

Exploring Second Life® for online role-playing training

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This paper is based on the work of the 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 research company of Portugal Telecom, one of the leading providers of online training solutions, supported on the platform FORMARE. The goal of this research is to enrich FORMARE, PTIn's proprietary knowledge management system, providing a set of Multi-User Virtual Environments (MUVE) tools where trainees can put in practice their recent acknowledged skills by the use of role-playing techniques. In this paper the new opportunities and benefits in training provided by multi-user environment platforms, in general and particularly as far as Second Life® (SL) is concerned are addressed and the FORMARE training program is presented.

1. Introduction

In order to succeed in today's fast paced and ever evolving economy, companies must invest heavily in technological and human resources development, namely through training activities. The introduction of Learning Management Systems (LMS) in companies' training courses was a major breakthrough. The need for employees to leave their working place to follow training activities was reduced, the company saved time and money in logistics and the work flow could be less affected. However, most of the common LMS based training courses are best suited for theoretical aspects of the training program. Practical training contents, however, tend to have more difficulties in being adapted to LMS based courses.

2. Role-playing in Second Life® - A new world of possibilities

SL offers a range of possibilities for training courses as an extension of the typical LMS platforms. SL provides its users an immersive experience allowing the chance for simulating real life and role-playing activities. The

possibility to recreate virtual environments close to real life and the ability users have to quickly change their identity allows simulating real life situations and immersive experience. This can potentially increase concentration and commitment levels (Robbins, 2008).

The role-playing features of MUVES opens enormous potential in educational scenarios and training programs in particular (Robbins, 2008; Ford & Miller, 2008, de Freitas, 2008). By using role-playing techniques, the learning-curve in online training programs may be reduced in time. Trainees can return to their professional roles sooner and probably with more confidence in their abilities to perform their jobs. They have already played and therefore experienced their new professional role; experienced mistakes without endangering the work flow; shared experiences with fellow colleagues with similar knowledge or working experience in a particular area of expertise.

According to the same authors some of the potential benefits for the learning process within SL include: i) *collaboration*, users collaborate with each other in order to achieve a shared goal; ii) *creativity*, the ability to create content and to express in several ways unleashes the individual creativity; iii) *authenticity*, trainees are "hidden" behind a virtual identity (avatar) which allows them to freely express themselves in a less restricted way; iv) *community*, strengthens group relationships and sense of community due to the level of proximity that SL allows; v) *engagement*, high level of engagement in a SL learning environment is reported.

More than simple evaluation of the procedures needed to complete a determined task, role-playing in SL, allows the evaluation of the students' ability to make decisions, to manage conflicts, to engage in problem solving and train reaction to stress situations (Miller, 2008). SL can be an interesting laboratory to test human behaviour as far as labour relationships are concerned.

3. Limitations of LMS

In recent years we have witnessed the growth of LMS, Personal Learning Environments (PLE) and Virtual Learning Environments (VLE). However we have also

witnessed a major boom in social networking applications. Millions of users now use these applications on a daily basis and are familiar to their cutting edge interface design, functionalities and user interaction. Their demand for high quality web applications has grown and by inheritance the users expectations on what interface design and functionality in these systems should be (Robbins, 2008). The differences in interface design, usability and functionality between the typical LMS and Web 2.0 social networking applications might be the reason behind the apparent reluctance of LMS users to communicate between them through LMS's embedded communication tools.

It seems fair to assume that LMS and PLE need to integrate new features and tools that will allow them to come closer to nowadays user's experience expectations. Multi-user virtual environments such as Second Life® provide the users with a set of tools that allow them to take computer interaction experience to another level.

5. Examples of usage of SL in training

Some of the biggest corporations in the world have already realized the potential of virtual learning environments in training programs. NASA and IBM are among them. Smaller companies, organizations and universities are also contributing to the research and development of virtual learning environments. From all the analysed projects it is important to highlight the following three projects, due to their relevance to this research.

