

Mapping the Spaces of Virtual Learning Environments

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Abstract

Virtual Learning Environments (VLEs) are an expression of the post-modern school. In this paper we discover how the functional requirements of the VLEs affect and are being affected by the educational, ethnographic and social spaces. It is supported that educational effectiveness of VLE is not proportional only to the quality of learning material, but also to the general educational context of the VLE regarding social characteristics that should be in line with the normal school life. In order to eliminate certain negative issues related to empty and boring VLEs we study the mapping of educational, mental and social spaces into modern virtual environment's philosophy of use.

Keywords: VLE, Blended Learning, Virtual Identities

1. Introduction

The increasing availability of communication technologies in all aspects of everyday life has maximized the expectations from technology in general. The same thing happened to VLEs when introduced to school environments: although they started as experimental projects, soon they became very popular. VLEs allow the multiple levels of engagement and they are transforming the roles of teachers and students as well as their motivation (Lennon and Maurer, 2003). Moreover, they propose a 'socially constructed presence' (Arminen et al, 2008) and thus they constitute an irreversible change in school environments history, just like cell phones has changed the meaning of distant communication.

Teaching with VLEs includes the use of a wide range of software tools, personal computers and PDAs, curriculum design, management of student's profiles, online help and documentation to gain better learning outcomes. From a technological point of view, VLEs could be seen as the evolution of educational software. It has been reported that there are four generations of VLEs (Ivanova and Smrikarov, 2004):

1. First generation which mainly include databases of learning material, testing systems and discussion forums.
 2. Second generation which is based on integrated databases and organized learning processes, administrating policies, statistics and metadata.
 3. The cutting-edge third generation which supports audio and video conferences, student collaboration over one project and integrated learning services.
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4. For future development, the forth generation is about personalization, adaptation to the needs of students using artificial intelligence, multi-agent technology, etc.

On the other hand, Blended learning appears today more realistic than pure online web based learning according to students responses (Garrison and Kanuka, 2004). Based on promising indications, this will continue to be true in the near future not only because it broadens the learning environment and blurs the limits between virtual and physical space, but mainly because it allows the continuation of pre-existing community ethics. Blended Learning as term is not clearly defined because of contrasting definitions (Oliver and Trigwell, 2005). In this paper the term is used to indicate the integrated combination of face-to-face traditional with web based online teaching and learning activities.

Having discovered the recent VLE technologies and research findings about Blended Learning published in the international literature, this paper aims to shed more light into important aspects of virtual school life and blended learning experiences. In particular, the main question is: which common spaces traditional and virtual learning environments share? How student's experiences are shaped when both environments are used simultaneously?

2. From Locality to Diversity (and back)

2.1 Exploring the learning spaces

VLEs create learning spaces where distant students and teachers collaborate with each other in order to reach goals. The geographical distance is not any more a factor that can influence learner's participation in a negative way. In VLEs, distances are measured in number of clicks. On the other hand, the feeling of students being close to their instructor is called transactional distance (Coopman, 2009). This distance can be eliminated in VLEs because of the fact that participants adopt new identities which represent themselves in a less socially structured or differently structured environment. For example, while being very important as an organizer and having a high symbolic value, the instructor is not the only source of information. Actually, the diversity of information is such, that when someone says 'I study at some fine university or school', he/she actually specifies the institution which will honour him/her with a diploma. There is no doubt that educational institutions create other kind of qualities to separate themselves from others. What is really mentioned here is that the actual learning environment for each individual is not limited to a specific campus and nobody can tell exactly how many teachers are involved in a course. A typical student normally spends more time searching on the Internet than attending lectures. He/she also reads articles, forums and participates in conversations with other students who share similar interests.

In the last generations of VLEs the diversity of information is maximized. Learning resources from inside or outside of the VLE can be structured and delivered in such a way that give to participants a sense of information continuation. Also, the learning resources are enriched by the participant's active enrolment. Finally, the content of a given VLE include mixed textual, vocal and pictorial material where the distinction of the 'formal' educational material may not be the most important thing. Although technologically it is easy to notate the official course material given by the instructor and the official libraries, finally in a mixed information space this is not the primary purpose of learners. For

example, learners are highly interested in finding the other people's explanations and evaluations of a given set of learning material trying to figure out what to do with it.

2.2 The need for 'localities' in the information space

The effectiveness of VLEs is analogous to the frequency of their use. When rarely used, they become frozen environments with low importance. Researchers propose the structured information space, careful learning activities design and motivation as ways to avoid the phenomenon of 'Virtual Ghost Town' (Kapp, 2009). Diverse users who share the same information space prefer to create localities. Those localities can be social like a virtual community or a small group of friends sharing the same forum or chat room. This is typical to human behaviour. Actually, it has been reported that relationships among members have the potentiality to grow faster than the absolute number of members (Golbeck, 2007). These self-organizing communities create their own shared identities (Lombardi and McCahill, 2004). Other type of localities in information space is personal user profiles. Each learner creates his/her own user profile and provides, apart from personal information, information about interests, courses, finished projects, communities he/she belongs. It is a unique set of structured information and metadata describing a person as a student and this is the first step to create a virtual identity. Virtual identities help us to realize our existence into virtual spaces and probably it is the only way to start socializing with others. Other localities are personalized digital libraries, where diverse pieces of information have something in common: they belong to a specific user's preferences.

