"Edutainment in Virtual Environments: An Academy Supporting Collaborative Learning in Second Life"

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Abstract: Second Life (SL) is a digital game and a Collaborative Virtual Reality Environment. The "unofficial" Academy of Athens is a space in this environment. This space, or "land" according to SL terminology, was created by the group "The Power in unity", in order to create a Greek learning SL community to offer distance courses and events for Greek SL users and teachers. Accordingly, the Academy wiki was created in order to provide relevant information to the users.

An experimental implementation of the educational use of SL is presented within the context of this paper, along with considerations, results, conclusions and future work.

Initially, the group of the Academy was created simultaneously with the configuration of the roles which every member had in this group. Then, the SL land in which the Academy would be hosted was looked for. The building was designed to resemble the real life Academy of Athens.

The foundation of this Academy targeted the Greek SL users. Already existing ones were approached by organizing Virtual Educational Events in order to get them accustomed with the environment of this virtual world and to familiarize them with the courses which were created for both new and more experienced users. Greek Teachers showed interest in attending virtual courses on educational issues. Discussions on topical issues of real life and their relationship to avatar lives won the interest of all the Greek SL users.

A museum and galleries were created within the building of the Academy and the lands around the building were upgraded for the cultural interest of its visitors.

Throughout the whole implementation but also during its current use, the virtual environment of SL gave users such a pleasure it raised concerns about its addictive nature. The danger of the possibility real life being absorbed or replaced by virtual life is also discussed within the context of the paper presented, forming concrete conclusions as to how a virtual environment facilitate Education and Learning and how can one control its use.

Keywords/Key Phrases: web 2.0, Second Life, virtual world, Distance Education, Training by learning, Lifelong learning

Introduction

There can be a lot of debate about whether Second Life (SL) is really a virtual game. SL was developed by the company Linden Lab of San Francisco California, on June 23, 2003 and is accessible via the Internet. It is a free program that allows computer users to communicate through avatars in a fully interactive environment. It is completely open - no goals. This means the users create what they can imagine or explore things and events created by others. There are no level requirements or goals for what needs to be done, as is usually the case in massive multiplayer online role-playing games (MMORGs). It seems that SL is more of a "position" to play than a MMORG.

It can be said that SL is an online virtual word without theme, a virtual canvas for creativity, a three-dimensional (3D) digital world and about 95%-98% of whatever there is in it is made by its residents, who socialize in millions within its environment. One can find all sorts of virtual communities and institutions – it even has its own virtual economy.

As already said SL is a 3D virtual community. It is the most open 3D community ever, and gives users the tools to create almost anything one can imagine (Linden, 2009). Users are free to explore, socialize, build, sculpt, write scripts, design clothes, make a game, publish a magazine, make an event, visit museums, libraries and offices of various political factions, attend classes and generally can implement in this world many of the activities of real life. In addition to virtual objects creation, one can also share these as well as digital services with others. This gives users great pleasure, but it is completely addictive!

This virtual world is also an online Collaborative Virtual Environment (CVE), a discovery and exploration virtual environment, where learning is experiential and comes as a natural result of the user who needs to do something (Brown & Adler, 2008). Learning in online CVE is based on the principles of Lifelong Learning and Web Based Training Communities. In Web Based Training

Communities knowledge is created through the cooperation and active interaction of the participants. This knowledge is greater than the sum of the individual knowledge of its members as a result of the interaction and gathering of knowledge and views of all participants (Whipple, 1987). Also all the community members have a role to play in the development of knowledge (Jarvis et al., 2003). But in online CVEs, the virtual worlds transcend the opportunities of the Web Based Training Communities providing many opportunities for supporting collaborative learning (West & Hubbold, 2001). Multiple users through virtual representatives (avatars) share 3D virtual educational environment where learning arises through interaction not only among users, objects and environment but also among the avatars.

Online CVEs are a cultural phenomenon, a shared language as well as a promising application of collaborative technology. The educational value of such virtual environments is intriguing and the new pedagogical space of Edutainment can learn much from these environments. To enhance the cognitive value of Edutainment, interdisciplinary academic examination is required.

