STUDENTS' NEEDS AND VIRTUAL WORLDS

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Abstract

This paper investigates to what extent Second Life as the main learning environment of a postgraduate program meets students' needs. The work is part of a research program on the comparative use of the Virtual World (VW) Second Life (SL) as opposed to the Learning Management System (LMS) (BlackBoard Vista) in postgraduate courses (see Tapsis, Efthymiou, & Vitsilakis, 2011; Tapsis, Tsolakidis, & Vitsilakis, in press). In this paper a qualitative research approach is applied, implementing semi-structured interviews, after the experimental use of Second Life (SL) as a learning environment. The results show that the main reasons for students to accept a VW alternative learning environment are the fast communication, because it is time saving, and the 3D graphical environment, which facilitates their construction of cognitive models.

Introduction

In this paper the word "student" is used to denote any person who participates in a class with the purpose of receiving knowledge and/or skills. Virtual World (VW) is defined as a 3D graphical multi-user virtual environment (MUVE). Since the student of a class is simultaneously a learner, a participant of the educational process and a member of several social groups, his/ her needs are defined according to the different roles he/she has to play during his/her educational experience.

Online learning has several differences from traditional (on-campus) learning. An online student can be successful if, among other qualities, she/he is self-motivated, organized, and responsible, qualities that are characteristics of adult students (Moskal, Dziuban, & Hartman, 2010). Moreover, it has to be noticed that frequently graduate students are adults who either are already in the labor market or are looking for a job. Previous studies have shown that the needs of adult students are different from those of traditional on-campus students (Moskal et al., 2010).

Online learning has an extra task: communication. In several theories of distance education, communication is considered an important element of a distance education course (Moore, 1997; Holmberg, 2003). Transactional Distance Theory suggests that dialogue in a course is a key tool for bridging the transactional distance. Moore suggests three kinds of students' interaction: with classmates, with the teacher and with the educational content. In this interaction taxonomy, the criterion is the subjects of interaction, i.e., the interaction depends on who is interacting. He also recognizes that one medium in not enough for all kinds of interaction in a course. So as communication is a core element of the educational process, it is necessary to

know the students' communication needs for an effective online educational process.

The Media Richness Theory (MRT) developed by Daft and Lengel (1986) suggests that communication is effective if the properties of the medium meet the needs of the communication task. But the communication task cannot be seen separately from the students who will implement this task and the learning model that is applied. Online students have to be as autonomous learners as possible, a quality that characterizes mainly adult students. Adults have more obligations, responsibilities and life experience and less free time. Autonomous students need less dialogue, so they prefer asynchronous solutions. Dependent students need more dialogue, so synchronous solutions are better for them. The issue is whether the flexibility of an asynchronous solution is preferable to a VW.

As everyday life conditions change, the needs of learners also change at a fast pace (Simplicio, 2000). As a lot of new virtual environments have emerged in the last years and a lot of programs are offered in e-learning mode, it is necessary to study how these new environments meet the needs of modern students.

Life Style Needs

Life style needs are considered as those related to the modern way of life, such as available time and the priorities in life. Traditionally, young students differ from adult students in their obligations and responsibilities. Due to their obligations, adults cannot devote enough time on their study and this can be one of the barriers in completing a degree (Silva, Calahan, & Lacireno-Paquet, 1998). Silva and colleagues refer to three main barriers: family responsibilities, scheduling and location of courses, and cost. Due to these barriers, adult students fail to complete their studies in higher percentages than younger ones (Berker, Horn, & Carroll, 2003). On the other hand, all these responsibilities enrich adults' life experience making them a special group of students. Adults see their job as a primary responsibility, compared to traditional college students who see their study as their primary "job." Research at University of Central Florida (UCF) confirms that online education resonates with adult students because it responds to their lifestyle needs, provides more active learning environments, and empowers their learning beyond classroom boundaries (Moskal et al., 2010).

Personal Needs

Personal needs are as those connected to the learning style of each student (e.g., time to reflect) and his/her socio-emotional characteristics (e.g., his/her role in the learning community).

Meyer (2003) in her research has compared the experiences of students in face-to-face (in-class) discussions with threaded discussions and found that an important need of many students was the opportunity to "reflect" before "speaking." Students mentioned "time to reflect" as an advantage of the threaded discussions. On the other hand, students in online settings missed the "facial and hand gestures" of the face-to-face discussions. Additionally, in

online setting students have to have writing skills: the ability to write quickly, express ideas clearly and express emotions with a writing code (use of emoticons).

