ADDED VALUE OF TEACHING IN A VIRTUAL WORLD

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ABSTRACT. The lack of ICT use in teaching is a predominant issue in secondary schools throughout Europe. The AVATAR project (Added Value of teAching in a virTuAl world) provides an opportunity for both teachers and students to benefit from ICT skill development, social learning opportunities and a resource to help revive the traditional classroom environment, adding value to the learning process. V-learning actually promotes learning-by-doing that stimulates different learning styles and increases the level of student engagement in different subject matters through technology, discussion groups and labs.
This article describes how the project contributes to enhance the level of ICT use in education by providing secondary school teachers with relatively new methodological and pedagogical tools. Virtual worlds can be used as an innovative teaching tool that motivates and engages pupils and at the same time enhances their learning by incorporating a collaborative learning, a learning through reflection and a learning by doing approach. Virtual worlds offer opportunities for teachers to have radically different 'lived experiences' of educational systems and thus seemed to be the ideal vehicle for exploring alternative models of education.

KEYWORDS: *Virtual Worlds, E-Learning, E-moderating, V-Learning.*

Why virtual worlds?

A virtual world is an online community or computer-based simulated environment where users can interact with one another and use and create objects. Virtual worlds or interactive 3D virtual environments, allow users to inhabit through their avatars, or 3D graphic representation, and communicate through text, graphical icons, visual gesture and sound.
Virtual worlds represent a powerful new media for education

offering a wide scope of tools for social interaction and innovation in learning to encourage student participation. Virtual worlds have the ability to adapt and grow to different learner needs and can overcome the limitations of a traditional classroom setting where certain tasks can be difficult due to constraints like cost, location, etc. V-learning promotes learner empowerment by allowing students to personalize their learning pathways, through virtual mediations and their avatar, which can create new learning experiences and reflection.

Although virtual worlds have been around for over 20 years, their real potential and use for educational purposes has grown in the last 5 years, including replicating universities, museums, art galleries and science labs for tutoring and mentoring. According to the article *Serious Virtual Worlds* "the lines between virtual worlds, games and social networking are blurring significantly leading to the assertion that over the next five years the majority of young people under 18 will have avatars and be using these kinds of applications daily and therefore have different expectations about how education may be delivered to them" (de Freitas, 2008, p. 8).

While major research studies on the benefits of virtual worlds in terms of participation, learner control, educational standards and quality assurance are still underway, the development of V-learning in the next 5-10 years has the potential to radically change how we learn and the face of education.

Research and comparative analysis on virtual worlds

In the first project phase, research and comparative analysis have been conducted on existing virtual world platforms assessing the quality of their teaching/learning features and functions. The analysis focused on essential and desirable criteria and also on the user friendliness of the platform and the important aspect of access for pupils below the age of 18. These are the essential criteria considered for the analysis: "Multi user world", "Persistent state world", "Integrated building tools", "Text communication", "Easy to run client for school machines", "Suitable for people below 18", "The developer must have experience and tools to build the environment in the specified time". The followings are the desirable criteria considered: "Ease of access for the development team",

"Web on prims", "Voice chat", "Low bandwidth", "Language support", "Intuitive building tools", "Ability to restrict access and building rights". And, finally, the cost criteria were considered: "Free or very low cost client", "Legal, open source end solution", "Server provisions - bandwidth, setup and maintenance costs".
The main existing platforms were included in the analysis: Second Life Main Grid, Second Life Teen Grid, Active Worlds, Open Sim, Unity3D, Blue Mars, Sirikata and There.com. Upon completion of the analysis, the virtual word that most optimally supports the educational design of the project, namely Second Life Main Grid, was the one selected for the subsequent phases of the project. This had the advantage of being a more stable development platform, which could provide voice chat; it also meant that teachers could develop their course in Second Life, allowing them to take advantage of the rich educational resources which already exist in-world.

Teaching and learning in virtual worlds

Phase two of the project was to design a course for secondary school teachers on teaching and learning in virtual worlds based on the results of phase one.
When deciding to introduce a new digital tool, such as a virtual world, into teaching and learning activities, one is not just adopting that tool but adopting a certain perspective on teaching and learning and a new set of roles for teachers and pupils that accompany this perspective.
This means that one cannot just transfer teaching and learning activities from one context, the traditional classroom, to the new context, the virtual world. How the features of the new context can be applied to best support the fulfilment of the specific learning outcomes of the course must be considered.
The course has 3 basic learning perspectives, namely collaborative learning, learning through reflection and learning by doing. The course work actually revolves around:

- group activities that allow participants to learn from each other creating a learning environment that facilitates both informal and formal learning;
- activities that encourage participants to reflect on their

own learning experiences enabling them to set and pursue personal learning goals relevant to their specific situation;
- practical work that lets the participants explore virtual worlds and gain first-hand knowledge of the potentials and pitfalls of virtual worlds teaching and learning.

