi-structured interviews with some of the participants would have been useful.
- 3) Follow up studies to determine ongoing impact of what is learnt from engagement in virtual worlds would be useful.
- 4) A large-scale study using larger numbers of users exploring the patterns of use of modules being taught in Second Life in particular with a comparison between face-to-face learner groups and distance or online learners would be useful.

A follow-up study that examines the design, development and use of virtual worlds for tertiary education with lifelong learners would be valuable. Additional tools for using Second Life for education might be useful, for example developing scenario-editing tools in-world. These integrated tools (including the MyPlan tools) may be used to support lifelong learning communities or be used to support social interchanges within specific research and educational communities.

5.0: Preliminary guidelines for tutors using Second Life

Some guidelines and resources for tutors are already available from other studies³. The following guidelines have emerged from this study and will be developed with tutors using Second Life and other virtual world applications. We will aim to make these available for future studies and encourage feedback and inputs from practitioners.

Guideline area	Outline
Learning activity schedule	Produce a learning activity schedule with main learning outcomes identified and an analysis of in what ways Second Life could support learning objectives. Analyse the learner group and consider their ICT skills levels, game experience and learning approaches. Also, consider the pedagogic approaches needed for the subject area taught, learner group and context of learning. Use the four dimensional framework to support this process.
Technical	Assess the technical needs for each session, in particular broadband

³ For example, Gilly Salmon and colleagues at the University of Leicester have produced guidelines from the MOOSE project, see: <http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/mooseblog/moderator/master.pdf>. Last retrieved online on 20th August 2008.

requirements	connectivity and graphics capabilities of PCs used. Ensure that all SL sessions are working well in advance of the sessions, firewalls are considered and that sessions do not take place during maintenance work in Second Life. Worth doing dry runs to ensure that all users can access good connections.
Tutor training and support	Ensure that the tutors are familiar with Second Life interface and are trained to design virtual world learning activities that engage the learners and convey the learning objectives. Tutors also need extra support for running these sessions.
Orientation	Hold start-up sessions with students in advance of learning sessions to allow students to become orientated with the interface. Hold some sessions where students log in from home, allowing sufficient time for them to become used to the interface.
Structuring sessions	Develop specific learning outcomes for the sessions. Lectures, conferences and seminars held in-world seem to work well. Keep to familiar formats particularly in opening sessions. Manage expectations, provide comparisons with video conferencing and VLEs rather than face-to-face learning. Use text for beginners and develop a method whereby users ask questions when signalled to avoid confusion. Prepare your own scripts in advance to avoid wasting time during the session.
Debriefing	Ensure that learners have ample time to reflect upon the sessions, discuss the impact of learning in this way with students and support active and critical debate.
Accessibility	Second Life is being used with many people with disabilities and areas such as Brigadoon Island (de Freitas, 2006) are specifically for people with disabilities. There is a need to consider what special needs may be best supported through 3D interface and how learners could gain the most from sessions.
Evaluation	Evaluate the sessions through direct feedback loop with students, use of the four dimensional framework (de Freitas & Oliver, 2006) and evaluation methods such as Kirkpatrick (1994). See other work on evaluation (e.g. de Freitas & Jarvis, 2009).

6.0: Conclusions

To conclude, while the benefits of using Second Life are in this study outweighed by the technical issues that arose during the testing, some benefits of using Second Life for supporting under-served learners, for engaging learners and for supporting distributed groups of learners were highlighted. While with the advent of Open Sim and other virtual worlds many of the technical issues will be overcome, it is recognised that the tools are still relatively new and more work needs to be undertaken to establish their effectiveness, to produce clear guidelines and to exploit the capabilities to the highest degree.

In particular, the students were positive about using the tools for supporting international collaboration, indicating the power of the tool for supporting distributed communities based upon shared interests. While the study has not proved conclusively the power of the tool for mentoring, the sessions with the mentor were very effective in practice and in the future one-to-one sessions with mentors based abroad or not co-located could be further explored. The tool would also support peer collaboration and could be used for example for collaborative assignments in-world with practical outputs. For example, design a marketing campaign in-world. The use of such a format for supporting international students and distance learners could also be a key area for future development supplementing face-to-face learning. Also, there is real potential for supporting online learning methods by extending the benefits of audiographic conferencing to provide a greater sense of presence thereby reducing non-completion rates.

