

Virtual Worlds Research Workshop

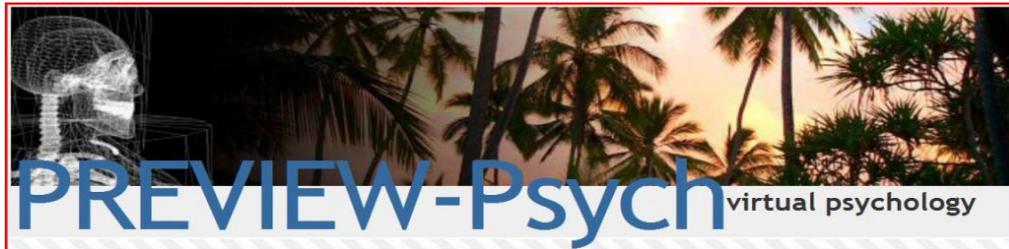
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Title: Developing Innovative Problem-based Teaching in Virtual Worlds.

Track: Virtual Worlds Toolbox



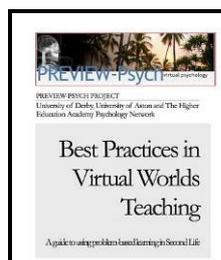
PREVIEW-Psych: A project by University of Derby, University of Aston and The Higher Education Academy Psychology Network, UK.

Virtual worlds offer the potential to carry out synchronous and asynchronous learning. As a persistent 3D learning environment the content placed 'in world' by educators remains there for students to access in their own time or to use as part of live teaching sessions. Second Life can facilitate learning in many ways. Problem-based Learning (PBL) can be a very effective teaching method in the virtual learning space. However, there are limitless options for facilitating learning within Second Life, constrained only by the imagination of the educator and their ability to realise this in the 3D space.

The Project

The project, *Problem-based Learning in Virtual Interactive Educational Worlds for Psychology* (PREVIEW-Psych) is in collaboration with the Higher Education Authority-Psychology Network and Aston University and Coventry University. The PREVIEW project, based at Coventry University, has developed innovative problem based learning (PBL) tutorials and scenarios to exploit the potential of 3D virtual worlds for the benefit of a subject-specific group of students. The aim of the project was to validate, transfer and dissemination materials and developed technology from the PREVIEW project (University of Coventry and colleagues) to the Psychology subject group and the wider stakeholder community. The team developed problem-based learning techniques and technologies for use by the Psychology subject group.

This project was designed to engage the wider sector by transferring the PREVIEW project's problem-based online learning scenarios and tutorials to the Psychology subject group. The PREVIEW-Psych team received training from the PREVIEW team and subsequently adapted and evaluated problem-based scenarios within the virtual environment suitable for both Derby and Aston University's Psychology undergraduates. Following development, piloting and evaluation of these immersive learning environments, the team hosted open events to disseminate these skills to the wider Psychology subject-based stakeholder group. In addition to the immersive online virtual problem-based learning scenarios, outputs included, an 'Upskilling' workshop, 'Best Practices in Virtual Worlds Teaching' Guide for Psychology, a mentoring scheme, several academic conference presentations and the team are currently writing-up collaborative papers for publication based on the development of the Psychology-based problem-based learning virtual scenarios.



The project utilised Second Life to develop a 3D virtual learning environment in which Psychology students learn using self-guided immersive interactive scenarios. A 3D computer reproduction of a family house

features 'intelligent avatars' that replicate the social interactions and symptoms of people with clinical conditions such as depression, schizophrenia and anorexia nervosa. Students found out more about the virtual family as they interacted with the evolving scenarios from the perspective of a visiting social worker. A sense of being there and enhanced interactivity leads to deeper understanding of the psychological content.

Resources

When used effectively, Second Life can provide an authentic learning environment comparable, and in some respects superior, to that of traditional classroom problem-based learning (PBL). However, Psychology as a subject group has not embraced this technology, partly because academics are only just becoming aware of working in this way and partly because of the relatively high-learning curve involved with starting to use virtual world PBL techniques. The team used their experience of developing and adapting the PREVIEW project's PBL scenarios to produce a guide for the Psychology subject group.

After consultation with our stakeholder group, the team included practical 'hard to access' information and useful guidelines for getting started in using problem-based learning techniques in the virtual world. The 40 page 'Best Practices in Virtual Worlds Teaching' guide was designed to smooth the transition for those wanting to use virtual world PBL in Psychology and related subjects but is also of value to educators from all subject groups and is available to download from the project website www.previewpsych.org. The guide includes an introduction to PBL in virtual worlds, the role of the tutor, and specific teaching techniques with a focus on developing the teaching space and running PBL sessions in Psychology. There is also an up to date resources section and an emphasis on the skills necessary to getting started using these techniques throughout.

The PREVIEW-Psych materials are available to copy from within Second Life and a 'Quick Start' facility has been set up to allow academics to access the most useful information about the project on the virtual development. The project website continues to receive a substantial number of visits and analysis shows these are from across the globe. Email contact enquiries and visit requests to the project leader are frequently received and the community group that was set up in Second Life continues to disseminate relevant information to the Psychology academic community by periodic group messages.

Scenarios for Psychology

Using the techniques developed in the PREVIEW PBL scenarios four Psychology-based avatar driven scenarios were created. These were based on clinical case studies from the Psychology literature and were suitable for an undergraduate Bachelors level University programme. The scenarios were designed around a variety of common mental health disorders and were closely linked to content from Psychology level one (first year) teaching modules at University of Derby and Aston University in the UK.