Students who participate in an online class constitute a potential online learning community. The virtual learning environment (VLE) is the common place for the members of this community. So a VLE plays a role in building a learning community, which is important for the collaborative learning approaches. The environment of an online team provides unique challenges in meeting the socio-emotional needs of team members (Chidambaram, 1996; Lurey & Raisinhgani, 2001). In a purposeful educational environment, students' needs appear to shift from emotive communication to that of group cohesion, which encourages collaboration in an online environment (Vaughan, 2004).

Communication Needs

Media Richness Theory (MRT) proposes that task performance can be improved when the characteristics of the communication effort correspond to the medium's properties (e.g., the ability to convey information). Media richness is defined as the medium's ability to enable users to communicate and improve understanding. A rich medium has a great language variety, a lot of communication channels (e.g., verbal and non-verbal elements), options for personalization, and immediate feedback. According to the theory, for collaborative tasks, where a lot of information will be exchanged, the use of a rich medium is necessary. As adult students convey richer life experience, they may need such a rich medium during their interaction in the virtual classroom:

> The primary cause of human communication and collaboration is to fulfil the needs of interpersonal interaction and consequently fulfil the need to make this process persistent. (Stavrakis, 2009, 145)

For group collaboration, immediate communication is required. VWs address this need by providing several forms of synchronous communication using text and voice chat messaging. In a VW, direct communication is also supported by the virtual shared working space, the use of gestures and quick feedback (Franceschi, Lee, & Hinds, 2008). Due to these characteristics, SL is considered a web application that promotes collaboration and social networking. Redfern and Naughton (2002) noticed that in a collaborative virtual environment (CVE), social, academic, and collaborative needs could be met. Holton (2001) states that during the development of a team, three students' needs are important: (1) the need to spend time together, sharing individual concerns, needs, competing commitments and reaching agreement on team priorities; (2) the need to develop a communications protocol to foster regularity and reliability in team communications; and (3) the need to ensure that all important group roles are recognized, respected and covered within the team.

Dependency Needs

Traditionally, adult students are considered more autonomous than younger ones. One of the main assumptions of Knowles' model is that adults have a tendency to have a less dependent and more self-directed personality. Further, Knowles (1984) considered that even adults might have dependency needs, which they try to meet through the didactic instruction, until they take control over the content area and their learning. A proper communication tool can make this procedure easier.

Tuckman (1965) referred to previous researchers who mentioned that members of a group in its initial phases have stronger dependency needs toward the instructor. So there are stronger dependency needs when a person has not established a stable position in the team and his/her socio-emotional and learning needs have not been met. For the well being of the team, its members must successfully negotiate its tasks and take care of the members' socio-emotional needs (Carabajal, LaPointe, & Gunawardena, 2003).

Research Objectives

The main question of this study is how Virtual World Second Life meets the needs of graduate students during the educational process.

As the graduate students are adults, it has to be examined whether the VW environment is compatible with the lifestyle needs of the adult students, enabling them to attend a distance education program. So the first research question, **RQ1** is: How does SL meet the lifestyle needs of adult students when they work in SL?

Graduate students have special needs due to their age and life experience. For this reason how SL can meet their personal needs has to be investigated. So **RQ2**.becomes: Which personal needs of adult students can be met through the use of SL as learning environment?

As students are members of several social groups (e.g., professional groups, learning communities, etc.), they need to exchange experiences and, at the same time, to deepen their knowledge. More or less they have some experience in the use of some communication tools. The question is for what reasons they could use the communication tools offered from a VW for their communication needs. So **RQ3** is: How does SL meet the communication needs of students when they are using it for educational purposes?

A VLE is not just a space; it is the online place where the members of a class can meet and interact. The relations they develop among themselves might affect their learning progress. Thus, **RQ4** is: How does SL meet the social needs of students during the educational process?

Finally, when a collaborative learning method is applied, the students need tools that can support the online collaboration. Therefore, **RQ5** is: How can SL support online collaboration of the students?

Methodology

Research was carried out in the postgraduate e-learning program titled "Gender and New Educational and Working Environments in the Information Society", in the academic year 2010-11. The program uses a blended learning mode, combining the daily use of a learning management system (LMS) (BlackBoard Vista) with face-to-face meetings every two months. For the needs of this research an "island" was constructed in SL named RhodesGenderPostgrad.