For the user groups that were tested however in this study the benefits were limited by the technical problems experienced. Although many of the students did in fact enjoy the experience, future testing sessions would be structured differently, and have more targeted learning outcomes focusing upon bringing different groups of learners together, online lectures and assignments would be included in the sessions. To overcome the issues of broadband sessions may be held after hours from students own home connections, allowing them to use voice facility and allowing for faster speeds. Next year studies may be undertaken in Open Sim to ameliorate some of the technical problems experienced with this study.

The potential of using Second Life for supporting life decisions and educational choices is clear, but thorough testing of sessions, technical support and well structured sessions are essential for providing enriched experiences. In particular, this approach would work well with distance and online learners, or as an additional support for face-to-face learners. The use of virtual worlds may also need to be considered in relation to other media support mechanisms such as videoconferencing, virtual learning environments, which may help to support the community-based and collaborative strengths of immersive environments. The study also indicated strengths for supporting particular user groups involved with career and educational choices in particular, distributed user groups.

We consider that virtual worlds such as Second Life are useful for supporting this type of activities (i.e. helping students take life decisions) by offering experiences, for example, of the type of life students can find if they follow a path, though mentoring and specially designed learning activities in-world. However this is dependent upon how in-world activities are designed and the quality of social interactions. That is they need to be not only engaging for focusing the attention of learners and decision-makers but also based upon pedagogical principles. However, this is an area of research that needs further exploration as these activities differ from typical academic ones in that they are not intended for learning but for taking decisions.

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Appendix A: Study invite for students



Leading edge researchers invite you to join us in an exciting study on **9th May 2008**. This is a fantastic opportunity to be a part of a study one of the first of its kind, gain an introduction to Second Life (a virtual world application), meet experts from the Serious Games Institute, UCAS and IBM, and possibly find opportunities for project work, work experience and graduate placements!

Please register before the 25th April to secure your place

But what are virtual worlds?

The use of virtual worlds is a really hot topic. A virtual world is a 3D environment where avatars representing individuals can explore, meet and learn in rich and interactive environments. Large companies such as IBM (who have over 70 islands in Second Life) are beginning to see the massive potential of using virtual worlds because of their engaging and motivating nature, and because they are good at supporting communities. We need people to help us, will you be a part of this exciting study?

What is the aim of the study?

We are trying to find out what the main benefits of using virtual worlds might be for students, to aid with learning, e-mentoring and building social communities. We also want to see how using virtual worlds might support the use of the JISC-funded MyPlan system. **Don't worry if you have not used virtual worlds, we will provide an introduction to using them from world leading experts - Sara de Freitas, London Knowledge Lab Visiting Research Fellow, Kevin Aires, IBM; Jude Ower, Digital 2.0, David Burden, Daden Ltd, mentors from UCAS.**

How will the MyPlan study work?

We are currently looking for students from various courses. The students will undertake a three hour session with tutors Sara and Jude in the real world, and mentors Kevin and David in-world. The session will include registering avatars in Second Life, an introduction to Second Life, visits to UCAS island for mentoring sessions, visit to IBM islands with Kevin and presentations at the Serious Games Institute in-world with David. Students will have one-to-one support and have a

chance to ask questions and to personalise their experiences. Surveys will be completed before and after the sessions. The study findings will become part of the wider MyPlan project reports. If you are interested in a specific field please let us know in advance so we can personalise your journey in the virtual world.

How can I be a part?

Please send an email to Ian Harrison ian@dcs.bbk.ac.uk if you are a Birkbeck College student, or to Monica Marshall mmarshall@tch.ac.uk if you are a Hackney Community College Student.

Please include the following information:

- Name
- Field of study
- Email address
- Contact number

Please register before the 25th April to secure your place

Appendix B: Study details

Games Study – Details

Thank you for registering to take part in our games study on **9th May 2008**.

The format of the day is:

- Fill out pre-study online survey (10 mins)
- Introduction to the session. Tutor will introduce the session, explain the timetable and answer any questions from the learners. Students will sign consent forms. Aim: To induct the students into the main purpose of the session: To support MyPlan activities, to reflect upon career and educational choices, to provide support for learners using virtual world applications (20 mins)
- Introduction to Second Life. Tutor will take the students through the induction into Second Life: create avatar, go through induction session in Second Life. Aim: To teach the students how to use the system and to help them to adapt to the system (30 mins)
- **SHORT BREAK**
- Learning Day sessions (blended approach with face-to-face and virtual sessions). Tutor and learners will visit UCAS island first (Hackney Community College). Each learner will have a session with a UCAS advisor in Second Life (Hackney Community College). The second stop will be at the Serious Games Institute in Second Life. There will also be a session with David Burden an expert in Second Life who will discuss the merits of using SL. Then the group will go to the IBM island / other appropriate location where they will walk around the virtual space (Kevin Ayres). Aim: to give learners the chance to experience Second Life for supporting educational and career choices (30 mins)
- Debrief session. Tutor will then debrief the group, including a discussion about the experience and completion of post-study online survey. Aim: To reflect upon the session and capture feedback from the learners. Sessions to be videoed, and feedback to be captured on flipcharts (30 mins)

Please contact your tutor if you have any questions regarding this study, or the main researcher Dr Sara de Freitas (s.defreitas@coventry.ac.uk).

