Teaching in virtual worlds: educational experiences in Second Life

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Abstract

The paper describes the results of a survey carried out to identify the Italian universities which are part of Second Life and to analyse the academic services they are able to offer in this virtual environment. The objective of the research is to study the ways of enjoying this environment and to understand how these universities exploit the "immersive" qualities and typical potentialities of virtual reality (Jacobson, 1994). Here is the list of Italian universities so far examined: University of Perugia (CLA - University Language Centre), University of Torino, University of L'Aquila, University of Salerno (Dipartimento di Matematica e Informatica).

The observation was focused on the:

- exploration of spaces, structures and environments (open space - classrooms - offices - laboratories)
- analysis of academic services (orientation office – student career office – student assistance)
- analysis of how teaching, participants and interactions are organized.

Then, we also carried out in-world interviews with teachers and/or managers

of virtual universities to reflect about the meaning of "landscape", a significant and decisive element of participation.

1 Introduction

"E-learning" is a term which is commonly used to define processes of learning in virtual environments where an on-line interaction between students and teachers takes place with the aim to enrich and enhance traditional education. Universities are more and more interested in the processes of change brought by the spread of e-learning, to answer to the new challenges coming from the labour market and to enrich traditional education with courses which are an alternative to traditional teaching in a classroom. Psycho-pedagogical research has placed virtual reality within the theoretical perspective that argues that technologies influence teaching methods, improve the instructional processes, and help to develop new ways of learning. The characteristics of the virtual reality system (immersive, simulation, projection) make it an excellent resource in the field of education. Virtual reality, in fact, makes it possible to design learning pathways that can be imprinted to the lived, suffered and, above all, constructed experience of the user, involved in a learning environment in which new solutions and experiences are tested. The user participates to the training process considering it a moment of participation. "The set of tools and technologies that enable users to work interactively and in real time in a virtual environment created by computer, that changes and reacts according to the actions of the user" (Berretta, 1998) has the ability to create an immersive and engaging environment where the requirements of vividness and interactivity allow you to stand as a meaningful experience that stimulates cognitive and emotional processes in a fundamental way of learning.

2 Teaching in virtual worlds

Technology enhances human capabilities and allows us to do more, better and with less effort. This is the popular view of studies and reflections of prominent scholars among whom Marshall McLuhan. Studies on the combination computer/training, on the psycho-pedagogical implications and on the applications that technologies bring to education and training, have led to some interesting reflections and to computer products and teaching strategies models that have focused first on applications, then on the didactic communication mediated by technology, finally identifying and describing the concept of "virtual learning environment". In this case, research has focused on the study of virtual worlds, i.e. the most advanced stage of technology and the web that has led, in recent years, to the construction of a "reality" where everything is

modelled. The reference paradigm is constructivism, which states that learning is a process that takes place in a meaningful context, which is favoured by being engaged in "authentic tasks" and that is determined by the negotiation of meanings. The process of learning/teaching, in this epistemological framework, is no longer focused on the delivery of theoretical content, but it becomes a manipulation of "real cases" that stimulate reflection and support the building of knowledge through negotiation and social sharing. This way knowledge is considered a tool to manipulate in order to solve problems and learning is the process that transforms information into skills. The wealth of simulations of virtual worlds can support a disciplinary and interdisciplinary teaching strategy that is motivating and stimulating for students who are more and more oriented to active, constructive and contextualized approaches of learning.

Moving in a simulated space where planning learning experiences in a complex conversational and reflective environment, involves participants, making them protagonists of their own learning paths, making the practice a reflective and meta-cognitive dimension. The educational potentiality of virtual reality is in setting up learning environments whose design and construction, can determine educational experiences oriented to cognitive, meta-cognitive, cultural and relational developments. Virtual reality, thanks to its characteristics of immersion, simulation, and projection, is configured as one of the most appropriate strategies to use educational technology as a support for the processes of understanding and learning, where competence is considered as the ability to own, mobilize and use resources in a contextualized way.

3 Exploration of the spaces and analysis of the services offered

The observation and the exploration of spaces, structures and reconstructed environments in virtual worlds was the starting point of this research and from which our theoretical considerations arose.

We then passed on to the analysis of academic services and to the organizational model of teaching methods, participants and their interactions. During the exploration phase it has been noticed that the virtual surroundings reproduce faithfully many elements that are parts of the real world.

Classrooms, offices, laboratories and outdoor spaces have, in fact, a strong likeness to reality. The virtual spaces of the universities are frequently similar to the real ones with classrooms, benches, chairs, blackboards and maxi-screens used for video-conferences, seminaries, lessons and presentations.

Atmospheres, prepared in detail (with the Italian flag, maps, elevators, panels, tables, carpets, fire extinguishers, fountains, balconies, relax-rooms) are dedicated to the realization of synchronous activities, but they are also a repository of teaching materials placed at disposal of the teacher.