In January 2011, an educational experimental scheme was applied for three weeks. The population of the class (n=37) was divided into two teams and each team followed the educational program in a different environment. Eighteen students attended in SL and nineteen students in Blackboard Vista. All the students followed the same educational program with exceptions only in the learning environment where they had to do the course activities (that is lectures, communication with teachers, peers and groups and teamwork). The lessons taught in that period applied a collaborative learning method and each class was divided in four groups. The educational activities in SL were: (a) lectures by the teachers followed by discussion in the virtual classroom, (b) teamwork in groups of 4 or 5 students, and (c) discussion of the class on a subject assigned by the teacher, without his presence. For the activities in SL the students had to use the voice chat and text chat on predefined hours and days. The students also used Google shared documents projected in screens of SL to keep notes during collaboration.

The other parts of the research investigated the concepts interaction, social presence, perceived learning and satisfaction comparatively for the two environments. This part of the research examined the opinions of students of SL (n=18) about their learning experience during the three-week period. The group of students of Vista hadn't experience of educational use of SL, so they were excluded from this part of the research.

The current part of the research was conducted by utilizing qualitative methods with observation of student's participation and diary keeping for SL activities and two rounds of interviews: the first round immediately after the experiment and the second (in-depth) at the end of the academic year (June 2011). The interviews were semi-structured and were conducted in the face-to-face meetings of the program. The parts of the interview, relevant to the aims of the current research, had questions focused on the student's needs which were relevant to: (1) the VLE, (2) their experience with the learning activities in SL, (3) communication in SL and (4) collaboration in SL.

Results and Discussion

The population of the current part of research was the eighteen students who conducted learning activities in SL. The major descriptive characteristics of the student population are: 23 to 52 years of age, with an average of 10.21 years of experience in using computer (SD=4.89) and 8.22 years experience in using the Internet (SD=3.74). Half of the students using SL were interviewed (n=9). They were selected according to demographics: 2 males (31 and 42 years old) and 7 females (24, 28, 30, 34, 38, 45 and 52 years old). Six of them

were teachers of primary or secondary education, one was a psychologist and two were sociologists.

The data were collected and coded into the following main categories: (1) Lifestyle Needs, (2) Personal Needs, (3) Communication Needs, (4) Social Needs and (5) Collaboration Needs.

1. Lifestyle Needs

As in many e-learning programs nowadays, all students who participated in this research, possessed a personal computer and an Internet connection at home. Hence, the students attended the educational process from their home computer, which is part of their personal learning environment. Students declared that they felt comfortable in their personal environment, saying, for example. "I could be in my house, to feel comfortable and to learn something from my teacher" (Student 1).

Being at his/her home, the student can feel comfortable due to the parallelism offered by the medium:

> I was in my house I could eat, I could be as I want, lay on the couch, relax, talk, communicate, have my papers in front of me, drink coffee, eat something, ... I did all these simultaneously. It was convenient for me, because I have no time due to my work. (Student 6)

Media Synchronicity Theory refers parallelism as advantage of asynchronous media. Here we see that the parallelism of SL is received as an advantage of SL. Asynchronous media are received as time consuming media, while synchronous media make the communication faster and less time consuming. Students felt that attending lessons from home was saving them money: "For me, time is money" (Student 9).

The positive predisposition to the environment can make the student find the necessary time, setting the educational process in a higher priority: "For the meeting in SL I could find the necessary time, and on the scheduled time I was there" (Student 6).

The conditions of attendance may influence the student's commitment to the educational process increasing learning outcomes. The personal environment may also help the student to concentrate on the educational process:

> I was more attentive to lessons that took place in SL, because sometimes in the classroom I am distracted; ...someone may say something; we may gaze. While in SL I was dedicated to the lesson. There wasn't something to distract me. I was devoted to the subject, on what the professor said. (Student 1)

The concentration is time saving too. Said Student 5, "We can achieve our goals much faster. I think that the interaction between us is very essential."

Moreover, the environment may make more essential the learning process. According to Student 4, "[SL helped me] both to focus more on conversation and to discipline myself."

The students have preferences on the aesthetics of the virtual environment where they have to work, due to the cultural framework where they are coming from. So they expressed these preferences saying, for example, "The environment, in which the lessons or meetings took place, was pleasant. It was something like a game for us" (Student 2).

Although they declared that the SL helped them to focus on their task, they perceived it "like a game." This means that "game" had some positive affect on them. As Student 6 noted, "It may have started as a game, but I don't think that it is a game."