Appendix C: Informed consent form

Information Sheet

Introduction

The JISC-funded MyPlan project is developing, deploying and evaluating new techniques and tools that allow personalised planning of lifelong learning. The project brings together stakeholders from a broad range of institutions all of whom are committed to providing lifelong learning opportunities which enhance career development and widen participation. MyPlan has three major aims:

- * To develop and evaluate user models that reflect the needs of the diverse population of lifelong learners.
- * To develop, deploy and evaluate personalised functionalities for the creation, searching and recommendation of learning pathways.
- * To evaluate the use of Second Life for supporting learners' educational and career choices.

Purpose of study

The research includes a user-based study of which these interviews will play an important role in formulating an understanding of what services and information would best support lifelong learning choices and decision-making and to inform the technical design of the portal system. For further details about the MyPlan project visit the project web site at: <http://www.lkl.ac.uk/research/myplan.html>. All outputs of the research will be made available via the project web site.

Researchers

Main researcher and contact details:

Dr. Sara de Freitas, University of Coventry. E-mail: s.defreitas@coventry.ac.uk.

Research Procedures

To obtain information to support this user-based study, we wish to work with you for three hours. The workshop will include online survey completion, an introduction to Second Life, visits to virtual places in world and a debriefing session.

Criteria of Selection

You have been considered for participation in this project because other partner members of the MyPlan project based at your college/university recommended that you would be available to participate.

How the data will be handled in the study

Information obtained from you through the survey and workshop session will be used to inform the research work of the project.

Personal data collected from this study including your name and contact details will be kept confidential. Data will be stored securely, and will only be made available to the research team of the

project, unless participants specifically provide permission in writing to do otherwise. No reference will be made in oral or written form that could link to any participant of the study.

Participation

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at anytime without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

Once you have read and understood the information enclosed here, please complete the form on the next page.

Consent form

Please read the information sheet attached before you complete this form.

Section 1: Personal details

Please complete these items.

- 1. Name _____
- 2. Age _____
- 3. College/university _____

Section 2: Consent

Please delete any statement you do not wish to agree with.

- 1 My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

- 2 I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions.

- 3 I agree to provide information to the researcher(s) on the understanding that my name will not be used without my permission (The information will be used only for this research and publications arising from this research project.)

- 4 I agree to the interview being taped.

- 5 I agree to the interview being video taped.

- 6 I confirm that I am over 16 years of age.

- 7 I understand that I have the right to ask for the audio/video tape to be turned off at any time during the interview.

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signed..... Date.....

Appendix D: Figures from the study



Figure 1: Meeting in-world in Second Life for virtual tour. Source: David Burden.



Figure 2: David Burden demonstrates his mash up application of Google in Second Life to students. Source: David Burden.


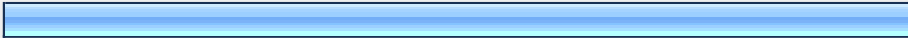
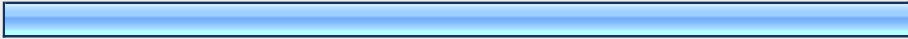


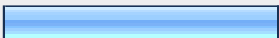
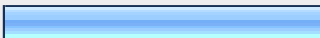
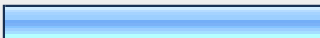
Figure 3: Photo capturing one of the avatars that an HCC student created during their first session using Second Life. Source: Sara de Freitas

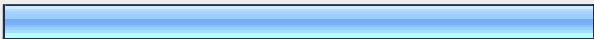
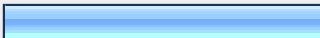


Figure 4: Photo of one of the students participating in the study in Second Life. Source: Sara de Freitas

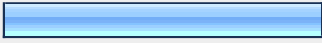


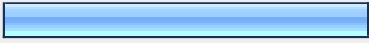

Appendix E: MyPlan Second Life Evaluation Study 1

1. About You			Response Percent	Response Count
Name:			100.0%	20
College/University:			100.0%	20
Email Address:			100.0%	20
			<i>answered question</i>	20
			<i>skipped question</i>	0

