JISC Final Report

Title Page

Project name/acronym: MOdelling Of Secondlife Environments (MOOSE)

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Contents

Acknowledgements 3
Executive Summary 4
Background 6
Aims and Objectives 6
Methodology 8
Implementation 9
Outputs and Results 14
Outcomes 15
Conclusions 18
Implications 18
Recommendations 20
References 21
Appendix 25
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- Project partners:
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  - Dr Paula Roush, Senior Lecturer in Digital Photography at London South Bank University
  - Dr Gillian Youngs and Dr Tracy Simmons from Media and Communication, University of Leicester
- Student participants:
  - Four students from the School of Archaeology and Ancient History at the University of Leicester
  - Six students from the Department of Arts, Media and English at London South Bank University
  - Two students from the Department of Media and Communication at the University of Leicester.
- Project steering group: Christine Fyfe, Prof. John Fothergill, Dr Richard Mobbs, Dr Steven Warburton, Mr Richard Wallis, Prof David Hawkridge
- Critical friend: Peter Chatterton
- The Open University (former partner)

The project commenced with one external partner, the Faculty of Mathematics, Computing and Technology at the Open University and two computing course teams and their staff. By early April it became apparent that the researcher involved preferred to undertake the research and development independently and in a way more appropriate for her Department than for MOOSE. The OU received compensation from project funds for time, together with expenses and the partnership ceased at that point.
Executive Summary

Aims/Objectives

MOOSE has four objectives: 1) to understand student in-world socialisation and learning in groups with special presence through avatars; 2) to design, develop and pilot learning activities in SL (SL-tivities); 3) to understand the role of facilitation and moderation in SL and to train SL-moderators, and 4) to identity institutional and disciplinary differences in the use of SL.

Overall approach

MOOSE focused on modelling the pedagogical aspects of students’ learning in groups in SL and on the facilitation required for productive learning activities to occur. The overall approach involved several developmental stages: developing the training guides for participants and moderators, training tutors and students in basic technical and moderation skills, technical development of artefacts, designing and developing learning activities in SL (SL-tivities), carrying out in-world learning sessions and researching into student engagement in SL-tivities.

Research into student engagement with SL-tivities was carried out using qualitative methods. Data were captured through interviews, chat logs and observations. Data analysis was based on a methodology called cognitive mapping to create unique ‘maps’ of individuals and groups and their changes in views, feelings and experiences over time. It was supported by the ‘Decision Explorer’ software.

Findings

The findings address the impact of presence through avatars on student socialisation, group building and engagement with learning activities in SL, highlighting the difference between presence in asynchronous text-based online discussion forums and the SL moderator’s role in supporting group learning. The findings identify differences in institutional and disciplinary contexts, and in learner profiles and how these differences impact on learner experience in SL. The artefacts developed on the Media Zoo island and as SL-tivities demonstrate how learning spaces can be designed in SL for promoting and enabling team activities and providing an engaging and enjoyable learning experience.

Achievements

MOOSE involved courses from both distance and on-campus contexts, and disseminated emerging findings and outputs from the beginning of the project, and thereby propelled research-to-practice and use activities at UoL and at institutions associated with BDRA. The tangible and transferable, research-to-practice outputs developed so far include: a pedagogical framework, ten user-exemplars, a demonstrator on SL activities, seven SL learning activities (‘SL-tivities’), an exemplar SL training course and a framework for SL-moderation, and guidelines for embedding 3-D MUVEs in institutional systems and policies. All these deliverables are available on the MOOSE website and blog at http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose

Further achievements of and contributions from MOOSE are: developing a reservoir of understanding of how SL can be used for formal learning in HE; contributing to the body of knowledge in substantive and overlapping areas of sociology, communication studies, education and learning technologies; inputting to the revised e-learning strategy at the University of Leicester and to the development of a ‘Student Media Zoo’; contributing to redesigning and delivery of three UoL departments in order to integrate SL into undergraduate and post-graduate teaching; raising awareness amongst practitioners and technologists on SL and helping their capacity development in the use of SL for teaching and learning; developing an approach to ‘spreading the word’ of SL within and between institutions; developing a low-cost, low time-intensive approach to inducting students and staff to using SL; developing an approach to carrying out empirical studies on SL (‘cognitive mapping research methodology’) and new practical technology-supported approaches to learning.
Conclusions

MOOSE has highlighted the potential of 3-D MUVEs such as Second Life (SL) from the perspective of future developments in the service of learning. It surfaced trends within the SL innovation to date including the provision of realistic settings, the exploitation of pleasant simulated environments for groups and the links with other learning technologies. It also considered the creativity sparked by SL’s potential to offer illusion in 3-D ‘space’ and points to infinite imaginative educational possibilities. It explored aspects of the construction of virtual representations of learners and teachers as avatars and revealed the wide range of intriguing issues yet to be researched. As such it has served as a powerful ‘demonstrator’ of the potential of an under-researched yet highly accessible resource for learning.
Background

MOOSE started at a time when the academic community was beginning to show a strong interest in the use of 3-D environments for education (JISC, 2007a, 2007b, Eduserv Symposium, 2007). The Horizon Report of 2007 forecast the potential of 3-D environments for teaching and learning. Developments in open source software and technical standards were considered to be supportive in bringing 3-D MUVEs ‘closer to mainstream education year by year’ (EDUCASE, 2007, p. 25). Two special issues of peer-reviewed international journals (ALT-J, Vol. 16, No. 3 and BJET, Vol. 40, No. 3) reported recent empirical studies on the use of 3-D MUVEs for learning.

Free or low-cost access and the relatively low technical abilities required for engagement make 3-D environments such as Second Life (SL) increasingly popular amongst ordinary users (Guest, 2007). Statistics from Linden Labs show that the number of registered users (residents) of SL is growing and there is increasing interest from educational institutions (Kirriemuir 2008a). Gartner Inc. (2007), known for forecasting ‘adoption cycles’, predicted that by the end of 2011, 80% of all active Internet users would have an avatar and be registered in one or more virtual worlds.