It seems that adults miss some fascination from their modern lifestyle, and the SL can offer it. For that reason, SL may meet the students' modern lifestyle needs for a more pleasant educational process: attending lessons in their personal space and in a culturally acceptable (pleasant) virtual environment. This is important because it seems that adult students need solutions that can relieve them from the stress of everyday obligations.

These results are in line with previous research about adults' preferences for timesaving solutions and on the convenience of the personal environment. The new elements are that: (a) students have positive attitudes toward the parallelism of the medium (SL), (b) students want a pleasant environment (the graphical environment affected positively the opinions of the students), and (c) the synchronous mode of SL was not perceived as a disadvantage of the used e-learning mode.

2. Personal Needs

Students compared their experience in the virtual environment with a face-to-face experience. The ability of the environment to simulate physical (face-to-face) process can reduce the possible negative feelings and facilitate students' customization with the virtual environment. Students expressed positively for that property of SL, saying, for example, "It was somewhat similar to reality. We could sit at a table with chairs. We could talk altogether like we're in a room, write, read simultaneously" (Student 2).

SL, because of its properties, can "realize" a virtual classroom: "It is as if a classroom exists in SL. You see who raises hands; you don't get confused with many voices. I think it is an easier way to learn" (Student 8).

It seems that virtual world environment does not only create a simulation of reality, but also a "new reality" by giving new opportunities for educational process. Student 6 noted, "the interaction is different in SL than in reality." and Student 9 remarked, "I feel the interaction more intensely in SL."

Students may participate in a VLE out of "obligation" towards the educational program, but also because they are seeking help, e.g., "clarification on the

work, or something I saw in a lecture and did not understand" (Student 9), psychological support, e.g., "against the stress we had for the assignments" (Student 1), or to exchange views, e.g., "to see what other opinions my fellow students had" (Student 1). The psychological support is highlighted by the following comment: "Some meetings are like group therapy too, I would say. After completing the necessary work, we discussed several other issues that were not related to the course.... and it worked to relieve me a lot of times" (Student 5).

Based on these comments it seems that SL, by simulating a classroom environment, helps the students act almost like they are in a real classroom. Hence, SL meets their need for a substitute of the physical classroom. So it seems that SL helps the students to develop a cognitive scheme necessary for their learning process. The sense of community not only affects them psychologically, but also enables them to develop dialogue in the class, not only in the subject that they study, but also on other important aspects of the educational process.

3. Communication Needs

Communication is the exchange of verbal and non-verbal information. A telephone call is not always perceived as a meeting. Although a communication in SL is nearly a phone call, using the Internet (VoIP) with many users, it is perceived by the students as a meeting. A student, comparing her communication experience in SL with the one in Vista, said, "SL was more direct, we could meet together and exchange views with teachers; it was a better communication" (Student 4).

It seems that speed plays an important role in communication, as “faster” is perceived as “closer.” Some students consider faster communication as more direct, saying: "There was immediacy; there was no delay in writing or saying something. There was immediacy and interaction among students, student-teacher ... It was something very immediate and easy" (Student 2).

It is noticeable how often the above student uses the word “immediate.” Although it is well known that technical problems appear more often in SL, the students didn’t seem to be frustrated by that. So they developed positive attitudes toward the environment: "[SL] was predisposing me ... I was seeking often to meet my classmates in SL rather than use some other way" (Student 4).

Social presence is considered as a characteristic of the communication medium. A student is referred to the concept of social presence by saying:

> Definitely SL facilitated communication and a sense of proximity. It was giving you the sense that the other listens to you at that time and that you know that there is a connection between both of you. It was more personal. Many times you feel that you were part of a process, as in a classroom. It means that sometimes you forgot that you were not in a real environment. (Student 7)

According to these comments, it seems that SL may meet the need of the students for fast and immediate communication. The satisfaction of students with the communication tools of SL may be explained by the richness of the

medium, as it offers several channels for communication (oral or written, in public or private, almost without limits for a typical postgraduate class).

