

NEW TOOLS FOR ROLE-PLAY TRAINING IN SECOND LIFE

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Abstract: This paper reports the work of an ongoing research project, 3D Virtual Classroom, a joint research initiative between the Department of Communication and Art (DeCA) of the University of Aveiro (UA) and PT Inovação (PTIn). The goal of this research project is to enrich the FORMARE online training environment (PTIn proprietary knowledge management system) providing an additional set of Multi-user Virtual environments (MUVE) tools where trainees can put in practice their recent acknowledged skills by the use of role-play techniques. This paper discusses the functionalities developed for a specific training scenario and the use of Second Life (SL) features to improve the overall's learning experience. Some technological limitations and future developing opportunities for the project are also addressed.

1 INTRODUCTION

Most of the common Learning Management Systems (LMS) based training courses are more oriented to the theoretical aspects of the training program. More practical training content and subjects, such as human behaviour related topics, may not be so well served by LMS based services. It is believed that by adding a Multi-User Virtual Environment (MUVE)¹, such as Second Life (SL), those practical training needs may be fulfilled,

namely by the use of role-play strategies and techniques.

The project 3D Virtual Classroom aims to contribute to a sustained use of virtual worlds in online training programs, maintaining a high level of educational standards.

On the first stage of the project we focused on the establishment of the theoretical principles for sustained development and use of a virtual training area in ordinary distance training courses. A set of best practice rules for the introduction of Second Life in online training programs was identified on the referred initial stage of the research. This paper will address the functionalities being developed for a specific training scenario and the use of SL features to improve the overall's learning and training experience. Some technological limitations and future developing opportunities for the project are also addressed.

¹ See <http://en.wikipedia.org/wiki/MUVE> for more information on MUVE and a list of Virtual Worlds.

2 SECOND LIFE

SL is a 3D virtual world, developed by Linden Lab², which allows users to create virtual scenarios and objects. Each user is represented by a virtual identity commonly referred to as an avatar³. SL has communication tools such as instant messaging (IM), public and voice chat that allow users to communicate with each other, an essential requirement for the establishment of social relationships which then generate a countless number of different communities around a common interest or motivation. In order to ensure the continuity of those communities, users have the ability to create groups.

2.1 Role-playing

The SL 3D engine and the functionalities available in any SL client allow residents to create conceptualized futuristic and sometimes utopian worlds, where physical laws may not be applied or, inversely, truly realistic replicas of contemporary and ancient environments⁴.

This ability to recreate real world scenarios and situations makes it possible to simulate and experience real life problems by the use of role-playing activities (Robbins, 2008).

2.2 Education and training

The widespread use of Virtual Worlds is still recent, SL became public in 2003 but only captured world wide media attention in 2006, despite this fact there

are already successful cases of use of SL in online education and training programs. The University of Aveiro and PTIn have also been involved in using SL, namely for Educational Purposes.

The 3D Virtual Classroom research project comes as natural continuation of this joint effort to contribute to the innovation and improvement of educational⁵ and training programs.

3 RESEARCH AND PLANING

The authors started by compelling a comprehensive research of existing similar role-playing training cases in SL. The systemic analysis of these cases, combined with a deep evaluation of the existing LSM training course, contributed to an accurate establishment of the project's needs and objectives. The FORMARE⁶ based online training fulfils all the theoretical training needs of the course. The educational tools available for the trainer are ideal to evaluate this kind of tutoring but it fails when it comes to the evaluation of trainees' recent acquired skills.

When a company sends its employees to a training program it expects them to learn not only the theory behind a certain task or process, but also how to perform efficiently that task. The possibility to experiment and evaluate the acknowledged skills is of utmost importance.

The role-playing capabilities of SL may be the answer for this gap on online training programs. Role-play sessions provide the chance to simulate everyday situations in a controlled environment, allowing the trainees to practice their learned skills and trainers to evaluate their performances.

² See <http://lindenlab.com/> for more information regarding Linden Lab.

³ See <http://secondlife.com/whatis/avatar.php> for information on Second Life's avatar.

⁴ See <http://sleducation.wikispaces.com/educationaluses#historical> for a list of ancient worlds replicas in SL.

⁵ See <http://sleducation.wikispaces.com/educationaluses> for a comprehensive list of SL's education and training projects.