However, these environments, originally developed for gamers and recreational purposes, are little researched in terms of their educational uses. In the early stages, uses of 3-D environments by educational institutions have often been limited to creating a 3-D presence for marketing purposes and replicating in 3-D traditional versions of teaching such as tutorials and guest lectures. Innovative uses of 3-D MUVEs are now emerging amongst the academic community (e.g. White, 2008; Good, Howland and Thackray, 2008). MOOSE was aimed at identifying affordances of these environments for learning, and developing pedagogical models to use in supporting and enhancing student learning.

Research into 3-D virtual worlds identified several areas in which they are particularly beneficial for educational purposes. As social environments with a sense of presence and immediacy (Bronack et al., 2006) 3-D virtual worlds offer massive opportunities for socialisation and productive collaboration (Dickey, 2005; Jarmon & Sanchez, 2008). As predicted by Prentice (2007), “The collaborative and community-related aspects of these environments will dominate in the future…” (quoted in Gartner 2007, p. 1).

SL offers the most powerful object-creation toolset of any 3-D MUVE. This gives SL the potential for creating authentic learning experiences. One way to achieve the authenticity is to create and replicate learning locations and cultures that are no longer in existence or difficult to visit in real life (Good et al, 2008), and to allow learners to visit and immerse themselves in these places and environments. 3-D MUVE can also be used to demonstrate simulated processes, such as the formation of a mountain, building a car on an assembly line, use of an equipment or an instrument, or running a business, selling products, and providing services (Antonacci & Modaress, 2005), that are difficult or impossible to display in real life. The authenticity also makes SL a suitable place for role-playing activities (Gao, et al., 2008; Edwards, et al., 2008; Berger, 2008), especially for Medical and Health Education (Boulos, et al., 2007). Early adopters have therefore included medical schools, particularly for the provision of practice where no avatar dies at the hand of the clinical novice (Stott, 2007, Kirriemuir 2008b).

Another area where SL is valuable is in collaborative development of re-usable objects and tools (Livingstone & Kemp, 2006). Recently, several courses have encouraged the building of artefacts by the learners themselves (Good et al. 2008).

Aims and Objectives

The MOOSE project investigated the scaffolding and processes needed to enable groups of students from formal HE environments to establish their socialisation and engagement for productive information and knowledge exchange and learning through the medium of 3-D MUVEs.

Socialisation as a stage of learning in online environments has been researched in practice (Salmon 2004, Motteram 2001). Structured online activities (e-tivities) can be developed for productive engagement in text-based online environments (Salmon 2002a). The theoretical framework of MOOSE was based on Salmon’s 5-stage model (2004) (Figure 1) and ‘e-tivities’ (Salmon, 2002a), focusing on the scaffolding process required for learners’ socialisation and productive learning online. The model was originally developed for asynchronous text-based online environments. MOOSE
explored the extent to which such models and frameworks can be transferred to 3-D MUVEs where students and tutors interact with each other and the objects in the environment through the medium of their 3-D-selves (avatars).

MOOSE addressed four key research questions:

1. Understanding immersion for in-world socialisation and learning in groups

How does the presentation of personal identity through avatars help or hinder the group-building process and change the nature of interaction and participation in learning activities? How does the special nature of presence impact on socialisation and engagement? How is it different from presence in asynchronous text-based online discussion forums?

MOOSE aimed to promote fresh approaches to learning and students’ collaborative achievement. We examined how concepts such as the participants’ sense of presence/absence and productive relationships with others change in SL over time and with different SL activities (SL-tivities)

2. Designing for useful SL events

To what extent do the frameworks, models and guidelines developed and researched for use in asynchronous text-based bulletin boards, support socialisation for knowledge sharing and creative collaboration in 3-D MUVEs? How can socialisation activities in a 3-D MUVE be designed to generate sustained interest and engagement in the group work?

For comparison, MOOSE structured events in two ways. One set was based on successful models and frameworks used in other online applications or in face-to-face group work (Jacques and Salmon, 2007). The other set was developed by creative engagement with university teachers, to address the issues and opportunities for the SL participants and to develop new grounded models and frameworks for others to try.

3. Role of facilitation in SL

Is there a role for the SL facilitator (SL moderator) to support group learning? If so, what are the skills and training needed?

MOOSE studied, identified, and supported the SL-moderator’s role. It investigated whether and how the role of human/avatar intervention in groups successfully supported productive learning in a Web 2.0 (user contributory) environments such as SL, including what training and support were needed. It transferred models of practice from other online environments (Salmon, 2004), and trained and developed SL-moderators.

4. Institutional and disciplinary differences in the use of SL for group learning

What differences in the institutional contexts, disciplines, and learner profiles, have implications for the learner experiences in and outcomes from SL? What characteristics and processes of the institutions help or hinder successful group learning in 3-D MUVEs?
To achieve these objectives we designed, developed and piloted learning activities in SL (‘SL-tivities’), enabling groups of students, represented avatars, to develop socialisation and engagement for productive collaboration and knowledge construction.

MOOSE designed, developed, integrated, delivered and researched SL-tivities into three courses: an undergraduate distance learning course in Archaeological Theory (Level 2) at the University of Leicester, an undergraduate course in Digital Photography (Level 2) at the London South Bank University, and a pilot Masters level module on digital identity in Media and Communications Studies at the University of Leicester. Students’ and tutors’ use of SL-tivities were researched against the four research questions. Deliverables included frameworks, guidelines, induction and training courses, a demonstrator and commentary on institutional context.

MOOSE also assessed the institutional opportunities and barriers to the successful deployment of and enhancement of student learning through 3-D MUVEs.

**Methodology**

MOOSE’s research methodology was based on cognitive mapping to create unique ‘maps’ of individuals and groups and their changing views, feelings and experiences over time. Cognitive mapping is grounded in Kelly’s theories of personal constructs (Kelly, 1955) and supported by the ‘Decision Explorer’ software (http://www.banxia.com/demain.html). It is in use at the University of Leicester for studying changes in teaching approaches. It is richer, more accessible and useful for pedagogical and technological research than conventional questionnaires or interviews.