Such an edutainment case is presented in this paper and its structure is as follows. In Chapter 1 the role of virtual representatives (avatars) in the SL world is discussed. Chapter 2 presents the historical foundation of Athens Academy in SL, which targeted the Greek SL users. In Chapter 3 the way the "Athens Academy" took benefit from the virtual word of SL is discussed. This was achieved by organizing Virtual Educational and Courses on educational issues and by personalizing the space and the method of teaching. Chapter 4 discusses issues that arise from the current use of the whole implementation, especially the danger of the possibility of real life being absorbed or replaced by virtual life. Solutions for controlling the use of SL virtual world are proposed. Finally in section 5 the conclusions of the paper and plans of future work are presented.

1. Avatars in Second Life

As a term, Virtual Reality (VR) appeared for the first time by Jaron Lanier in 1989 as related to "an interactive, computer based three-dimensional environment in which anybody can be immersive". SL is a system based in VR, a 3-D Multi-User Virtual Environment (MUVE) on the web, where the user has the perception of the real world and he or she takes part in these virtual environments with a virtual representative which is called avatar (Figure 1).

Figure 1: Avatar xris Oller (Educator).

The word avatar comes from the Sanskrit word avatara that gives the idea of a kind of transubstantiation, incarnation of life in a different format (Tofts, 2003). Today, however, the above word refers to pictures, drawings or icons that users choose to represent themselves on the web. The avatars in SL, as well as the virtual bodies in similar environments, are used to externalize the stimuli of the user through the image of the avatar. Each avatar can interact in many ways within the environment of SL, such as interaction with 3D objects and communication with facial features and gestures. It can be inferred that for SL users to be engaged with SL content they will need to feel as if they are immersed in it, as well as feel interacted with it. It is then that, through the avatars, users feel psychological immersions in the virtual world of SL which in turn creates the sense of presence (Ellis, 1995) and the degree of tele-presence (Steuer, 1992). The sense of presence may be described as the recognition of the concept of self being in the virtual environment and (Heeter, 1992), is distinguished by three different types: personal presence, social presence and the environmental presence. Tele-presence shows the extent to which the user feels that he/she is present in an environment implemented by a tool rather than a natural environment. It is a function in which technology and participants take part and there are two main characteristics: vitality/liveliness and interactivity. So the avatar provides the physical representation of the user in the virtual world of SL,

emphasizes the user interaction with the world and makes the user feel some properties of the virtual world as if he/she was there.

Without the need for collection of different devices, such as data gloves, motion detection devices and helmets immersion, but only with simple input devices like a keyboard or a mouse, as well as output devices, i.e. a computer screen, SL enables users to interact among themselves and with the virtual environment. SL has achieved the key objective which the researchers of VR (Robertson et al., 1997) had put forward: it has managed to put the user in a three-dimensional simulation environment that is easily manageable, so users perceive more interaction with the environment itself rather than the technological means.

The sense of presence and especially the social presence (Heeter, 1992) that the user, through the avatar feels in a CVE contributes to social interaction by helping not only to create relationships, groups and communities but also to generate Knowledge. This Knowledge, according to social constructivists, is the artifact of decisions made by people in groups, based on their on-going interactions. In a sense, "knowledge is a public record of transactions between like-minded people" (Jones & Bronack, 2007). Learning on the other hand, is a contiguous process that exists each time people wilfully interact with each other in the world around them (Jones & Bronack, 2007).

According to research in the field, it can be stated that visual aspects of CVEs and the control capabilities of the avatar in a CVE are the two most important factors to increase the degree of presence and immersion. Therefore users and thus SL avatars feel tele-presence when the virtual environment is presented in a realistic 3D graphical interface which responds quickly to all actions.

The psychological immersion in a CEV causes the concentration of the user, which facilitates any educational process. And when the challenges presented in the virtual world and the capabilities of the user to solve them are in perfect proportion, then according to the Flow Theory of Optimal Experience of M. Csikszentmihalyi, the conscious mind of the user is in "flow": in such an intense state of commitment, equivalent to an absolute dedication to an activity. In this state of flow the user feels powerful, in control of situations and his/her capabilities are operating in full. Time and the various emotional problems disappear, and a wonderful sense of excess appears. The virtual environment of SL, as mentioned, is completely open, with no levels and goals. It is therefore possible for users to choose which activities they will work with, depending on their capabilities and interests. So users choose activities neither too easy for them so they feel bored, nor too difficult so they are disappointed. In this way the users of SL can easily be found in a state of flow, feel satisfaction, forget their problems, lose track of time and feel the ultimate pleasure.