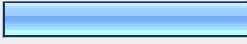
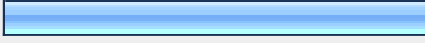
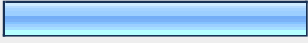
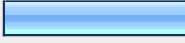
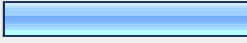
2. How would you rate your own ICT skills? (Using a scale from 1-5, where 1=not very good and 5=excellent)			Response Percent	Response Count
1			0.0%	0
2			0.0%	0
3			30.0%	6
4			35.0%	7
5			35.0%	7
			<i>answered question</i>	20
			<i>skipped question</i>	0

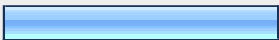

3. Do you play computer games?			Response Percent	Response Count
Yes			65.0%	13
No			35.0%	7
			<i>answered question</i>	20
			<i>skipped question</i>	0

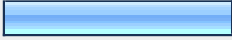
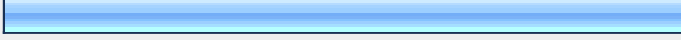
4. How often do you play computer games?

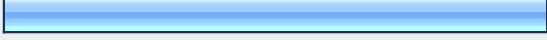
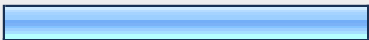
		Response Percent	Response Count
Never		35.0%	7
Once a week		10.0%	2
Once a month		5.0%	1
Every day		40.0%	8
Other (please specify)		10.0%	2
		answered question	20
		skipped question	0

5. Which games do you prefer?


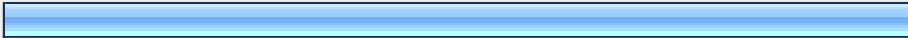
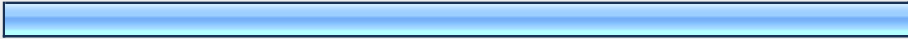
		Response Percent	Response Count
None		26.7%	4
Online games		46.7%	7
PC games		33.3%	5
Mobile games		20.0%	3
Virtual worlds		26.7%	4
		Other (please specify)	6
		answered question	15
		skipped question	5


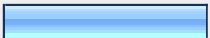

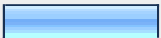

6. Have you ever used a virtual world such as Second Life or Olive before?				
			Response Percent	Response Count
Yes			30.0%	6
No			70.0%	14
			answered question	20
			skipped question	0

7. Have you ever used Second Life?				
			Response Percent	Response Count
Yes			25.0%	5
No			75.0%	15
			answered question	20
			skipped question	0

8. If yes, how often have you used Second Life?				
			Response Percent	Response Count
Once			60.0%	3
Twice or more			0.0%	0
Regularly			40.0%	2
What did you do when you used Second Life, and did you enjoy the experience?				3
			answered question	5
			skipped question	15

Appendix F: MyPlan Second Life Evaluation Study 2



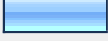
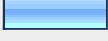

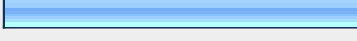
1. About You			Response Percent	Response Count
Name:			100.0%	18
College/University:			100.0%	18
Email Address:			100.0%	18
			<i>answered question</i>	18
			<i>skipped question</i>	0

2. How much did you enjoy the Second Life session? (Using a scale from 1-5, where 1=didn't enjoy the session and 5=really enjoyed the session)			Response Percent	Response Count
1			5.6%	1
2			22.2%	4
3			27.8%	5
4			16.7%	3
5			27.8%	5
			<i>answered question</i>	18
			<i>skipped question</i>	0

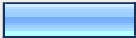

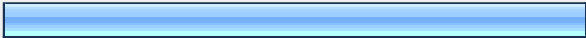


3. How would you rate the following the aspects of the session? (using a scale from 1-5 where, 1=did not enjoy and 5=really enjoyed)