NESIM - Nursing Education in Second Life®, is a training simulation for students attending to become registered nurses. Headed by Professor John Miller from Tahoma Nursing College, Tahoma, USA, the NESIM lets students simulate patient treatment, performing surgeries and controlling hospital appliances in SL. This project uses a customized HUD (Heads Up Display) to control all variables of the simulation environment. With this tool the tutor can change at any time the difficulty level of the task or create new and unexpected problems for the student to solve. The student uses a HUD to interact with the environment, choosing the different set of options he needs to complete his task (Miller, 2008).

LOYALIST COLLEGE Canadian border simulation - Considering role-playing training activities this is the analysed example with more in common with 3D Virtual Classroom project final goals. Loyalist College has built a replica of a real Canadian border and simulates every task that is usually performed, from traveller's support; enquiries; checking documents; searching vehicles and people; checking goods transportation; among others.

The users that play a part in this simulation are physically in the same space in a face-to-face environment. Although they all have their own computer, the room is equipped with a large display where, from an outsider's point of view, the simulation is projected (Infinite Spaces, 2008).

SLOODLE - Sloodle is an open-source project whose goal is to develop educational tools for SL that can work as an extension to the open-source LMS, Moodle (Sloodle, 2008). Its ability to communicate with the LMS database makes it an important example for this research, as it is intended by this project to allow restricting access to certain areas, submitting grades and controlling trainees' presence, through the integration with the LMS.

6. Using SL in an online training program

Considering the upper mentioned analyses of similar projects and studies, a set of best practices for SL use in an e-learning training program can be identified:

- a) The introduction of SL in an e-learning training program should be done in a step-by-step way instead of introducing SL straight away. The learner should start by experimenting SL's tools some time before the role-playing session takes place so that the unfamiliarity with the application does not disturb learner performance in the simulation. This could be done, for instance, by scheduling discussion meetings within the SL at the end of the classes;
- b) If possible, new users with no experience with SL, should skip the "Welcoming Island". They should instead be redirected to the training course provider's virtual space where they should have specific newcomer's tutorials at their disposal, along with the guidance of a trainer. These first lessons should take place in a face-to-face mode (Ford & Miller, 2008).
- c) The virtual learning spaces should not be completely restricted and trainees should be allowed to explore other SL locations. The exploration of other locations in SL should be considered as a benefit for the learning process instead of a threat;
- d) The use of *machinima* for recording sessions gives the trainees a chance to watch their performance and learn from their own mistakes.

7. Banking Training Course – a case study

PTIn has already developed an online training course available to the trainees of a major Bank in Portugal through PTIn's FORMARE. The content available through the LMS is a Flash-based application containing text, images, animations, flash-video and small quizzes at the end of each lesson. The actual course only fulfils the theoretical needs of the training program. Therefore the need to complement with a more practical approach, giving the trainees a chance to test their acquired skills was confirmed. Usually this practical stage of training takes place in a real life working scenario but that costs time and money to business companies. So the purpose of the 3D Virtual Classroom project is to develop a virtual training place in SL where trainees can simulate, by means of role-playing activities, their real working scenarios.

After the analysis of the aforementioned online training program and its content, the research team concluded that it was important to evaluate the decision making skills of the trainees, their reaction to stress, conflict and problem solving and the interaction with other agents involved in the process. The procedures required to complete the tasks are part of the role-playing session although it is not what is intended to be central issues to evaluate. The team considers that quizzes available through FORMARE already fulfil the quantitative evaluation required.

7.1 Scenario and special requirements

The role-playing scenario consists of a common bank agency where employees perform specific client-facing tasks taught in the online training course. Several customers come to the store to deposit money on their bank accounts; the employee will then have to follow a set of protocol procedures. Some of these procedures lead to confrontation between the bank employee (trainee) and the bank customer. It is the way the trainee handles this confrontation and his relationship with the customer that is intended to be trained and evaluated.

One important identified requirement was the need to keep track of the trainee's performances, in order to enable future evaluation of the trainee's progress. Another requirement is related with the need to restrict to authorized users the access to private training areas. These functionalities must be integrated with the existing FORMARE database, therefore, retrieval and submission of relevant data (e.g. user credentials, trainee's grades) from/to the FORMARE database is being provided.

