

Online tutorial – meeting students' needs

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ABSTRACT: This article will present a pilot study that was developed with students from higher education on approaches to increase the collaborative work between students, and to enhance their research skills. The methodology we are evaluating is designed around collaborative virtual spaces which offer some benefits for deeper collaboration and interaction. The target group was students from the 1st year of a Higher Level Course. One group of students was in full-time education and a second group was mature students in part-time education. Both groups are engaged on an identical course.

The tutorial strategy adopted began with the teacher setting the class a challenge. Students were then invited to research the question and post whatever links/documents they consider relevant using a Diigo group, and comment on what they found (using the share and comment capabilities). The task for students was to write an article about the topic based on their research, readings and collaborative discussions. To facilitate the development of a shared understanding the students posted information and participated in virtual on-line meetings (Second Life®).

The pilot study implemented, and described in this article, demonstrated some gains from the use of online tools, in particular related with the level and quality of participation, collaboration and interaction among students. The use of virtual environments allows students to participate in richer interactions at times that are more convenient to their work/study patterns, with no physical restrictions.

Keywords: blended learning, collaborative virtual environments, learning contexts, online tutorial, Second Life®.

RESUMO: Pretendemos dar a conhecer um estudo piloto que foi desenvolvido com alunos do ensino superior e cujo objectivo passou pelo ensino de potenciar o trabalho colaborativo entre os mesmos, bem como as suas capacidades de pesquisa. Os recursos informáticos utilizados foram espaços virtuais de colaboração, uma vez que são espaços com grandes potencialidades ao nível da colaboração e da interacção. O grupo-alvo foi constituído por estudantes de primeiro ano do ensino superior politécnico. Os estudantes estavam divididos em

turmas: um grupo a tempo inteiro e outro em pós-laboral, ambos frequentando o mesmo curso e a mesma unidade curricular.

A estratégia de tutoria adoptada iniciou-se com a apresentação de um desafio por parte da docente. Após o desafio lançado os estudantes pesquisaram acerca da temática e partilharam, no Diigo, os links/documentos que encontraram e consideraram serem pertinentes para o desenvolvimento do tema. No final, os estudantes tinham que escrever um artigo acerca do tema, tendo em conta as pesquisas desenvolvidas, as leituras efectuadas e as discussões colaborativas realizadas. Para facilitar o desenvolvimento de uma compreensão partilhada, os estudantes, além de disponibilizarem e comentarem a informação no Diigo, também participaram em sessões virtuais de discussão na plataforma Second Life®.

O estudo piloto conduzido, e descrito neste documento, permitiu reunir indicadores sobre as mais valias das ferramentas online utilizadas, nomeadamente no que se refere ao grau e qualidade da participação, colaboração e interacção dos estudantes, aliados à inexistência de constrangimentos de ordem temporal e/ou física.

Palavras-chave: ambientes virtuais colaborativos, blended learning, contextos de aprendizagem, Second Life®, tutoria online.

INTRODUCTION

We are conducting a research study that is being developed as part of a Doctoral Program under the name *Knowledge Building in Virtual Environments – Influence of Interpersonal Relationships*. The three components of the research program are related with knowledge building, interpersonal relationships and collaborative virtual environments (CVE). The premise is that socialization is a key element of collaborative learning. The act of learning – or knowledge building – has a significant social dimension. With the research we will try to understand if there are best practices orchestrating learning in virtual and immersive environments and if they will enhance blended

learning. The study is being conducted in the immersive 3D virtual environment called Second Life (SL), with the support of Web 2.0 tools (Diigo).

With our research we seek to learn: (i) how students engage with Web 2.0 tools and CVEs; (ii) whether the tools and the virtual environments show improvement in collaboration and content sharing; (iii) how well the tools and CVEs promote knowledge building; (iv) to which students' the CVE's and Web 2.0 tools seems to fit better. As a broader goal we seek (i) to learn what advantages we can find in an online tutorial implemented using an immersive virtual environment; (ii) provide some insights for better online teaching strategies.