⁶ See <http://www.formare.pt/> for more information regarding PTIn's FORMARE.

However, there are technological limitations in the SL platform that prevent a faithful replica of every given task or situation. This downfall does not diminish the relevance of role-playing sessions in Second Life because, as some reference authors state (Cain & Miller, 2008), the truly benefit of these immersive sessions is the evaluation of the students' ability to take decisions, to manage conflicts, to engage in problem solving and train reaction to stress situations (Cain & Miller, 2008).

Therefore role-playing session scripts were carefully written in order to lead trainees into those situations and with the help of a heads up display (HUD) trainers can switch those scripts during the role-play session, allowing them to continuously alter the role-playing plot, creating unexpected problems for the trainees to solve.

Another constraint to the introduction of a SL practical module on an online training program is that many of the trainees may not have ever been in contact with the application. Therefore it is the project's team intention to provide them a complete set of tools and functionalities that will lead them in a progressive familiarization with the application.

It is expected that this will be accomplished by redirecting the trainees to the FORMARE training area where they will have at their disposal a set of beginners' SL tutorials. These specially developed tutorials are focused on the interactions required to participate in the role-playing sessions.

In order to reinforce the familiarity with the tool and reduce the learning curve, trainees will have the chance to attend to virtual classes prior to the role-playing sessions, in which they will be informed of the procedures and goals of the session and experiment the tools they will have to use.

After this important initial phase the team was able to determine the structure of the ideal training building and also the set of tools required to provide the best training and user experience.

4 FORMARE TRAINING SPACE IN SECOND LIFE



Figure 1: FORMARE's SL training platform

The FORMARE's SL training space is a circular suspended platform (see figure 1). Its concentric architectural structure enables the concentration of all the training facilities in a small parcel of SL virtual land. This building structure has two major benefits: i) proximity, as all the training areas are close to each other, allowing the trainer to control multiple activities simultaneously and quickly move himself from one area to another if a trainee is in need of assistance; ii) restrict access, as one of the ways to restrict access to a particularly area within SL is to restrict access to the land parcel⁷ where the construction is build upon (Salvado et al., 2008). By choosing this circular building structure it is possible to constrain the entire structure into one square area restricting access to all training facilities.

Based on preliminary research studies the authors have decided that FORMARE's SL training space would be divided into to four different areas.

4.1 Welcome area

This is the entrance to FORMARE's virtual training facilities (see figure 2). Located in the centre of the building, this is the space where users arrive when they are teleported to the training area. Here users can find useful information concerning the ongoing training course and teleport links to other training rooms and to other PTin SL locations.

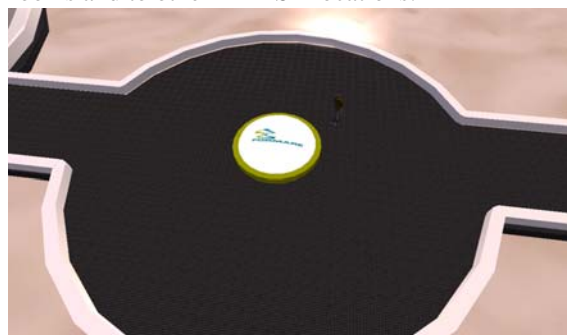


Figure 2: Teleport area.

⁷ Parcel, "A piece of virtual land; part of a region" (Weber et al., 2008, pp. 379)

4.2 Tutorials circuit

It is the catwalk ring that surrounds the central training rooms (see figure 3). In this area users with none or little experience with the SL environment have at their disposal a set of introductory tutorials, specially developed considering the training session's specific needs.

The tutorials being implemented cover the following aspects:

- avatar (movement) control;
- edit avatar's appearance;
- communication tools (chat, IM and voice);
- camera movement control;
- interaction with objects;
- drive vehicles using a heads up display (HUD).

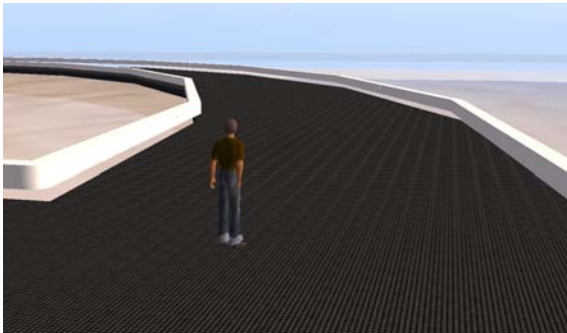


Figure 3: Tutorials area.