	1	2	3	4	5	Response Count
The face-to-face sessions	18.8% (3)	12.5% (2)	37.5% (6)	12.5% (2)	18.8% (3)	16
Using the SL application	16.7% (3)	16.7% (3)	27.8% (5)	33.3% (6)	5.6% (1)	18
Creating avatars	21.4% (3)	7.1% (1)	42.9% (6)	21.4% (3)	7.1% (1)	14
Moving in the virtual space	23.5% (4)	5.9% (1)	52.9% (9)	17.6% (3)	0.0% (0)	17
The visit to UCAS island	12.5% (2)	6.3% (1)	50.0% (8)	25.0% (4)	6.3% (1)	16
The SGI presentations	6.3% (1)	18.8% (3)	37.5% (6)	25.0% (4)	12.5% (2)	16
The visit to IBM's island	11.8% (2)	11.8% (2)	41.2% (7)	29.4% (5)	5.9% (1)	17
Meeting the experts	17.6% (3)	5.9% (1)	41.2% (7)	17.6% (3)	17.6% (3)	17
Interacting with your fellow learners in-world	6.7% (1)	20.0% (3)	26.7% (4)	26.7% (4)	20.0% (3)	15
	<i>answered question</i>					18
	<i>skipped question</i>					0

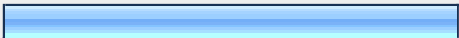

4. What did you enjoy the most from the session?

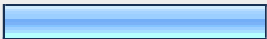

		Response Percent	Response Count
The face-to-face session		0.0%	0
Using the SL application		16.7%	3
Creating avatars		5.6%	1
Moving in the virtual space		11.1%	2
The visit to UCAS island		11.1%	2
The SGI presentations		0.0%	0
The visit to IBM's island		0.0%	0
Meeting the experts		16.7%	3
Interacting with your fellow learners in-world		38.9%	7
		Any comments	6
		answered question	18
		skipped question	0

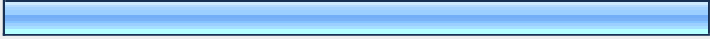
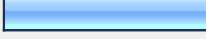
5. What did you like the least about the session?

		Response Percent	Response Count
The face-to-face session		14.3%	2
Using the SL application		7.1%	1
Creating avatars		0.0%	0
Moving in the virtual space		64.3%	9
The visit to UCAS island		7.1%	1
The SGI presentations		0.0%	0
The visit to IBM's island		7.1%	1
Meeting the experts		0.0%	0
Interacting with your fellow learners in-world		0.0%	0
		Any comments	8
		answered question	14
		skipped question	4

6. Would you recommend this to your friends?


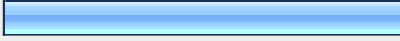
		Response Percent	Response Count
Yes		50.0%	9
No		50.0%	9
		Any general comments	4
		answered question	18
		skipped question	0

7. Did the Second Life sessions help you to reflect upon your educational choices and career decisions?			Response Percent	Response Count
Yes			28.6%	4
No			71.4%	10
			Any general comments	5
			<i>answered question</i>	14
			<i>skipped question</i>	4

8. Would you like to use Second Life or another virtual world as part of an educational environment for international collaboration with students globally?			Response Percent	Response Count
Yes			77.8%	14
No			22.2%	4
			Any other comments	5
			<i>answered question</i>	18
			<i>skipped question</i>	0

9. Do you have any general comments about your experiences in-world? If so, make them here.		
		Response Count
		8
	<i>answered question</i>	8
	<i>skipped question</i>	10

10. What do you think would improve the experience?		
		Response Count
		13
	<i>answered question</i>	13
	<i>skipped question</i>	5

11. Do you play computer games?			
		Response Percent	Response Count
Yes		56.3%	9
No		43.8%	7
		<i>answered question</i>	16
		<i>skipped question</i>	2

12. How often do you play computer games?



		Response Percent	Response Count
Never		43.8%	7
Once a week		12.5%	2
Once a month		6.3%	1
Every day		25.0%	4
Other (please specify)		12.5%	2
		answered question	16
		skipped question	2

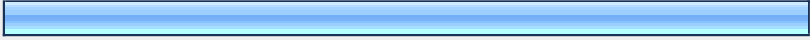
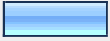
13. Which games do you prefer?

		Response Percent	Response Count
Online games		55.6%	5
PC games		66.7%	6
Mobile games		33.3%	3
Virtual worlds		11.1%	1
		Other (please specify)	4
		answered question	9
		skipped question	9

14. Have you ever used a virtual world before, such as Second Life?

		Response Percent	Response Count
Yes		40.0%	6
No		60.0%	9
		answered question	15
		skipped question	3

15. Have you ever used Second Life?			Response Percent	Response Count
Yes			42.9%	6
No			57.1%	8
			answered question	14
			skipped question	4

16. If yes, how often have you used Second Life?			Response Percent	Response Count
Once			88.9%	8
Two or more times before			11.1%	1
Regularly			0.0%	0
What did you do when you used Second Life, and did you enjoy the experience?				5
			answered question	9
			skipped question	9