A key feature of cognitive mapping is its capacity to present the data in a visual and graphical way. With this visual representation, the researcher can easily go back to the interviewee, explain the map and confirm whether or not the map had captured what he or she had said.

**Recruiting participants**

MOOSE researched SL-tivities in three courses: an undergraduate distance learning course in Archaeological Theory (Level 2) at the University of Leicester, in which four students and two tutors participated; an undergraduate course in Digital Photography (Level 2) at the London South Bank University, in which six students and a tutor were involved; and a pilot Masters level module on digital identity in Media and Communications Studies at the University of Leicester where two students and two tutors took part in learning activities in SL.

Student volunteers were recruited by the tutors, who took part in a MOOSE pilot study. Each tutor sent an email to all the students on the course, explaining the purpose of this project, the students’ role and the benefits to students participating in the project. Students then registered their interest with their tutor.
In Archaeology seven students initially showed interest in this project, but due to time clashes and technical problems, only four students participated in the four SL sessions. They were all studying the course at a distance. One was based in Leicestershire. The other three were in Germany, France, and the United States. One was retired, one was a housewife, and the other two were in full-time employment. One was male, the others were female. All studied Archaeology for personal interest. Six Digital Photography students volunteered to participate in three SL sessions; all of them were full-time campus-based students. They were typical second-year university students around the age of 20. One was male, the others were female. The two students who took part from Media and Communication studies were female post-graduate students.

**Data collection**

Students’ and tutors’ engagement with learning activities and their participation in training activities were researched using qualitative methods. Data were captured in several ways. Researchers interviewed each student for 40-60 minutes. These semi-structured interviews focused on capturing their personal experience of using SL, in particular, their prior experience and views on SL, views on potential of SL for educational purposes, engagement with SL-tivities, perceptions of the presence through avatars and its impact on personal identities and group discussion, socialisation in SL, experience of learning how to use SL, and any technical difficulties they experienced. Researchers also interviewed each tutor for about an hour to capture their personal experience and views on using SL, gather background information about the course and students and to discuss rationales for integrating SL into the course.

The interviews with Archaeology students were by telephone, but those with the two Archaeology tutors were face-to-face; all were in June 2008, soon after the four in-world learning sessions. The interviews with six Digital Photography students and the tutor were face-to-face, in October 2008, soon after their in-world learning sessions.

MOOSE staff also recorded the chat logs and took down observation notes for each SL session. The chat logs were particularly useful in capturing evidence of where socialisation was occurring and what students were socialising about in SL.

**Data analysis**

Interviews were digitally recorded. Data supporting students’ prior experience of SL, their views on SL’s potential for educational purposes and their experience of learning how to use SL were transcribed and analysed using conventional qualitative methods, as these data were mainly factual and procedural. The digital recording was also analysed by using Decision Explorer to develop a cognitive map for each individual student. Data under the themes of student engagement with SL-tivities, their socialisation in SL and their perception of presence through avatars and its impact on personal identities and group discussion were developed into maps where appropriate. The Appendix contains an example of a cognitive map based on personal views of an individual student.

Both the quotes and maps were used to develop ten user exemplars (available on the MOOSE website [http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/deliverables/user-exemplars-1](http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/deliverables/user-exemplars-1) that captured students’ personal learning experiences of using SL, highlighting positive and negative aspects, and social aspects of presence through 3-D avatars.

Individual maps under certain themes were used to create merged maps, to capture a collective view under a specific topic from all participants. An example of a merged map is included in the Appendix.

**Implementation**

MOOSE focused on modelling the pedagogical aspects of students’ learning in groups in SL and the facilitation required for productive learning activities to occur. The study involved several developmental stages:

1. Developing the training guides for participants and moderators
2. Training tutors and students in basic technical skills and training tutors in moderation skills
3. Technical development – creating the simulation of the Sami tent and Kalasha village
4. Designing and developing SL-tivities
5. Carrying out in-world learning sessions
6. Researching into students’ and tutors’ engagement in SL-tivities
7. Disseminating project findings and outcomes.

**Developing SL guides**

We started with networking and skills development, in recognition of the ‘perceived wisdom’ that SL is difficult to use, by developing a clear and simple training programme. Two .pdf guides were developed: one for tutors to become SL-moderators and one for the participants who engaged in learning activities in SL. Both guides are designed based on Salmon’s five stage model (Wheeler and Salmon, 2008a, 2008b).

The guides, available at http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose utilise existing YouTube videos on how to use SL. These provide a visual guide to the core technical skills which the platform demands that avatars should master in order to have a successful learning experience. The training programme and guides cover setting-up SL accounts, creating avatars, movement in SL, beginning in-world activities, engaging in in-world events and preparing to take part in avatar group learning.

**SL Training for students and tutors**

**Training for the students**

The student training programme began in May 2008 with four volunteers from Leicester’s School of Archaeology and Ancient History, all studying at a distance from the campus. None of them had used SL before, and only one had previous experience of virtual worlds.

After distributing the training material, MOOSE organised an hour’s in-world session for them to cover basic skills. The training proved to be successful, and, with the exception of some early problems with setting up accounts, there were few technical difficulties. The students’ confidence grew by the minute as they learnt the required skills many of which could be related to abilities they already had, e.g., keyboard shortcuts and movements controlled through the mouse wheel. At the end of the session all of the students’ avatars were excited about what lay ahead when the real learning events would begin.

Communication was mainly through SL’s text-based chat, with specific support provided to individuals through the Instant Message (IM) facility. This process was manageable, though slightly time consuming. Archived transcripts of each session were particularly beneficial, as students could review the hints and practise them later. The transcripts also provided researchers with a script to work from for future training events and informed the research.

The same approach was used to train the two students from Media and Communications at the UoL. The SL training for the London South Bank University digital photography students took place in a physical laboratory during October 2008. The guides were sent to the students beforehand and the students had already created their avatars and completed Orientation Island. Having the students in the same space made training a lot easier because verbal commands could be given and because of the use of a large screen to display the skills they needed to practise.