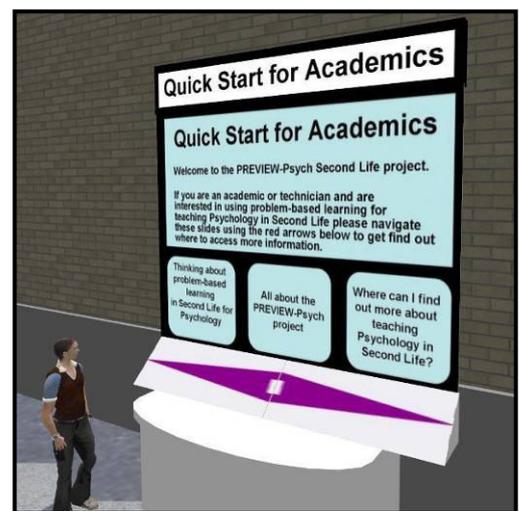
In these scenarios students collaborate on interactive problems in the virtual world. A replication of a family house features 'intelligent avatars' or chatbots that replicate the social interactions and symptoms of people with clinical disorders. Students work in teams with a member of staff to find out more about the virtual family as they interact with the evolving 3D scenarios to construct a report from the perspective of a social worker who is visiting the house.

The scenarios can be adapted to most teaching content and are grounded in skills learning from an experiential perspective. For example, instead of reading about the symptoms of mental illness students can read text, listen to audio, see 3D avatars acting out symptomatic behaviours and interactions with each other and they can also interact with the 3D characters for further information as they explore the virtual family home and find out about the characters stories. The materials can be copied from within Second Life and reused or modified by other academics.

Avatar Driven Scenarios

All of the avatar-driven scenarios were developed by the team, tested with undergraduate Psychology students and then further evaluated with colleagues that attended the 'upskilling day' and further evaluation sessions. The scenarios, instructions and materials were refined at each stage of development and the final methods represent an iterative process of 'test-evaluation-retest' to produce a user friendly learning experience for both students and staff. As with the PREVIEW project, the PREVIEW-Psych students appreciated the value of Second Life as a collaborative environment, but also viewed such avatar-driven simulations as valuable for individual work.

There were four avatar-driven scenarios. These were based around a family of four 'non-player character' avatars each with distinct personalities and clinical case histories such as Unipolar Depression, Alcoholism,



Anorexia and w. One of the concerns of the academics that tested the scenarios was the amount of time that it takes to get the sessions running smoothly. The group facilitator must be aware of each of the scenarios, the characters in relation to the scenarios and which role each of the students involved in the PBL session is allocated to. The students were most rewarded by the scenarios when group facilitation was left to a minimum but individual inductions were completed fully. In this way students were able to communicate amongst themselves when questions arose rather than relying on the group facilitator.

One aspect we found particularly challenging was the transition from 2D to 3D virtual worlds learning. Student expectations needed to be managed and a sense of continuity maintained. The University of Derby project team have been successful in securing funding to produce a web-portal and associated virtual build within Second Life. The project 'Virtual Pathways: Supporting students into the virtual campus' is to smooth the transition of Psychology students into the virtual learning taking place within Second Life. The planned web-portal will provide a set of sequenced phases in which students become accustomed to the change from 2D web-based material to the 3D interactive virtual world.

Lessons Learned

Transferring and developing new materials for problem-based learning takes considerable time and planning. Projects should ensure that teams are aware of the investment in the iterative cycle of implementation, live testing with students and subsequent fine tuning of PBL teaching techniques and avatar driven scenarios.

It was clear that lessons learned during the PREVIEW project were also applicable to our groups of Psychology undergraduates that tested the scenarios. Good group inductions and orientation sessions are essential before PBL sessions can take place effectively.



Second Life can be challenging technology and updates to the server-side and client can make progress slow if utilising Linden Scripting Language (LSL) to write or modify educational tools within Second Life.

Student Learners

Feedback from student experiences indicates that these new technique of teaching and activity-based learning methods offer a sense of presence and interactivity that leads to deeper understanding of Psychological content.

Student statements taken from feedback on the PREVIEW-Psych project:

- "We worked as a team...this seemed much more valuable than just writing an essay of having a discussion."
- "...the content was easy to access and the tasks very enjoyable."
- "I was thinking more about the real life Psychology because the avatars represented real people with real psychological problems."

Academics

The 'Upskilling Workshop' event held at University of Derby attracted over 40 academics in the field of Psychology and related subjects. The team are considering running a duplicate event in 2010-11 due to the popular demand. Feedback from the day was extremely positive with a majority of delegates intending to initiate virtual world projects of evaluate the possibility of doing so in their home institutions. Several delegates were also enrolled in a subsequent mentoring scheme and were loaned virtual 'land' to develop there own projects. The team provided technical assistance and extra training for the mentees.

Future Work

The team are currently planning a collaborative grant application to expand the focus on Psychology undergraduate teaching using problem-based learning methods across additional subject content. It is hoped that we can utilise Second Life to accommodate educational simulations of virtual clinical case studies in a more realistic way. Several possible avenues of innovation in pedagogical aspect of teaching in virtual worlds are likely to open up following publication of the projects empirical data from early 2011.