The is divided into two main parts: the first dealing with teaching theoretical knowledge (e.g. the methodology of virtual world teaching, overview of the most common V-platforms and their features, how to engage and stimulate students) and practical knowledge (e.g. basic skills for constructing V-objects and how to realize an efficient V-lab and materials); and the second part where teachers realize and experiment the project work with small group of their students. The course learning outcomes are relevant to European Qualifications Framework (EQF) Level 5.

E-platform and V-platform technological design and production

From the technical point of view, an E-learning and a V-learning environments have been implemented as an essential step in the course preparation.
Claroline is the open source E-Learning platform selected and used for the delivery of the online course. This platform is suitable for the delivery of distance learning, in particular through Internet. Other popular open source platforms present comparable tools, for example Moodle. Nevertheless Claroline shows a very concise and clear source code that allowed the AVATAR developers to implement new features and link the platform to the V-learning in an easy, transparent and consistent way. In particular the platform has been modified to fit well Gilly Salmon's model for teaching and learning online, focused on tasks and processes rather on learning objects (Salmon, 2004). Participants are allowed to perform tasks, e.g. open and post messages into fora, directly in the training area without exiting it. This allows participants to follow the scheduling of tasks in an easy way without jumping from one tool to another in the E-Learning platform with the risk of wasting time and getting frustrated.
The V-platform is composed by individual builds/locations and it

has been built in Second Life as part of the AVATAR estate by the University of Southern Denmark. The V-platform is owned and operated by Linden Lab.

The table below provides a brief description of the individual builds/locations that are part of the AVATAR estate: the HUB, the Resource Centre, the Dissemination Path, the Sandbox and the Auditorium.

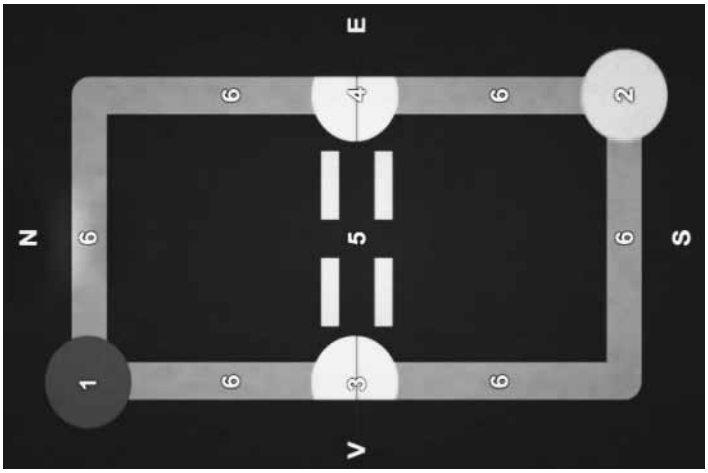

Figure 1. The plan of the AVATAR estate

Figure 2. The HUB (1) is the point of entry into the simulators. Its form is derived from a circular Greek temple (Tholos) except that it consists of two tiers of columns and has no solid walls. It is intended to offer information about the AVATAR project.

Figure 3. The Resource Centre (5) offers textures, scripts, object accessories and teaching aids for teachers and students to collect free of charge at their own initiative and short user guides.

Figure 4. The Dissemination Path (6) is situated around the outer edge of the Sandbox facing the surrounding ocean. It provides teachers and classes with campsites for presenting and sharing their activities in-world.

Figure 5. The Sandbox is the place where teachers and students can place and/or create objects. There they can experiment with various building tasks in Second Life, gather to discuss their explorations and carry out project works

Figure 6. The Auditorium (3, 4) is modeled on a traditional Greek theatre and is placed in front of the ocean. It holds up to 100 users simultaneously and is used for presentations, seminars, conferences, etc.

Experimentation phase

Phase three of the project is the experimentation of the course methodology and contents with secondary school teachers. The pilot experience has been launched in January 2011 with more than 120 teachers from all partner countries.
During the selection phase, each partner promoted the course in secondary schools and the selection process has been conducted in Austria, Bulgaria, Denmark, Italy, Spain and United Kingdom. The charts below show the distribution of participants per country (Fig. 7) and the selected disciplines for the project works (Fig. 8).