**Training for the tutors**

MOOSE took a slightly different approach to the tutor training. Face-to-face training was provided in the physical Media Zoo at UoL to accommodate the tutors’ existing skills and time restrictions. Guides were also distributed and referred to alongside the real-time training and could be used for ongoing support and development. Tutors picked up and embedded the new SL skills easily, despite little prior experience of learning technologies. Supportive working with colleagues eased the initial anxiety and enabled the tutors to progress quickly towards becoming SL-moderators.
Technical development

MOOSE created three artefacts in SL within the University of Leicester’s Media Zoo Island in SL (http://slurl.com/secondlife/Media%20Zoo/170/150/17).

Saami Tent
The first artefact was based on a Saami Tent used to simulate the lives of Saami people who live in Northern Scandinavia. The tent structure has been a temporary dwelling for nomadic reindeer herders for the last 2500 years. Saami tents are divided into social spaces, access to which depends upon an individual’s gender and status in the group. The purpose of the SL Saami tent was to familiarise avatars with the concept of social space. For example, there are two entrances: one at the front for females, children and servants; and one at the back for the men in the group. To give the students as close to a real-life experience as possible, permissions were added to the tent based on these criteria and then assigned to the students’ avatars, thus replicating and replacing different social statuses. This added a significantly authentic value to the learning experience. Previously, teaching the use of social space by Sami people was dependent on textbooks and 2-D images.

Kalasha Village
The second SL artefact, created for the Archaeology course, uses the valleys to the north of the Media Zoo Island to replicate a Kalasha Village, another example of social space. The Kalasha are an ethnic group from the Hindu Kush Mountains in the north-west of Pakistan. The Kalasha divide space based on gender. In SL, the avatars were taken on a tour up the side of the valley, as they might on a real-life field trip. The avatars immersed themselves in cultural aspects of the Kalasha environment. Normally, teaching of the use of landscape and space by the Kalasha people is largely dependent on text-based material and 2-D images.

Virtual StoryCubes
StoryCubes as used in classrooms are a tactile thinking and storytelling tool for exploring relationships and narratives. On each face of the cube a student would write or draw an image to illustrate or describe an idea, an object or an action relating to a specific topic. When the StoryCubes are placed together it is possible to build up multiple narratives or explore the relationships between them in a three-dimensional way. When building a structure of many cubes some faces will need to remain hidden from view, therefore discussion and argument amongst the story-tellers is required to agree on the key issues, both of the topic and the story.

In SL Virtual StoryCubes are not only simple to construct but add a new dimension to the end story because they are not affected by gravity as the paper-based cubes are in the classroom. Plus, the size and flexibility of the cubes are potentially unlimited in a Virtual World enabling more complex and interactive stories to be told. Adding high quality images, in contrast to the hand-drawn illustrations in real life, is also straightforward and offers amazing end products.

Designing and developing SL-tivities

Designing and developing SL-tivities for Archaeology

Archaeology teaching involves introducing students to the landscape, religion and rituals, social structure and practices of a society or culture. Conventionally, teaching has been done through written descriptions, diagrams and 2-D images, largely relying on students’ imagination and visioning abilities. SL offers a medium through which artefacts and landscapes can be built and created easily, allowing students to see, explore, interact and role-play. This immersive experience enabled by SL can extend and reinforce what students have learned from textbooks.

The table below compares the current teaching and learning approach and the new approach enabled by SL.
The MOOSE team designed two SL-tivities associated with the Saami tent, each of which is about an hour long. In the two activities, students were first introduced to the core theories about the use of space in Social Sciences, then they were given the opportunity to navigate around the tent, see the layout and division of the space, explore where they could go and where they could not, according to gender, and interact with each other about what they found and thought.

The team designed another two SL-tivities associated with the Kalasha valley, each lasting about an hour. In the two activities, students were first given a tour of the valley and were introduced to different aspects of Kalasha culture by the tutor, then they were given the opportunity to explore different parts of the valley by themselves to experience where they could go and where they could not, according to gender, and they had the opportunity to interact with each other and discuss their experiences.

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### Designing and developing SL-tivities for Digital Photography

The six volunteers from LSBU were second-year students studying a degree-level programme in Digital Photography. They had studied a module in relation to subcultures in their first year. Previously, students learned theories about subcultures from the textbook, and carried out research by visiting local communities and interviewing people.

For a Digital Photography degree, SL presents a unique teaching and learning environment. It is one of the most photographed 3-D MUVEs with snapshots (digital images) of its residents and locations circulating abundantly online and in the media. Crucially, in addition to offering its own photographic tools, SL is a rich social space offering many possibilities for practice-based photographic art research. The tutor believes that the immersive virtual worlds such as SL offer great potential for digital media in relation to exploring technical functions and ethical issues in taking digital photos.

MOOSE designed three SL-tivities for the Digital Photography students. In the first, students were given a tour of Media Zoo Island in SL and were shown, and practised basic skills, especially how to take snapshots, and how to use cameral control and environmental settings. Students were then sent off to visit different islands in SL to take digital images in relation to subcultures. Those digital images would be used in the next SL-tivity.

In the second SL-tivity, students were taught how to create a cube, including how to change the size and texture of the cube and how to move it. Students were given more time to visit other places on SL and to take photos in relation to subcultures. Each then needed to put selected photos onto each side of his or her cube.

In the third SL-tivity, each student was given an opportunity to demonstrate his or her cube to the others and to share experiences about places they had visited, where they took the photos and why those places and photos made sense to them. Students then were asked to put their cubes together and tell a story. They needed to negotiate with each other on the shape and sequence for their cubes and to work out a storyline based on all the cubes.
Carrying out in-world learning sessions

MOOSE provided two one-hour in-world training sessions for the Archaeology students on 8 and 15 May 2008. The four in-world learning sessions for Archaeology students took place on 22 May, 2 June, 5 June and 12 June, 2008. Each session lasted about an hour.

Face-to-face training for the Digital Photography students took place on 8 October, 2008, and two in-world learning sessions took place on 15 and 22 October, 2008. Each training or learning session lasted about an hour and a half.