The absolute pleasure of SL users is supported by the psychoanalytic concept of the pleasure principle of S. Freud. According to the pleasure principle, every SL user seeks pleasure and avoids pain, trying to cover the biological and psychological needs. As soon as the avatar "is born" in the virtual world of SL, the user is in the early stages of his/her life in the virtual world. Then the instinct of the user follows the principle of pleasure, but as the avatar of the user evolves and matures he/she learns to avoid pleasure because of the rules and constraints of reality. The ego (the logic) of the user when trained becomes reasonable, is no longer dominated by the pleasure principle, but obeys the principle of reality. It still seeks to obtain pleasure, but pleasure which ensures taking into account the reality, even if it is postponed or minimized.

2. The background of Athens Academy in SL

Athens Academy in SL and the group "The Power in unity" was founded in early 2009 and up to date there are over 50 active members. Founder and owner is Christina Oikonomou (avatar xris Oller, Educator, Figure 1) and every member has a role in this group. The name "Athens Academy" is of course informal. This name was chosen as an honour towards the Academy of Athens. Anything is free in the Academy and there is no economical gain from this. In addition, the Academy has been featured on the official website of Linden as an educational and nonprofits destination (Linden, 2010).

The creative space of the Athens Academy in SL is the SIM GREECE (Greece Simulator, http://slurl.com/secondlife/GREECE/56/140/25 targeting Greek citizens. There is also an aim towards the development of a learning community in a natural environment of a virtual city rather than a closed, completely controlled virtual environment.

In order for group members not only to be informed but also to collaborate over the web, the wiki: http://athensacademy.pbworks.com was created, as a supplement. In this way, access and cooperation from the Academy's members are easier.

Initially the Academy was hosted in a building that looked like an ancient theatre (Figure 2), which was purchased through the world of SL.

Figure 2: The old building of the Academy.

Later, the Academy builder, avatar billy42 Streeter developed a new building of the Academy (Figure 3), which is very similar to the building of the Academy of Athens that exists in real life. The sense of the presence of the user in virtual environment is enhanced by the realistic representation of the buildings and the objects in them (Heeter, 1992).

The inauguration of the new building took place on December 8, 2009 with great success. The celebration included a musical performance and art exhibitions, aiming to create a bridge between art and education and to emphasize the contribution of art to an overall education.

Figure 3: The new building of the Academy.

3. SL Athens Academy in action

As soon as the Athens Academy in SL was founded, the already existing Greek users were approached. Virtual Educational Events related to the Environment of SL were organized, in order to get them accustomed with the environment of this virtual world. These Educational Events were designed for Greek users to exchange views and experiences on the virtual world of SL. Their goal was to form cooperation and closer relations among the Greek community in SL.

Later on, the Academy began offering distance courses to Greek Teachers on the creation and implementation of classroom teaching scenarios using Information and Communication Technologies (ICT). Initially through newsgroups on the virtual space of Academy, trainee teachers discovered and understood the structure of a teaching scenario using ICT technologies, through information and examples over the web. Then they made their own teaching scenarios and showed them to the group (Figure 4).

Figure 4: Trainee teacher shows her own teaching scenario on the Academy's group, using both voice and Image White Board object.

Afterwards they applied them in their real life classrooms. Finally there was a debate on the virtual world concerning the findings from the application of specific scenarios in educational practice.

The most important argument of the supporters of CVEs was and still is, of course, the possibility of interaction and participation provided by the SL tools. For this reason, the appropriate tools-objects from the virtual world of SL were chosen in order to make the modelling of virtual Educational Events and Courses. Through object display images (Image White Board or Power Point) (Figure 4) all participants including trainees attended the presentation of the virtual event and the virtual course. The object TV was used to access videos which were loaded on YouTube. Through note cards a text could not only be written but also sent to other users, who in their turn could edit it in order to create a group text. Objects of virtual browsers (shared media) were created (Figure 5), so the participant trainees could create a joint text or find information on the web through the world of SL.

Figure 5: Object of virtual browser (shared media) is created.

The objects books contained the notes of the events and lessons and they were given free to the members of the group. Also with VR questionnaires the participants could evaluate the event and the course. Participant trainees had the opportunity to not only interact with these objects but also create and form their own, with the basic Building Menu of SL, in order to use them in their future lectures. In this way the participant trainees felt largely the tele-presence in the environment of SL, since they interacted with the environment and affected its content (Steuer, 1992).