For its characteristics Second Life lends itself to be used as a laboratory for didactic

experiments in which students can manipulate not only didactic contents (molecules, planetary systems) but also and above all, engage themselves in experiences of reconstruction of virtual objects in 3D.
An example of research space is the UnitoLab of University of Turin in which students have carried out very interesting projects (for example "Il Corriere della Cina"). Every reconstructed scenario assumes a certain meaning because it supports the active participation of users/avatars who create and recreate, continuously, meanings moving from the stimulus that the environment provokes.
In Second Life, in fact, you can discover a careful reproduction not only of the spaces but also of what happens in a real classroom (typical examples: to lift up one's hand, to ask to speak, to show one's approval or disapproval).
The use of scenarios that have a high realistic impact allows a more involving interaction with the other actors composing the scene too, and there is therefore more participation and communication than one may find in traditional e-learning platforms.
An interesting example is the "learning box" created by the Centro Linguistico di Ateneo (CLA) of the University of Perugia which, reproducing a street of London, joins dipping and simulation potentialities, typical of role games, to the possibility of interacting in a real way, both vocally and textually, with mother-tongue people.
The second moment of our investigation is addressed to the analysis of services (guidance, secretary's office, student's reception) offered by virtual contexts.
The University of Turin, besides considering Second Life as a space for didactic experimentation, has activated a reception for the students, which works during the period of enrolment. This offers information on the university's activities and prepares informative kiosks where, in office hours, it is possible to chat with an avatar representing the university, who is available to give indications and information about degree courses to offer guidelines for high school students, proposals of part-time jobs for students, opportunities of post-degree jobs and so on.
Also the CLA of Perugia placed an info-point on the ground floor of its virtual structure. Students may ask information about the faculty programme and about its in-world activities. It has show windows presenting the main activities of the university through avatar-robots answering the most frequent questions (teachers' meeting hours, course programmes, etc.).

4 Administration of participants, interactions and didactics

The term "SL-Learning" indicates the new Learning frontier, placed beside the consolidated network technologies and the typical infrastructures of e-learning, in order to overcome the spatial limits thanks to the reproduction of scenarios, in a three-dimensional way, and to help the students' process of immersion.

In SL it is possible to find not only an accurate representation-reconstruction of the atmosphere, but all what happens in a real classroom. The lessons that take place in virtual classrooms are similar to real ones with desks, chairs, blackboards and maxi-screens.

Rebecca Nesson (Harvard University of SL) asserts that being in a virtual classroom "is a way to create a sense of community among virtual students, in order to make you feel closer to their desk mate, even if he is connected from Korea. Students interact each other as if they were in a campus, making any distance visible" (Lamont, 2007).

Every avatar is a person; discussions and debates are represented like the ones of a "real" class; moreover students interact and compare experiences and demands with other students "located" in every place of the world. When you have begun the course and overcome the difficulties of handling body movements in the virtual world, in Rebecca's opinion, the students find it simpler to express themselves in SL than in the face-to-face environment. (Lamont, 2007).

The atmosphere makes it possible to carry out didactic activities that follow various methodologies of teaching-learning: from collaborative learning to learning by experience. SL allows to plan and to realize "situations and formative backgrounds" of simulation; the 3D-atmospheres are to be considered as a resource and an opportunity in order to enrich and to increase methodologies and as tools to learn capabilities and specific skills.

The learning of a foreign language is based on scenes with a high realistic impact (assisting to a wedding, participating to a business meeting, visiting an art exhibition) recreating a typical setting of a foreign city, and the opportunity is given to interact with mother tongues.

Through virtual sandboxes, students can test themselves in construction-modelling of buildings and virtual objects (learning by doing) even in a collaborative way.

This way learning becomes the result of the personal and social involvement of the members of a group who influence each other and create knowledge by comparing and negotiating the deepest meanings which emerge.

In May 2007, at the International Conference of SL, Barry Joseph highlighted the most important aspects of this experience: "the constructive needs appear, the need to create and manipulate the avatar, the requirement to confront oneself with other citizens of Second Life all over the world, starting from the contents of the real world and taking advantage from the opportunities of several communication channels we dispose today. To do that we need a more and more easygoing mentality" (Barry, 2007).

Conclusion

"Only a deep knowledge of the new technologies and their effective enabling capabilities, together with a comprehension of psychological and cultural feedback of the human being, to such technologies and, generally, to the

"newness", can be the ground from which leaving for a strengthening and not alienating course" (Granelli, 2006, p. 214).

All the teachers, the technicians, the experts we have had the chance to interview, thanks to this survey, seemed to be working together in their effort to know and to understand the potentialities and the limits of virtual reality when used for didactic purposes, and they agreed that the value technology assumes depends on the significance you attribute to it.

Several critical points, such as the lack of investments, the inadequacy of technological infrastructures, as well as the resistance to modernization and to change of many teachers, anchored to traditional teaching methods, emerged from this research.

An unexpected result was to find a common desire to create a net in which to exchange experiences, to discuss choices and share perspectives. The hope is to overcome the rigidity of SL that still does not have shared blackboards and instruments in order to write and to make notes in synchronous.

At present our research is still going on and it aims to get in touch with other universities, to follow the evolution of the environment's integration with the instruments of Web2.0 (particularly DMI-Unisa), to start a systematic study in order to understand what function the virtual worlds assume in determining the significance of learning processes.

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