Researching into students’ and tutors’ engagement with SL-tivities

Students’ and tutors’ personal experience of using SL for teaching and learning and their engagement with SL-tivities were captured by semi-structured interviews, chat logs and researchers’ notes of observations at each SL session. The key findings and results were included into the ten user-examples accessible on the MOOSE website http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/deliverables/user-exemplars-1.

Project dissemination

Dissemination of MOOSE results was via a blend of face-to-face and online opportunities. The target group consisted of academics, practitioners, learning technologists and policy and decision makers in HE. However, the findings will also be of interest across educational sectors especially FE and to industry and commerce.

The Media Zoos are the focal point for dissemination and a supportive experimental environment to facilitate transfer of understandings. The Media Zoos are in a physical space, a web dissemination space (www.le.ac.uk/beyonddistance/mediazoo) and a 3-D multimedia space on SL.

Other dissemination activities were through publications, presentations, demonstrations and the project blog and wiki.

Publications to date including journal papers


- A paper in preparation with Archaeology tutors for an Archaeology teaching and research journal (an HEA journal).


- An article entitled “Exploring the past through the future: a case study of Second Life for Archaeology education”, included in Online Educa 2008 proceedings.

Presentations at conferences and seminars

- A 20-minute presentation at the ‘Learn, Teach and Play in 3D Virtual Worlds’ seminar (a JISC Emerge Benefits Realisation event) at City University, London, 18th March 2009.

- A one-hour seminar at the JISC Next Generation Technologies in Practice Conference held at Loughborough University, 10 - 11 March 2009.
• Contribution of a set of resources and sparks for discussions for a JISC Emerge Benefits Realisation discussion forum hosted by Higher Education Learning Professionals Community forum 25 Jan – 8 Feb 2009.

• “3-D Multi-User Virtual Environment for socialisation for learning at a distance” at ALT-C 2008.

• “Case studies of Second Life for Archaeology and Digital Photography” at Online Educa 2008.

• “MOdelling Of Secondlife Environments: work-in-progress” given online at JISC Emerge community meeting on 24 June 2008.

• “MOdelling Of Secondlife Environments: MOOSE”, given at an ESRC seminar at City University on 14 March 2008.

• A 20-minute audio interview about SL and MOOSE, for JISC Emerge ‘Dragons’ Den’ programme, at Online Educa Berlin on 5 Dec 2008.

• A 25-minute audio interview with Graham Atwell about MOOSE, for JISC Emerge ‘Sounds of Bazaar’ Radio show, on 22 April 2008.

• Keynotes speeches by Prof. Gilly Salmon at national and international conferences.

MOOSE demonstrations and SL training

• A demonstration at the JISC stand at Online Educa 2008

• Training in basic technical skills and moderation skills through Learning Futures Festival ’09 online activities. There were two training sessions in basic technical skills, two training sessions in moderation skills in SL, and one session about creating story cubes. 17 people in total participated in these sessions. All of them were external lecturers from other HE institutions. One of them had used SL before, the others were all new to SL.

• A short video clip for Learning Futures Festival ’09

Dissemination also occurred through the MOOSE blog and wiki http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose.

Outputs and Results

MOOSE developed a pedagogical framework, ten user-examples, a demonstrator, seven SL-tivities, an exemplar of SL training course and a framework for SL-moderating, and Guidelines for embedding 3-D MUVEs in institutional systems and policies. All these deliverables are delivered through the MOOSE website and blog http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose.

A pedagogical framework

The SL 5-stage grounded pedagogical model was developed through MOOSE research with groups in the SL 3-D environment, and is being further tested through ongoing projects and MOOSE spin-offs. As a demonstrator project, MOOSE has been able to take an initial view of Salmon’s original 5-stage model (2004), which was developed in asynchronous text-based environments, and to understand its probity and practicality in SL.

The basic scaffold holds good in the transfer to 3-D and to avatar group learning. There are five distinctive stages in the engagement: (1) access and motivation, (2) SL socialisation into the ‘culture’ and affordances of the environment and with each other, (3) information exchange and course-related activity, (4) knowledge construction and (5) personal development. MOOSE identified considerable practical activity and examples at levels 1 and 2 and the use of the special characteristics of SL added value to level 3. Furthermore there was evidence of some avatars undertaking tasks and interaction at levels 4 and 5.

Developing design guidance and training to enable deployment of the 5-stage scaffold for design and delivery of group work in SL promotes smoother and faster progression through the five stages and
MOOSE showed early evidence of how this can be achieved. Fundamental to the use of the model is the careful construction of in-world activities (SL-tivities) to promote engagement and learning appropriate to each stage.

A graphical representation of the work in progress on the model and examples of evidence can be found at [http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/deliverables/pedagogical-framework](http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/deliverables/pedagogical-framework).

**User-exemplars**

MOOSE developed ten user-exemplars (four from Archaeology and six from Digital Photography) from students' learning experiences. The user-exemplars captured students' personal experiences on SL, particularly with regard to their prior experience on SL, views on potential of SL for educational purposes, engagement with SL-tivities, perceptions of the presence through avatars and its impact on personal identities and group discussion, socialisation in SL, experience of learning how to use SL, and experienced technical difficulties. The user-exemplars were supported by both quotes and cognitive maps developed from personal interviews with the participants, highlighting positive and negative aspects of student learning and special aspects of ‘presence’ in SL.

**A demonstrator**

Three Breeze presentations, called “Moose shows”, display the artefacts developed on the Media Zoo Island and student engagement in SL-tivities. These demonstrate how learning spaces can be designed in SL for promoting and enabling team activities and group projects, and for providing an engaging and enjoyable learning experience.

**Exemplars of SL-tivities**

Seven examples of SL-tivities (four for Archaeology and three for Digital Photography) were developed together with the two course teams. The design of these SL-tivities was guided by Salmon’s 5-stage model (2004) and e-tivities (Salmon, 2002a), focusing on promoting learners’ socialisation for productive learning online.

**An exemplar SL training course**

MOOSE developed an exemplar SL training course for both students and tutors to aid their effective engagement in SL. The tutor training course includes guidelines for SL-moderating skills designed for teaching on SL. The course is being further tested through MOOSE spin-offs.