4.3 Meeting and conference area

This area works as an outdoor auditorium (see figure 4) with a large audience area and a stage with a floating screen display for whiteboard and video presentations. In this section of the training complex trainees can attend to inWorld classes prior to the role playing session, get familiar with the SL environment, or watch video recordings of their role-play sessions.

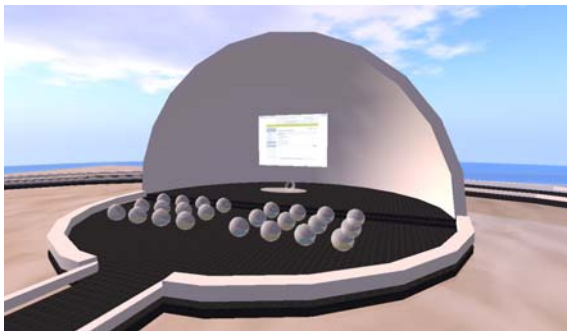


Figure 4: Meeting/conference area

4.4 Role-playing room

This room (see figure 5) was designed to be functional and modular, enabling configurations of different role-play sessions. If a smaller room is required, fake prefab walls are at the trainer disposal on his SL client inventory and he can resize the room to fulfil the role-play session requirements. Another functionality of this room is the ability to change the dome's transparency according to the session needs or even completely remove the dome for an outdoor activity.

The role-playing room has a 40 meters diameter. One of the reasons for its large size is to reduce camera control constraints. Each role-playing session will be recorded with the use of machinima⁸ techniques to allow future peer viewing by trainers and trainees, so reducing camera constraints comes of great importance.

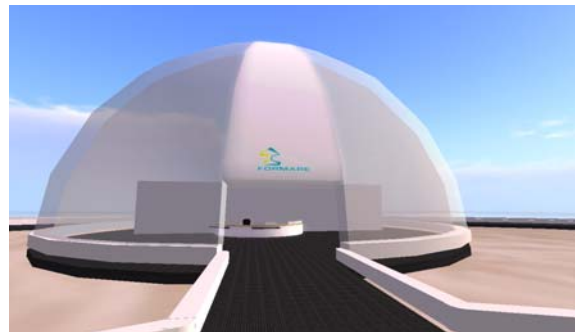


Figure 5: role-playing room

⁸ See <http://www.machinima.org/machinima-faq.html> for a definition on machinima.

4.5 Building the training platform

In the ongoing development of FORMARE's virtual training platform several issues are being taken in concern to offer the best user experience possible.

SL's land parcels support a limited number of primitives (prims⁹), therefore, to guarantee future developments of the project, the use of as few prims as possible is recommended (Weber, 2008). Another advantage of saving on prims is that by doing so the visitors get shorter render times enabling better interface flow (Weber, 2008).

Megaprim¹⁰ are being used in the building process to reduce the number of prims in the parcel. When it comes to building small real world object replicas, like a computer keyboard, textures are being developed in third party applications and uploaded to SL. This way it is not needed to use several tiny prims to create a perfect replica.

5 HEADS UP DISPLAY

A Heads Up Display (HUD) is a control console, only visible to the user who is using it, which allows users to interact with the SL environment. HUDs are common in SL since its debut (Second Life, 2008). They are often used to control vehicle movements, playing special gestures or managing inWorld whiteboard presentations (Second Life, 2008), but now they are being used for different purposes, one of which is of the utmost importance for this research project.

Professor John Miller from Tahoma Nursing College, Tahoma, USA, started using a HUD to control the role-playing simulation variables on his NESIM project¹¹, an inWorld training course for

registered nurses. In this project, both trainer and trainee have their own HUDs. The trainer can use his HUD to change the difficulty level of the task or create new and unexpected problems for the trainee to solve. The trainee uses his to solve the several tasks unleashed throughout the simulation (Miller, 2008).

After being brought to attention to the benefits of using a HUD in role-playing scenarios, it was decided to conceptualize a HUD that would give the trainer full control over the role-play session. As in the NESIM project, the trainee also has his own HUD, which allows him to interact with the surrounding environment and play his role in the simulation.