Learning in a CEV is a joint process and the creation of newsgroups is particularly effective in cooperative environments. In the educational - training events and courses of the Academy, the discussions, both by voice, text messages and/or gestures among the participants were interesting. The knowledge was transmitted directly from the group members who worked as trainees and trainers simultaneously. So the knowledge had both vertical (trainee → trainer) and horizontal (trainee → trainee) direction (McCalla, 2000).

Also training was targeted at trainees and the trainer acted more as a facilitator and coordinator in the learning process, rather than a source of information and knowledge (Κόκκος & Λιοναράκης, 1998). The Academy trainers (Educator & Co Educators) formed initially the subject matter and style of the virtual debate and then encouraged the participant trainees to participate. In their turn, participant trainees through their active participation in the discussion and interaction with both participants and objects in SL and the web, had the opportunity to develop their critical thinking, edit solutions and learn by doing. They determined the difficulty level of each activity, depending on their abilities, participated constructively in virtual discussions and their presence in the virtual world gave them satisfaction and pleasure. The development of group spirit, the solidarity among members of the group as well as the maintenance of anonymity, enabled participation and development of social skills even among the most timid participant trainees.

An important role in the educational process is the configuration of the meeting - teaching area. In the virtual environment of SL, one can easily organize and adjust not only the interior of the meeting or the teaching space but also the outdoors, according to the educational needs. The development of imagination, creativity and initiative of group members were the principals upon which the organization and use of the land of the Academy was based upon. It was an aim to achieve space ownership and a resulting "personal space". This contributed effectively towards the creation of a positive counselling climate (Fischer, 1997, Pecheux, 1990). As far as it concerns the design of perceptual training stimulus, this was mainly expressed by aesthetics. Care was taken so that it could be used directly or indirectly for the events and courses. Thus seats were usually placed in a circle and the decors included pictures from the life of ancient and modern Greeks along with proverbs of famous philosophers.

In the halls next to the main conference hall of the Academy educational exhibitions were created, because it was the founders' belief that art plays an important role in overall education. Exhibition topics ranged from Ancient Greek Technology to Ancient Greek Games/Toys (Figure 6). The information contained in these exhibitions was written in both Greek and English, as a means to approach all SL users.
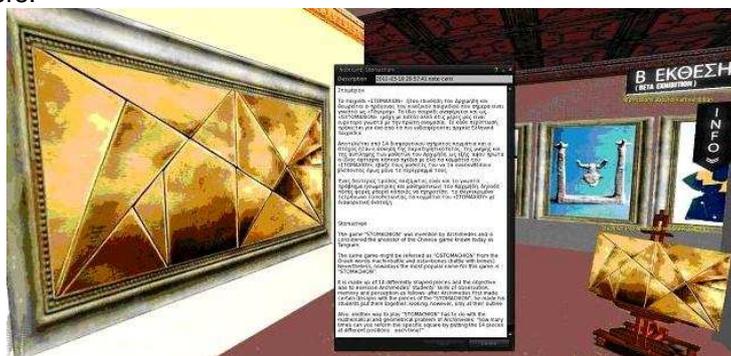

Figure 6: Exhibition on Ancient Greek Games-Toys and note card with information.

To enable Greek "newbies" i.e new SL users to help and to feel comfortable in the environment, a variety of tutorial sections were prepared, on instructions of how to use the SL tools. These courses are already being hosted at the Academy. Curriculum information can be found both on the bulletin board inside the Academy and in the wiki.

4. Discussion

Actually both Greek users and Greek teachers from all parts of the world showed a great interest in participating in educational events, courses and educational exhibitions of Athens Academy. Through their avatars they were involved and positively assessed these activities, which have been filmed and published on the web (http://www.youtube.com/user/xrisoik).

Inside the SL virtual world, distances disappeared and with a little economic cost users were able to participate in discussion groups according to their interests. Their participation in the debate was spontaneous, feeling safety from their anonymity and confidence from their avatar's appearance, since it was their own creation and it fully expressed them, as demonstrated in subsequent personal interviews. Through their need to exchange views and explore the virtual world, they created friendly and social relationships. So in the virtual space of the Academy, a Greek learning community was created, proving that SL is an environment for socialization and cooperation.