The training course consists of 1) recruiting the participants 2) participants carrying out a minimum number of individual preparatory activities supported by a user guide and resources prepared by the MOOSE trainer, 3) in-world group training on basic technical and communication skills facilitated by the MOOSE trainer, 4) in-world activities for participants to understand and appreciate the immersive nature of SL and identity of avatars (related to the learning tasks), 5) developing SL-moderation and learning design skills (for tutors only), and 6) carrying out SL-tivities (two to four, each lasting an hour). This training course was developed based on Salmon’s 5-stage model (2004) on online learning and her e-tivity framework (2002a). The course has undergone several iterations with three groups of students and four groups of tutors. A work in progress version of the training course is available at [http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/deliverables/exemplar-training-course](http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/deliverables/exemplar-training-course).

**Outcomes**

MOOSE began in early 2008 when there was an urgent need to develop our understanding of how 3-D MUVEs can be used successfully in higher education institutions for formal learning. Despite its modest funding level and scale of activities, by involving three courses from both distance and on-campus contexts, and disseminating emerging findings and outputs from the beginning, MOOSE initiated research-to-practice and use activities at UoL and institutions associated with BDRA. Tangible outputs and how the knowledge, experience and expertise were disseminated have been outlined earlier in this report.
A reservoir of understanding

Two MOOSE pilot studies, one on a DL course, the other on campus-based delivery, contributed to the reservoir of understanding of how SL can be used for formal learning in HE. Further studies that are planned with two more course teams at UoL will continue the gathering of empirically-based knowledge, practical experience and expertise on the use of 3-D MUVEs. Not only researchers, but also practising teachers and academic managers can benefit from knowledge-based research complemented by practical examples of how 3-D MUVEs can be used for teaching and learning. This reservoir of understanding will help HE and FE teachers, researchers and the HE community in general.

Contribution to the body of knowledge

MOOSE contributed to knowledge in the substantive and overlapping areas of sociology, communication studies, education and learning technologies. These include: ‘socialisation’ and ‘social presence’ in 3-D MUVEs and their role in supporting learning at a distance, ‘identity’ and ‘sub-cultures’ issues in SL, learning through role-play and simulations, new pedagogies and literacy in immersive environments. MOOSE also tested the transferability of Salmon’s five-stage model into 3-D MUVEs. Disseminated though a combination of web-based, face-to-face and print means, these outcomes are of particular benefit to the researcher community striving to advance knowledge in this area.

Critically, Professor Salmon has edited a special issue (Vol. 40, No. 3, 2009) of the British Journal of Educational Technology. It includes a ‘state of the art’ editorial, written by her with David Hawkridge, on 3-D MUVEs, her article about the future for 3-D MUVES, and articles from Dr Edirisingha, Dr Nie, and Matthew Wheeler on MOOSE, as well as a wide range of articles, colloquium contributions and book reviews, mainly from the EMERGE community.

UoL’s revised teaching and learning strategy

The knowledge generated and the practical guidelines developed through MOOSE have contributed to the revised e-learning strategy that is being drafted for the UoL. The UoL now has a better, deeper understanding of how 3-D MUVEs can be integrated into teaching and learning for both on-campus and distance learning than when the original e-learning strategy was adopted three years ago. Specific contributions from MOOSE to the e-learning strategy will be using SL to provide equivalence to distance learners, transition from university to employment, and development of a student media zoo. MOOSE generated and tested approaches that can be recommended with confidence to academic staff for trial and adoption. These approaches help senior members of staff to understand the affordances of SL for learning in HE and improving students’ learning experience.

Course design and delivery

The empirical knowledge and research-to-practice developed in MOOSE have already contributed to the redesigning of the distance delivery of two UoL postgraduate courses: Psychology and Education. The course teams are currently examining MOOSE to improve the learning experience of about 200 students distributed around the world. For example, SL may be used for induction and dissertation supervision.

At the UoL three other departments are considering ways of using SL for teaching undergraduate courses: Biological Sciences, Media and Communications and Museum Studies. Biological Sciences’ plan to use SL to improve first- and second-year students’ laboratory learning experience addresses a contemporary HE issue of supporting large number of students with limited resources. The approach to using SL being considered will also contribute to using 3-D MUVEs to examine new pedagogical models and to improving learning from laboratory work. The use of SL also opens up the possibility of making scientific knowledge and learning science available to the general public, more particularly parents of would-be HE entrants. This use of SL has the potential to address another educational issue: getting young people interested in learning science at HE level. Such work will add value to and complement the work of the HEFCE-funded GENIE CETL.

The work planned with Museum Studies and Media and Communications will, in addition to developing further approaches to using SL for learning, open up empirical work in other under-
researched areas such as ‘identity’ in 3-D MUVEs and interactive engagement with digitally-preserved learning objects.

**Awareness raising and skills development**

MOOSE contributed to raised awareness of SL amongst practitioners and technologists through a series of in-world, face-to-face and web-based activities. Events carried out in-world within the UoL Media Zoo (e.g., as part of UoL Learning Futures Festival 2009) provided opportunities for a group of international participants to gain a hands-on experience of developing objects and artefacts in SL and SL-moderation skills as well as gaining basic SL navigation and movement skills. Face-to-face events carried out (Online Educa conference 2009, Oldenburg University, ALT-C 2008, and Keynotes by Prof. Gilly Salmon, the Principal Investigator of MOOSE) raised awareness of pedagogical uses of SL. JISC Emerge organised web-based events such as CABWEB HELP Community Forum (Jan 25 – Feb 3, 2009) also contributed to raised awareness of SL for learning, and MOOSE conducted hands-on-workshops in the Media Zoo Island in SL.

**An approach to ‘spreading the word’ of SL within an institution**

MOOSE’s approach to engaging with academic staff in a research-intensive university so that they developed positive attitudes towards trialling SL for learning can be useful to other academic institutions. MOOSE started with one module, with tutors brain-storming how SL can address a pedagogical issue or improve student learning (rather than replicating what can be done in real- or physical-life). MOOSE involved academic staff in developing SL learning activities, and trained students and staff in technical and pedagogical aspects of SL (including SL-moderation skills for tutors), in carrying out learning activities in SL, capturing empirical evidence, and articulating and modelling the approach to using SL so that it is transferable and open for testing by other academics and staff. MOOSE methodology has taken into account the role of moderators in facilitating SL learning events, as well as institutional differences (on-campus and distance) and different disciplines.