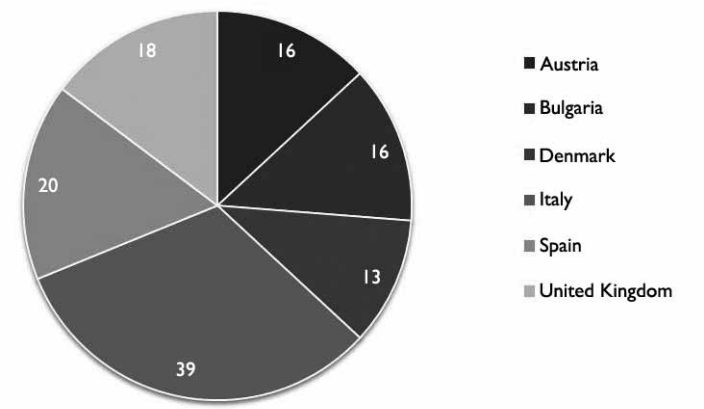

Figure 7. Distribution of participants per country to the experimentation phase

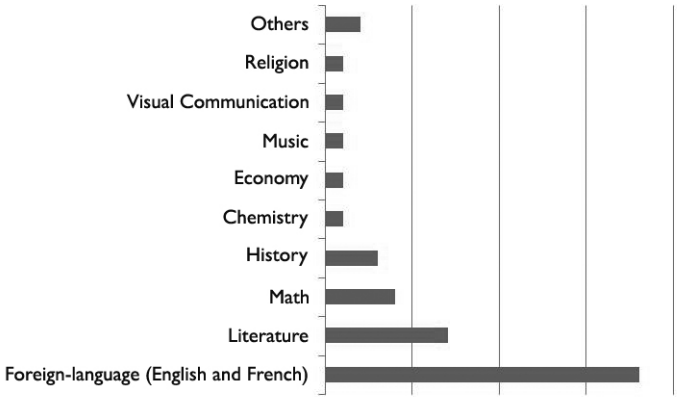

Figure 8. Disciplines for the project works

Participants have been grouped in national classes moderated by national E-moderators, namely people who work with learners

online and follow the Five-stage moderation model conceptualized by G. Salmon. In her Five-stage consolidated model for teaching and learning online, Salmon defines the essential role of the e-moderator, that is promoting human interaction and communication through the modeling, conveying and building of knowledge and skills (Salmon, 2004, p. 27). The AVATAR E-moderators are virtual worlds' experts, who communicate in their native languages with participants and they also carry out some transnational activities and reflections, where participants communicate in English, as a common means of communication.

Just like the Web, Second Life tends to be shaped by a permissive, anarchic culture which cuts against the organized, substantive, and deliberative activities. We challenged this larger culture by creating a roadmap of tasks rather than a collection of learning objects, adopting a consolidated moderation model and expecting participants to commit for a reasonable amount of time during the pilot phase (approximately five hours a week, for 17 weeks). We planned regularly meetings and we established clear guidelines, processes and expectations.

During the Course, periodical lessons have been carried out in real time in-world on topics related to the basic and advanced construction of 3D objects. Additionally, a number of guest speakers have been invited to held seminars during focused on Second Life, its culture and how it has and can be used in educational contexts.

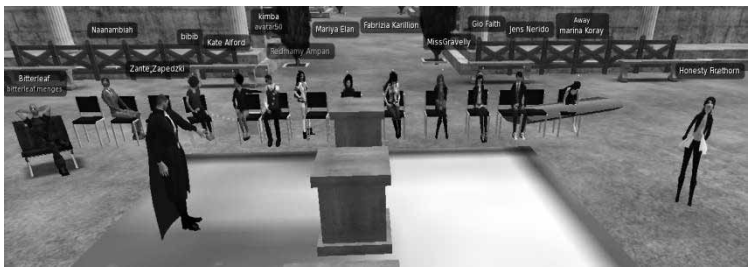

Figure 9. A lesson in-word with a group of participants

Conclusions

The first results obtained from the experiences and pilots are promising. The added value of teaching in a virtual word points towards cultural, linguistic, interpersonal and motivational

ben¬efits. We are observing that the participants are dealing with a challenging, motivating and innovative learning environment which offers them opportunities for real-life learning.
Based on the first results of the experimentation we can affirm that the environments led to a very high retention rate (only one person dropped out of the program during the first week) and a massive and enthusiastic participation to the collaborative activities (during the first 12 weeks participants 182 topics on fora and 2006 posts). Virtual worlds, embedded in an appropriate pedagogical approach, seem to contribute to enhance collaborative learning, learning by reflecting and learning by doing approach as well as learner autonomy and social empathy. Participants are sharing their experiences of enjoyment and motivation and lots of ideas for the project work has been shaped. The combination of this positive attitude, together with the educational poten¬tial these environments have, can lead to very motivating, enriching and satisfying learning and teaching experiences as the results seem to indicate so far.

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