With the active participation of other Greek SL groups, monuments and buildings were created, around the Academy's space, which highlighted the cultural aspects of Greece, its customs and traditions, its architecture, art and religion. A virtual 3D urban city was also built, which not only resembles modern Athens, but also eliminates all these elements that bother us in our reality, such as pollution, garbage and of course the economic crisis. The virtual world of SL enabled the creation of a city as the users liked it and were happy to live in. Of course such a "dreaming" environment can cause great immersion, an issue already noted because users really feel that "live" in this virtual city, they are its residents. The feeling that a user belonged more to a virtual world rather than in real life grew, as did the pleasure they felt in it. The danger of becoming addicted to the virtual world of SL has emerged through questionnaires completed by group members of Academy. A case in which "second" life gains more importance and priority than real life, friends, family and work is worthy of important consideration.

Athens Academy, wanting to prevent the addiction of the SL users and to provide help to those possibly addicted, held relevant discussions. Initially these discussions were held in order to make users aware of the problematic usage of computers and the Internet. Discussions followed on the creative use of leisure time so that the users find activities in real-life which lead them in the state of "flow" and make them feel the ultimate pleasure. Individual discussions also seemed useful for restriction of excessive use and learning a rational method of using new technologies.

5. Conclusions and future work

Access to SL is economic and flexible. The environment of SL is interactive which offers many opportunities. Through SL, participation is ensured regardless of the constraints of place, time and heterogeneity. SL enhances the practice of teaching and the learning process through interaction.

High quality teaching packages can be implemented, suitable to different population needs under an interdisciplinary approach. There is certainly a revolution in the field of education.

A Greek Learning Community already blooms in SL. Living in the virtual world of SL means collaboration with amazingly dedicated and creative people who participate under the vision of a real life family. They learn, work and live together in a spirit governed by exchange of ideas and cooperation. The groups are the digital-virtual families in the virtual environment of SL. When all of the Groups work together when they are all united, then they have the power to overcome any problem. Moreover, Homer (850 BC) says: "The power in unity". Through both group discussions and individual programs the avatars can be trained to perform behaviors useful for every user. The trainer (Educator) is a coordinator and a facilitator in the learning process and participant trainees learn through discussion and interaction with the SL content.

Virtual life is a supplement to real life and should never absorb or replace the latter. Proper management of time spent in the virtual world of SL is needed, because SL users have to put a measure in all and follow a middle path, according to the apothegm of Cleobulus (6th century BC) "Moderation is the best thing". It is also essential that each person has to know themselves, to look within themselves, to seek and find solutions that will make their life better. The Delphic maxim "Know thyself" ("Know Yourself") will definitely help users find the strength that exists within themselves and thus face any difficulty.

So, through group cooperation, proper management of user's time and self knowledge, virtual life can play an important role in contemporary educational reality. Learning Communities can be developed in SL as a complement to the learning offered by Educational Institutions in real life. The case presented in this paper provided an initial framework towards this goal.

The Athens Academy in SL will continue to offer training events, distance learning courses and VR art exhibitions. In all upcoming new topics there will always be an interest in comparing the influence of the SL environment to Real Life. The cooperation with scientists both in the world of SL as well as in real life is necessary, while approaching people with disabilities is something already planned for the near future.

Finally the Academy library (Figure 7) is constantly growing with new virtual books on the shelves, with notes from the educational and cultural events and various other scientific articles, which are free to the public.
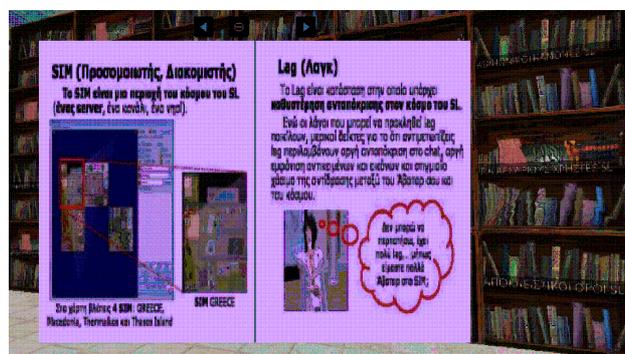

Figure 7: Reading in the library of the Academy.

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