This approach carried out within a modest level of funding, combined with empirical evidence, tools, frameworks and guidelines (as described under Outputs) helped the MOOSE team to achieve a multiplier effect within UoL (and the team hopes to have a domino effect in the long run!).

**An approach to inducting students and staff to use SL**

The approach developed in MOOSE for introducing and inducting students and staff to use SL safely and competently with minimum time and resource investment can be useful to other HE and FE institutions to try out. It has been tested in both distance and on-campus contexts, with learners of varying age profiles.

**An approach to carrying out empirical studies on SL – cognitive mapping research methodology**

Cognitive mapping is a robust and effective way of capturing empirical evidence; it can be applied by other projects.

**New practical technology-supported approaches to learning**

MOOSE developments were based on transferring existing frameworks of text-based online learning such as e-tivities and e-moderating into 3-D MUVE SL-tivities and SL-moderation. MOOSE’s approach to developing activities for learning in SL while profiting from affordances and opportunities of SL is transferable to any subject area or educational context.

**Developing a whole range of artefacts**

These are tangible products mentioned in the Outputs section. They can be read, viewed to improve understanding, and adopted to the readers’ own contexts.
Conclusions

MOOSE has highlighted the potential of 3-D MUVEs such as SL from the perspective of future developments in the service of learning. It surfaced trends within the SL innovation to date including the provision of realistic settings, the exploitation of pleasant simulated environments for groups and the links with other learning technologies. MOOSE also considered the creativity sparked by SL’s potential to offer an illusion of 3-D ‘space’ and points to infinite imaginative educational possibilities. It explored aspects of the construction of virtual representations of learners and teachers as avatars and revealed the wide range of intriguing issues yet to be researched. As such it has served as a powerful ‘demonstrator’ of the potential of an under-researched yet highly accessible resource for learning.

Implications

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

Three clear perspectives have emerged of the potential of SL for learning: trends and emerging issues, the power of pedagogical imagination and the potential impact of humans as avatars.

Trends and emerging issues

- Awareness among teachers of the potential of virtual worlds, especially in the teaching of history and science
- Transfer of pedagogical concepts from other e-environments to frame group development and group working
- Creation of artefacts for educational purposes, sometimes by the learners themselves
- ‘Immersion’ in cultures otherwise inaccessible
- Creation of realistic environments for practice
- Awareness of virtual worlds and interest from Internet users
- Potential for solving challenges, e.g., learning-disabled students in HE may benefit from SL (McKinsey et al 2008).

The power of pedagogical imagination

Simulations enable learners to not only see how a place looks, but also ‘feel’ what it is like being part of it. To date, simulations have been a very expensive part of educational provision. SL makes them cheap and highly accessible, and they could become a key ‘killer application’ of the future.

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

The potential impact of humans as learning avatars

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

**Implications for technology**

SL and other 3-D MUVE worlds have emerged, like many innovations, through combinations of developments coming together in a moment of time. The concept of 'virtual reality' has been discussed since the early 1980s (Schroeder, 1997). The critical technological advances, which took users from wearing devices such as 'headsets' to today's Internet-accessed 3-D MUVEs, converged in the first decade of the 21st Century. They included the huge increase in computing power, storage, broadband, digital tools, e-spaces and networked applications, the Web 2.0ish wave of desire to do it yourself and the associated drop in access costs. MOOSE built particularly on social networking and simulations.

MOOSE focused entirely on SL as the current prime example of a 3-D MUVE in higher education. It proved to be low cost and high value for learning—and barriers for entry were relatively easily overcome (Bainbridge, 2007; Carr, 2008; Jiyoon, 2008; Lucia, Francese, Passero & Tortora, 2009; Rosedale, 2007). As always, designing for learning and the training, development and support of university teachers were the key pivots for success and student satisfaction (see Edirisingha et al., 2009, in press and Edirisingha, Salmon & Nie, 2008). The MOOSE team acknowledges that many alternative platforms to SL are emerging; these will be used and explored for educational purposes in the near and more distant future (De Freitas, 2008; Kirriemuir, 2008a).

**Implications for institutions**

Experimentation with 3-D MUVEs for a wide variety of educational purposes should continue, but not yet in massive projects. First it is essential to explore deeply those educational concepts that transfer, or transfer in part, from other more familiar e-learning environments while continuing to keep an open mind about 3-D MUVE pedagogy, which is what Barnett (2007, p. 137) refers to as a 'pedagogy for uncertain times ... open, ... daring, ... risky'.

It is extremely important that academics and students have the opportunity to try out SL with some skilled SL socialisation support. In MOOSE this was critical: without it there can be a serious 'turn-off' even for those experienced in online environments (e.g. Berger, 2008).

There remains a huge challenge for institutions that have networks set up in such a way that it is difficult to ensure that SL can be available on all or even some machines. Each institution will need to find its own technical solution to this, and fast. If they do not, then the enormous educational potential of 3-D MUVEs is likely to be lost for a generation of learners and teachers.

**Implications for the research agenda**

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

- Greeting, playing, signalling group affiliation, conveying opinions or feelings, creating closeness and dealing with conflict (Taylor, 2001, p. 41)
- Creating a strong sense of presence or 'being there' with others (Blascovich, 2001; Slater & Steed, 2001)
- Importing and exporting of shared norms into and out of virtual worlds and exploring alternatives roles (Axelsson, 2001; Becker & Mark, 2001; Park, Jung & Collins, 2008)
- The possibilities and constraints for small groups of avatars learning together (Nilsson, Heldal, Schroder & Axelsson, 2001; Slater & Steed, 2001)
- Developing trust and a sense of belonging, prerequisites for successful learning in groups (Hudson-Smith, 2001; Jakobsson, 2001)
• Evaluating the impact of the nature and mode of communication used (Sallnäs, 2005)
• The illusion of 3-D space which offers infinite possibilities and quite new ways of using metaphors (Cheat, 2007)
• Virtual artefacts that can be manipulated in ways impossible in RL or used as a ‘spark to start a dialogue’ (Edirisingha et al, 2008; Salmon, 2002a)
• Tutor and student ‘satisfaction’ with learning in SL (Edirisingha et al, 2008; Waugh, 2009)
• New visual environments and tools for interaction and participation between individuals and within groups (Ditullio, 2008)

Recommendations
In this section, we provide guidelines for group work in SL and other 3-D MUVEs. Two key components are essential for successful group work: designing to promote learning in learning and training of teachers as SL-moderators to ‘deliver’ learning in groups.