5.1 Trainer HUD

The trainer HUD (see figure 6) has two important areas: i) simulation, in this section the trainer can set the different variables of training simulation, or even change those variables during the session to create unexpected situations to the trainee; ii) submit, in this section the trainer can send, to the FORMARE's LMS centralized database, trainees' performance marks in each of the evaluation parameters.



Figure 6: Trainer HUD interface

⁹ Prim, the most basic building blocks in Second Life (Weber, 2008).

¹⁰ See http://wiki.secondlife.com/wiki/Mega_Prim for a definition on megaprim.

¹¹ See <http://www.youtube.com/watch?v=wD4dRTR1nVI> for a video demonstration of the NESIM project by Professor John Miller.

5.2 Trainee HUD

The trainee HUD (see figure 7) options reflect the case study needs. This HUD was specially designed for this particularly training course, but the same basic interaction principles can be used for other subsequent training scenarios.



Figure 7: Trainee HUD interface

5.3 HUD development

There are some limitations that should be taken into consideration when developing a SL HUD. Even before designing the user interface, a deep understanding of how it works and how it is developed is of the highest importance.

A SL HUD consists of a common three dimensional object with special built-in functionalities that can only be seen by the user who has it attached. Each individual component of the HUD, a button for example, is in fact a prim. Taken the trainee HUD as an example we can see how a rough and basic HUD structure looks like in figure 8.

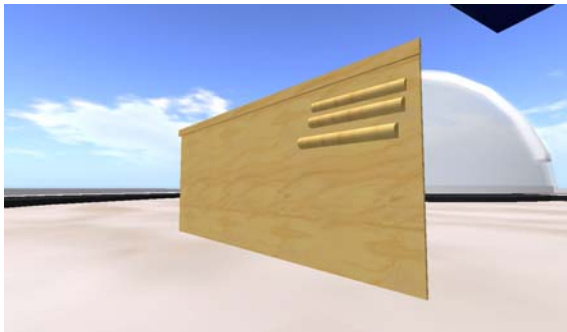


Figure 8: Developing the HUD

When designing the interface it seems a good option to keep the design and buttons' status simple.

Another important issue is screen resolution. The default HUD position is the same it had on the developer's screen, so if the developer uses a screen resolution greater than the average SL's users, chances are that the HUD will be attached out of

field of view on the users screen (Second Life Wiki, 2008).

6 PRELIMINARY CONCLUSIONS

The 3D virtual classroom research project is now on its development stage and definitive conclusions of the outcomes of using these tools and functionalities in an online virtual training scenario are still premature. After the development of the virtual training facilities, the research team will evaluate the impact of the introduction of role-play in an on-line course for an important institution in the Portuguese banking sector. It is expected that these new functionalities will add significant improvements in the learning experience. Research carried to prepare this project has already revealed the potential of SL as a role-playing environment which promotes the training and development of real-life abilities and fosters content understanding verification in simulated conditions, very close to reality.

REFERENCES

- Cain, G. & Miller, J. (2008). Simulation and teaching in Second Life. *Slide Share*. Retrieved May 16, 2008, from <http://www.slideshare.net/jsvavoom/simulation-and-teaching-in-second-life>
- Miller, J. (2008). *Virtual Nursing Education in Second Life*. *You Tube*. Retrieved May 7, 2008, from <http://www.youtube.com/jsmillerRN>
- Robbins, S. (2008). *Virtual Worlds as Web 2.0 Learning Spaces*. Media Site Retrieved May 20, 2008, from <http://hosted.mediasite.com/flash/ELI/VirtualWorldsasWeb2.0LearningSpaces/>
- Salvado, P., Santos, B., Morgado, L., Santos, A. & Peixinho, F. (2008). *Controlo de acesso a salas de formação para formações síncronas no Second Life*. Paper presented at the conference Comunicação, Educação e Formação no Second Life, Aveiro, Portugal.
- Second Life, (2008). *Second Life Help. Huds*. Retrieved December 06, 2008, from <http://secondlife.com/app/help/avatar/huds.php>
- Second Life Wiki, (2008). *Second Life Wiki. Heads Up Display*. Retrieved December 06, 2008, from <http://wiki.secondlife.com/wiki/HUD>

Weber, A., Rufer-Bach, K., & Platel, R. (2008). *Creating your world. The official guide to advanced content creation for Second Life*. Indianapolis, USA: Wiley Publishing, Inc..