The main study will be implemented with students that course in a High School of Education (approx. 110 students). This is a non-probabilistic intentional type of sample. It is a qualitative study with an inductive and exploratory character. Qualitative studies are defined as being "an inductive form of inquiry (...) that explores phenomena in their natural settings and uses multi-methods to interpret, understand and bring meaning to them" (Arsenault & Anderson, 1999). It is also defined as an exploratory study because the main data collecting will be achieved through the observation of some identified key indicators (such as the avatar appearance and how the students' behaves and collaborate in a learning group or community). This will help determine the level motivation, collaboration or socialization of the students in the virtual environments. To complement this, surveys (with closed answers) will be used to inquire about the students' experience of entering, using and interacting in the virtual environments – gathering information such as time spent online, activities done, difficulties, level of social integration (e.g. groups or number of 'friends').

To determine how appealing virtual environments can be for learning contexts, especially as a tutorial setting, a pilot study was implemented and the results will be discussed further in this article.

STATE OF THE ART

The advantages of virtual environments are becoming clear, students "have a lot of practice of e-mailing, blogging, googling, chatting,

gaming, and so on!" (Bettencourt, 2009). Students "entering universities after 2000 (...) were portrayed as needing a more media and IT driven learning environment", (Paul, 2009). But what do they get when they arrive at University today? For the most part it is the same old strategies from the last century; where students "are asked to sit in rows and listen to lectures, take notes or solve exercises given by teachers. It's a teaching strategy that doesn't prepare students to be critical citizens and professional workers on their specialty, nor give them the skills and competences needed to be autonomous and constructors of knowledge" (Bettencourt, 2009). Our students now live in a multimodal and interconnected world and for them this "way of dealing with information is much more intensive than listening to one source of information at a time" (Veen & Vrakking, 2006).

We are no longer simple information collectors (Web 1.0), now we are active and reactive users; we develop and share content and information (Web 2.0). Although some authors believe we are in the Web 3.0 (Hayes, 2006 & Wheeler, 2010) era already, relating to "virtual environments in which we meet as avatars, interact as 3D moving objects that takes sharing, co-creation and communication to the next, predictable level" (Hayes, 2006). SL is the best representation of this idea, its environment is like an "ever growing virtual playground that is limited only by the creativity of its users" (Johnson, 2006) that allow us "to build 3-D objects collaboratively and in real time with others in the same world [with major applications at] building, design, and art principles" (Wagner, 2007). SL is also a "rough simulation of the natural world, with meteorological and gravitational systems, the possibilities of experimenting with natural and physical sciences are endless [and all this] in a safe and controlled environment" (Wagner, 2007). The educational potential is that, within an immersive environment, we are walking inside the material, not just viewing it from a distance.

We perceived that we could learn in, with and from these immersive virtual environments. They allow us to learn "through exploring environments, 'realia', lived and virtual experiences with tutorial and peer-based support" (Freitas, 2006).

For instance, there are many examples of ancient buildings and cities (some of them have

already disappeared at real-world) that can be visited in SL. The Sistine Chapel has been modelled in great detail so we “can fly up to the top of a wall for a close inspection, look down at the inlaid floor, or even sit on a window ledge” (Taylor, 2007). As Taylor says the “purpose of this re-creation is to explore the use of virtual reality for teaching and learning about art and architecture, by experiencing the context, the scale, and the social aspects of the original” (Taylor, 2007). Another example is the reconstruction of ancient city of Rome¹ or the city of Lisbon pre-earthquake 1755². The potential is not limited to anthropology or humanities. One example from the physical sciences on molecular motion illustrates how SL can emulate “the way that hot and cold molecules interact with one another in an environment of uneven heat distribution”³. In the medical field, some experiments for training medical students are running (Boulos, Hetherington & Wheeler, 2008). SL is also a good environment for language education, which is justified by the fact that “instructions are context-embedded and therefore the approach treats the second language learner as if he/she was learning his/her first language - which incidentally would correspond to the playful type of language learning present in SL” (Hundsberger, 2009). Some examples of ongoing research in education can also be found at the SLED (Second Life Educators) list⁴. We have perceived that “Education began, slowly, to realize that many of the attributes of great game playing, from the intellectual challenge to the provision of multiple learning styles, had an immediate part to play in learning” (Freitas, 2006).

ONLINE TUTORIAL - PILOT STUDY

We have used “the experience of a pilot to frame questions, collect background information and adapt a research” (Sampson, 2004). The pilot study was a test to gain experience of the use of CVEs in learning contexts. We seek to understand how effective a CVE is as a proxy for face-to-face interaction.