Designing to promote learning

Design using a research–based ‘scaffold’
We recommend the 5 stage model for SL which can be found at [http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/deliverables/pedagogical-framework](http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/moose/deliverables/pedagogical-framework). This ensures that access and motivation in SL is dealt with first, followed by socialisation into the norms and mores of the island in use, including avatar relationships as well as movement and camera controls. The aim is to enable gradual individual competence and confidence in SL which involves:

- Individual personal technical skills development
- Establishment and comfort as an avatar
- Operating successfully with small groups of others
- Successfully ‘inhabiting’ a virtual social world.

The chief benefit of using the scaffold to design a short programme of activity and group working in SL is in knowing how avatars are likely to behave at each stage, and in avoiding common pitfalls. Scaffolding is also a way of gradually moving from directed instruction to a constructivist approach, from short-term needs to the longer term, and from immediate to more holistic learning (McNaught, 2003; Roblyer and Edwards, 2000; Salmon, 2002b).

The results should be higher participation rates and increased student satisfaction. Participants are likely to be more in control of their own learning, focused both on tasks and processes, and likely to pursue more obscure and hypothetical solutions to problems (Hopson, Simms et al, 2001-02).

Design each activity using key SL-tivity components
- A ‘spark’ to start a dialogue – this can be a specially produced artefact in SL, an interesting found object in SL, or a visit to a SL location
- An invitation for each avatar to contribute a response to the group to the ‘spark’
- An invitation and facilitation for each avatar to respond to others
- Turn taking to respond and build
- Ensuring a plenary or summary (from the designated SL-moderator) with closure and follow up plans.

Design for focussing on the purpose of the activity for the course and its integration
The purpose here is how the SL experience contributes to learning for their topic, this course, this discipline, this piece of assessed work, their learning.

Be prepared for the stages to be reached at different paces and times by all avatars
There is a key challenge in supporting those slower in finding their SL comfort and identity and not boring those who are racing ahead. Generally students (not necessarily only young students) are
faster than their university teachers, probably because the teachers have a more complicated identity and behaviour issues to establish whilst driving their avatars.

**Consider ethics**

There is a balance between encouraging individuals and groups to find their own identity and the way they represent themselves in SL, and enabling them to be anonymous and therefore 'not responsible' for their behaviour and consideration of others. It is inappropriate for students not to know which avatar is representing their teacher(s), unless a specific agreement has been reached beforehand and everyone is fully aware of it. By treating the SL environment as a university environment – like the campus or the VLE – it should be clear that normal universities rules apply on, for example, harassment and plagiarism.

**SL Moderating**

SL moderating should lead to:

- Developing a sense of community in the medium
- Developing group thinking and shared understanding around identity-bonding issues
- Respecting avatars and promoting their views
- Recognising and promoting the social interactive and socialisation aspects of the medium
- Promoting the idea of ‘immersion’, i.e., inhabiting a world, getting used to being in a social world
- Building learning and knowledge sharing relationships with other avatars
- Promoting and encouraging people to convey feelings and support.

**References**


Kirriemuir, J. (2008a) Second Life in higher education, medicine and health. Health Information in the Internet, 64, 1, 6-8. Retrieved online 31/12/08 at: http://hii.rsmjournals.com/cgi/content/abstract/64/1/6


Appendix

An example of a cognitive map developed from personal views and experiences of an individual student, under the theme “how learning has been transformed in SL”.

69 It would be a great idea to use SL as part of the study

62 It would be good to come back to SL and chat with more students

83 I will write to the other two girls that I met in SL and have more discussions

14 It’s really interesting and I really enjoyed it

82 It helps me learning

49 SL is perfect place to discuss general ideas. The mailing list isn’t

85 It helped my imagination of those places

81 To learn from their different thought and idea

7 Feel not alone from others and distant from the tutor anymore

3 To meet others who study the same thing and the tutor in SL. Sit at home and read the text, think about things on my own

84 Every important aspect have been replicated in SL

86 I couldn’t go to these places in real life
An example of a merged-map, capturing a collective view from several individual maps under the theme “the impact of presence through avatars on socialisation and interaction”.

99 People are reluctant to respond to each other in SL ... People are encouraged to respond to each other in a f2f situation
99 Not to care how the story is going
90 Not to have sufficient socialisation among students in SL ... in real life
91 Not to get to know each other well in SL ... Get to know each other well in real life
92 Not to get to know each other well in SL ...
93 Not able to adapt our attitudes talking to them
94 Not to be open to each other in SL ... Be more open when dealing with a real person
95 Not to know each other's bias are
96 Not be able to build up confidence through each other in SL ... in real life
97 Not to see the real face, hear the voice in SL
98 Not disconected with the avatars
98 Not to identify myself with my role
99 Not to identify myself with my role
100 Not a quick way to build a relationship with others in SL ... in real life
52 Feel more difficult to ask questions to the tutor in SL
53 Feel a distance with the tutor in SL ... Feel close to the tutor in real life
54 Lead to misunderstanding in SL
55 Presence through avatars in SL ...
56 Presence through avatars in SL ...
57 Not to see the real opinion
58 SL is less personal ... More personal in real life
59 Feel difficulties to make joke with the tutor
60 Feel difficulties to make joke with the tutor
61 Missing emotions and facial expressions in SL
62 SL is a natural space, there is no sympathy
63 Not to know each other's bias are
64 Everybody is polite and behave nicely in SL
65 Not to know each other's bias are