4. Social Needs

Students are not simply exchanging information about the lesson. They exchange information about arrangements for their study and personal relations. As one noted, "We were meeting each other for our work, but making a joint effort to explain some things at our assignments, we came more close as individuals too. Afterwards, we were communicating on a personal level" (Student 2). Also, the development of personal relationships among students is more possible when the environment offers more opportunities for communication:

> I had the opportunity to randomly meet people in SL that I didn't say a simple hello in real life, talk to them and develop relationships. It happened with two or three people to talk a bit more and after that we became friends and talked even outside SL. I felt as if it brought us closer. (Student 4)

The quality of these relationships may depend on the time students spent together. Student 6 noted, "In SL we developed a different kind of relations. We were introduced to each other better through discussion on a specific task and discussions non related to this task." In addition, the degree of use of the medium may affect the depth of the relations they develop. As Student 2 observed, "People who were using the medium "were tied" together. Those who did not attempt to use it didn't join groups. We, who were using the medium, became one group."

It was observed that students did not speak only about the educational content when they communicated in the learning environment. They also had the need to speak about the educational process and about personal subjects. In SL they felt it convenient to speak about these subjects too. This opportunity can make the connections stronger in the learning community and allow for a more effective collaboration among its members.

5. Collaboration Needs

When a collaborative learning model is applied, students need to communicate in order to exchange ideas and deepen their knowledge and to accomplish the assigned task.

The interaction with classmates was considered as a component of the educational process, additional to the interaction with the teacher. In some ways students were learning from each other too. They addressed "the gap from teaching… we tried to fill it in some way between us" (Student 7).

Due to the interaction among them, they had the sense of a team. "We learned to function as a team," said Student 5. Student 7 positively referred to the role of the medium in the construction of a community of learning, noting, "the existence of a medium that joins us in the network helps a lot."

The need for collaboration depends on the applied learning model, the subject of collaboration and the degree of difficulty of the course. According to Student 3, "[The degree of collaboration was affected by] the subject of collaboration ... it was the need that brought us closer." In addition, the more difficult the course (as considered by the students), the greater the need for dialogue and thus the greater the need for communication and collaboration with their classmates. "If a course is difficult, ... then collaboration increases dramatically," remarked Student 9.

SL may help the students' collaboration by offering communication tools, sense of community and the ability to implement difficult tasks.

Conclusion

Silva et al. (1998) refer to lack of time, family responsibilities, scheduling and location of courses and cost as factors relevant to lifestyle needs. This research showed that SL might meet the lifestyle needs of the students (RQ1) by:

- parallelism (as students realized that they can do more activities simultaneously),
- pleasant character of the environment (the aesthetics of the 3D graphical environment), and
- synchronous mode of communication.

With respect to personal needs (RQ2) it seems that the pleasant character of the environment is an intrinsic motivation for students' participation. For that reason the scheduled time needed for synchronous communication is not perceived from the adult students as a disadvantage, although the opposite was expected. The capability of the environment for simulation of a classroom (virtual classroom) and oral communication facilitates the development of a virtual community. The community supports its members cognitively and emotionally.

MRT suggests that rich media are those with a greater language variety, a greater amount of channels (e.g., verbal and non-verbal elements), a greater personalization (of the communicative contribution) and a more rapid feedback. It seems that SL has, more or less, these properties. As students want to save time and they are already familiar with their classmates, they prefer a fast and rich medium (RQ3).

Students may have a need for a strong sense of social presence, i.e., to feel the presence of their teachers and classmates. A 3D environment improves social presence and interaction, thus improves sense of proximity, connectedness, sense of community and the development of personal relations. It was reported that fast communication gave the impression of stronger interaction. It is not only that students share the same environment, but also the dynamic character of the application that facilitates socialization, due to the rich information that can be exchanged among the users. Students need to speak about the content, the educational process and personal subjects. In SL they felt it was convenient to speak about all these. This opportunity can make

stronger the connections in the learning community and their collaboration more effective (RQ4).

With respect to collaboration (RQ5), students noticed the technical abilities of SL, especially for tasks in teams of four or five students. SL helped the interaction among students and as stated by themselves, devoting greater time for communication can have positive results on their collaboration.

The current study provides evidence that the new media have offered new opportunities for adult students, which were not known or expected in the past decade. The implementation of collaborative teaching/learning at a distance seems to ask for synchronous methods of communication, additionally to those currently used. Traditionally this was regarded as contrary to the principles of adult education.

The results of this research are limited. They may apply for graduate students who already possess a degree, are over 22 years old, and have a regular job or are looking for a job. This research took place within an educational program in the field of human studies where the majority of the students were teachers of primary or secondary education and 80% female. It would be interesting if, in a future research, these specific characteristics could be more diverse.

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