8 3D Virtual Classroom

From the information gathered in the early stage of this research and by the study of the bank's online training course the team developed the 3D Virtual Classroom training space, a circular suspended platform. 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 close the access to the land parcel 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 area restricting access to all facilities.

8.1 Topology of the virtual training space

The circular platform mentioned above is divided into four distinct areas: i) *welcome area*, it is the entrance to the virtual training facilities. Placed in the centre of the building, this is the area where users arrive when they are teleported. Here users can find useful information

concerning the ongoing training course and teleport links to other training rooms and to other PTin SL locations; ii) *tutorials' circuit*, it is the catwalk ring that surrounds the central training rooms. 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. iii) *Role-playing room*, a wide area where the role-playing sessions takes place, in which a replica of the bank's agency was built; iv) *meeting and conference area*, a room with a display for slide and video presentations, where trainees can attend inWorld classes prior to role-playing sessions.



Figure 1 – The prototype of the virtual training space.

8.2 Role-Playing training sessions

Each of the role-playing session involves the following participants:

- The role of the bank's employee is preformed by the trainee under evaluation. He provides customer support for bank deposits;
- The customers role is played by the other trainees;
- The trainer plays the character of the bank manager or someone who by his position has the authority to quickly interfere if necessary;
- A forth category of characters is required. This particular character has the responsibility to record the session for later analysis by using *machinima*.

8.3 Heads Up Display

The HUD is one of the most important tools in this training scenario. Both the trainer and the trainee can use this tool. The trainer's HUD allows him to control all environment variables that can, in some way, change or affect the role-playing session. The trainer can also use it to send instructions to the trainees who are performing the role of customers providing them with guidelines about the way they should behave. As an example the trainer can order one trainee to put more pressure on the trainee under evaluation by asking a series of difficult questions or complaining about something. The last functionality on the trainer's HUD is the ability to submit the results of the trainee's performance. He can also visualize in real time

his and the students' HUD but he can only control his own. This enables the trainer to have a complete perspective of the trainees' performance.



Figure 2 – The trainee's (left) and trainer's (right) HUD.

The trainee's HUD allows him to answer to the solicitations of the simulation environment. The HUD has all the functions the trainee needs to perform his task in the role-playing sessions. A “panic button” is provided, which can be used to ask for the trainer intervention if trainee feels the situation is out of control.

Data retrieved from trainee's evaluation are not automatically updated on the FORMARE database. In fact the trainer needs to manually grade the trainees and upload the information through a function on his HUD to the LMS database. The main reason for this option is due to the fact that the goal of the project is to perform a qualitative evaluation instead of a quantitative one. It is the responsibility of the trainer to judge the trainee's performance on the different requested tasks and grade it. That can not be done by a mathematical calculation.

8.4 Accessing the platform - security issues

Following one of the best practices mentioned earlier, users with no experience on the use of SL are directed, on their first login, to the FORMARE welcome area, skipping Linden's welcoming island. There they have tutorials specially developed considering the training session's specific needs and the guidance of an experienced trainer.

On the other hand, security issues are very important for companies. Some of the topics taught and discussed on these training sessions are highly confidential and cannot, by all means, be available for the general public or industry rivals. Considering this requirement, research is also under development for constraining access only to registered users from the FORMARE learning platform (Salvado et al., 2008).

9. Preliminary conclusions

Virtual Worlds are demonstrating its potential to become an important ally for online training courses on a complementary basis with other solutions. The low training costs and limited logistic requirements make them

relatively easy to implement and, at the same time, promise successful training results. However there are still some problems that need to be solved and more experiences to be carried before business companies totally embrace MUVE as online training tools. These problems are related to company's security issues (e.g. access restriction), trainees' participation and interoperability between virtual worlds. Collaboration between universities and business companies is being of greater importance to achieve the required technological and pedagogical validation of these tools, and consequently allow the full use of these new tools for online training courses (see also the work of Sara de Freitas, 2008).

Second Life®, the MUVE adopted in this research project, has proved, in a technical perspective, to be a suitable environment to implement all the previously identified functionalities. However, work is still in progress and the research team will now have the opportunity to test and evaluate the 3D Virtual Classroom in a real training program, enabling the validation of the theoretical principles and practical issues addressed in this paper.

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