We had two groups of students a regular undergraduate day class and a part-time

students night class (23 years +) following the same syllabus in an identical curriculum. The teacher meets each class, in a common physical space (traditional classroom), once a week.

The teacher also has some hours of contact out of the classroom (support hours). These support hours suit the regular students very well but don't meet the adult students' needs since they are part time. The night class has full-time jobs and studies in the evenings and at weekends. The challenge for the teacher is to provide a way for students collaborate on coursework, in a tutorial context, making use of the support hours in a creative way. The main goal of the pilot study is to encourage collaboration ‘out of hours’ by providing means for students and teacher to interact. The pilot project is intended to evaluate the effectiveness of blended learning as a tool to achieve the teaching goals. We see blended learning as a “learning that combines online and face to face approaches” (Heinze & Procter, 2004).

For the study, each group of students was given the same research challenges; namely to a) research the ideas of Prensky (2001) on ‘digital natives’ versus ‘digital immigrants’, and to determine in which group they belong; b) research Stephenson's quote “I store my knowledge in my friends” (Stephenson, 1998) and relate it with today's networked society. The performance of each group on this task is being used to evaluate the effectiveness of SL/Diigo in promoting collaboration, communication and interaction skills. This was an observational study.

Prior to work commencing, the students were asked to select a virtual environment that could host tutorial meetings. After a class discussion about the advantages and disadvantages of some 2D and 3D virtual environments, Second Life was chosen. The predominant reasons for choosing SL were its interactivity, its immersion and the fact that the environment is user defined; also the class wanted to learn about this one in particular. The ability to completely define your in-world presence and interact with others in a simulation of reality has immense appeal. Clearly an environment which connects with students' interests is more likely to have a positive effect. However, Diigo was prescribed by the teacher.

The teaching goals were to: (i) cover some theoretical subjects as part of the course curriculum; (ii) help students to understand the

¹ <http://secondlife.com/destination/roman-forum>

² <http://lisbon-pre-1755-earthquake.org>

³ <http://www.youtube.com/watch?v=592rXlgCnoQ>

⁴ <https://lists.secondlife.com/cgi-bin/mailman/listinfo/educators>

importance of sharing and discussing information in an open manner; (iii) provide tutorial support to the part-time class through a virtual environment.

It was very quickly discovered that there were further opportunities for enrichment by encouraging the regular students to join the virtual tutorial. Normally, day and night students do not have the chance to mix so the virtual setting enabled further cross collaboration.

The teaching methodology is for the use of physical classroom hours to develop and work through practical content. The virtual classroom is used to develop the theoretical content of the subject. The virtual classroom comprises a Diigo group⁵ and SL sessions - also supported by an in-world group. None of these spaces is a closed community. Anyone can join both groups and contribute to the discussion and content sharing. We are working under the missive "I store my knowledge in my friends" (Stephenson, 1998). If one of us does not know something we just check it with a knowledgeable friend. Note also that the students are networked through other Web 2.0 tools (Facebook, HI5, Digg, LinkedIn, Plaxo, Twitter, several blogs). They are using the connections they establish in social Web to enrich the contents and discussions around the class topics. This helps develop a class community, which we feel is vital for sharing and collaboration – helping to build a collective intelligence (Lévy, 1997).

The virtual meetings happened at the Academia Portucalis⁶. The choice of this location was left for the students to decide (the other options were: SLESES⁷ or SecondUa⁸). This location was chosen for its informality – it is not perceived as an extension to the 'bricks and mortar' university. We are applying a pedagogical philosophy of learning in which the knowledge is built by students in a blended learning environment.

We are specifically using the aforementioned online tools as a learning support because we realized that their features

suit our needs and they could be used as a support for pedagogy. We outline next some of their features.

Second Life:

- immersive (walk through contents and information / learn by living);
- 3D representation of 'myself' – avatar - learn subject matter in 1st person;
- communication, cooperation, collaboration, interaction and information sharing in real time;
- social networking / community of practice (Wenger, 1998).

Diigo:

- online social bookmarking (referencing);
- posting and commenting (opinions, analysis, feedback);
- information sharing (collaboration, building common ground);
- brainstorming;
- student directed activity.

Underpinning this is the idea that the teacher is no longer the center of the knowledge; the role of the teacher has evolved to being a guide and facilitator. Helping students to search, select, relate, analyze, synthesize and apply information; and therefore build knowledge. In the language of Siemens, the teacher is a 'node' in the students' personal network.

The teacher's role is changing from a formal didactic model into informal collaborative one. The teacher's role is to: (i) motivate; (ii) promote team work; (iii) facilitating cooperative learning; (iv) encourage dialogue; (v) moderate the intellectual accuracy; (vi) help students become autonomous in their search for knowledge and understanding. The teacher becomes a mentor for students in a more reflective learning context.

Note that this tutorial methodology is not an obligation for students. They were cooperating with this task and in the virtual meetings of their own free will.

PRELIMINARY FINDINGS

First we found that the initial set up cost of starting SL was high. The students had no prior experience with the environment so the first

⁵ <http://groups.diigo.com/group/lah2010>

⁶ <http://slurl.com/secondlife/Portucalis/218/167/22>

⁷ Ilha em SL da Escola Superior de Educação de Santarém [<http://slurl.com/secondlife/Sleses/42/214/21>]

⁸ Ilha em SL da Universidade de Aveiro [<http://slurl.com/secondlife/Universidade%20de%20Aveiro/118/124/38>]

tutorial session became a focus for fixing ‘new user’ issues. The SL environment has a steep learning curve: how to move, how to communicate and interact, how to customize... Predominantly this was navigating the world and helping with avatar appearance. However we felt that this was time well spent as rapid integration into the CVE is an important prerequisite to collaboration. Two in-world sessions were devoted to students’ acquisition of basic skills (+- 6 hours during successive weekends). A number of students engaged in-world beyond tutorial hours. In future sessions it was easy to see those who had spent more time learning – avatar appearance is one indicator.

The night students made the best use of Diigo with 60% of the class making a contribution in the form of a posting or a comment (or both). As a contrast the day students had a 17% participation rate on the same basis. Remember that this was entirely voluntary with no negative implications for not participating, so it is clear that the night students have a higher degree of intrinsic motivation than the day students. The teacher was still leading the group with some 35% of total postings - however this means that 65% of the contribution was from students hence there is a clear shift in the focus from teacher to students. The work to date shows that the level (and quality) of information being posted was high (relevant), although the posts were moderated. The virtual collaboration was showing early signs of success with both classes showing high participation in in-world activity. The Figure III (*cf* Figure III) shows a combined tutor group with 30 attendees (50% of the two classes). However, we only registered a 33% of attendance in latest online meeting (with no participation from day class). The reasons for this have not been evaluated but some preliminary ideas are:

- the night students are more independent as learners;
- the night students have less time and more desire to learn in the most effective way;
- the night students are more motivated since they have stronger reasons to study in their spare time;
- the day students are taking full advantage of the social side of university;

- the CVEs support the work patterns of mature students in particular.

We can summarize saying that the contrast of behavior between day and night students is a function of maturity; level of independence as learners and intrinsic motivation. The motivation aspect needs further and deeper evaluation (where free will is involved). In that way we may say that an online tutorial established in a CVE might suit better the part-time students and this might be a way to help them to keep in touch with the teacher.

CONCLUSIONS

As a conclusion we can say that we are taking the distance out of distance learning. Our idea will allow educators to create the best learning environment by understanding what makes learning the most successful in a CVE. It seems that informal learning is the best approach as this is already practiced by our students. We think that CVE might provide the best ambience for informal and natural learning at a distance. They seem to make students feel more confident, more open, more participative, more creative, and more responsive. In fact, in the immersive virtual environments, students seem to attend training sessions because they want to learn (Bettencourt & Abade, 2008). On the other hand the establishment of online tutorials allows us to better reach and fill students’ needs. The online tutorials can be set at a time and in a space (virtual) free of restrictions – that can be adapted, allowing a better participation from a larger number of students.

In a CVE there are no physical barriers or borders. Information flows, people build and share content, relationships are set up, the net of connections extends and knowledge is built. This acquisition is made in a natural way, by participating in a community, by sharing, interact and collaborate, discussing and launching ideas, contents and information, therefore a “learning activity is (...) a conversation undertaken between the learner and the other members of the community” (Downes, 2006). It is a natural process of interaction and reflection with the guidance and correction of expertise or peers.

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