The diverse space of information looks like something infinite to users even if they already have an identity and community membership. VLE designers do not always paid much attention in creating to their users the feeling of 'home'. In 3D immersive VLE a home can be a virtual house or an apartment in a skyscraper. In non 3D environments home can be the web page of user profile. In general, home can be a space what hosts information that other users cannot access without our permission. To make an analogy to physical life, home is a place where we have secrets. We see, use, own things and behave away from other people's attention. We can invite friends and share this special place when we feel we trust someone. In most online social networks, when you are invited to be a friend to someone you have access to (you are allowed to know) all other friends of that person. Some users do not feel comfortable by this feature because these social processes are not stepped enough and they are not always adaptive to different cultures. Modern generations of VLEs create similar social networks, so the designers should take into account that in personal spaces (homes) users need to have the control and need to be the ones who create the rules. The same principles apply to any VLE in order to be attractive to learners.

2.3 Reinforcing personal and group identities

As a conclusion to this section, when students and teachers share a common learning virtual space, strategies need to be developed to eliminate the phenomenon of empty and boring VLEs. Richardson & Turner came to conclusion that students feel less part of a learning community and among other solutions they propose the more successful use of the courserooms (Richardson and Turner, 2000). In addition to this, a courseroom can be

successful only if participants are getting involved with their personal identities and information spaces and finally allow themselves to be part of the social context of the VLE sharing the same group identity in virtual communities.

This personal way of participation is also influenced by the attitudes users create for their own enrolment. For example, people who enter Second Life are referred to as residents, not as users, players or visitors. Residents can socially express themselves by transferring their own personalities to Second Life (Tashner, et al, 2005; Holmberg and Huvila, 2008). This is a good example of reinforcing virtual identities. Matei et al. support that virtual and real spaces are not mutually exclusive and the social life of all virtual reality environments is a hybrid artifact (Matei et al, 2007). Similarly, students get involved in traditional and virtual learning experiences using hybrid identities.

3. From Students to Participants

3.1 Online and offline life

We learn from whatever we do in our everyday life. Knowledge, abilities and personal aesthetics are cultivated from our experiences (Korn-Bursztyn, 2002). In virtual environments students may engage in roles totally different than in real life. But life also has changed and includes virtual life and virtual identities too. Certain qualities of VLEs create new places which have nothing in common with physical world. One of the most interesting issues here is to study how online life is affecting offline life and vice versa. For example, the architecture of schools is perceived as a meaning to students implying that schools are important parts of our society and the school environment is a way to construct a meaning about themselves (Williams, 1998). What meanings are created from VLEs to imply that virtual learning is equally important as traditional learning? What meanings students construct about themselves living a part of their school life into virtual environments? Titman (1994) has shown that children have common reactions to specific meanings because they receive messages from the learning environment which is translated into a common cultural framework. In VLEs technology and culture are affecting each other in a primitive way.

At the beginning, participants are expected to spend an important part of their time to knowing each other and trying to be self-organized in communities than spend time in actual learning activities. Also students develop managing and promoting strategies to make their user profiles famous among their communities. But why someone should spend time and effort to create his/her user profile and share identity to others if he/she is already known in a community of physical world? Personal identities and social structure are the most difficult elements to be transferred in a VLE when Blended Learning is applied. This could explain why although VLEs allow the creation of totally different social structures, finally they are based around the traditional teacher-classroom model (Weller, 2006).

3.2 User Models

VLEs are basically designed for distant participants (learners & teachers) but they are not restricted to distance education (Dillenbourg, 2000). Even in cases users are not geographically separated, the rules and processes remain the same. Moreover, educational

material is created by various and/or unknown authors and ‘the whole web ecosystem produce wikidentities’ (Mallan and Giardina, 2009). Especially in Blended Learning, the different levels of user geographical separation and the reversing roles between content consumers and content creators indicate that current user models must be re-examined. The recent history of various educational tools and the related teaching methods has shown that any new ICT-based approach is closely related to user model evolution.

A comparison between the student model used in general educational software development and participant model in VLE design can be seen in table 1 as an example. The plus sign (+) in the second column indicates what should be included over and above the first column. Designers should answer questions like: ‘how official virtual learning environments (those supported by the institution) indicate their differences in comparison to other virtual environments?’, or ‘why student’s behaviour in VLE should be different than in Second Life or Facebook?’. Answering those questions is beyond the scopes of this paper, while the indication of which questions should be answered is the main contribution.

Table 1. Comparison between models of ‘student’ and ‘participant’

<i>General student model in Educational Software</i>	<i>Participant model in Virtual Learning Environment</i>
Previous knowledge and abilities	+Computer driving abilities
Age	+Gender
Cultural background	+Personal interests and preferences
Personal learning style	+ Perceptions and attitudes about technology, videogames, communication gadgets
Social and family environment	+ Friends he/she make within the learning environment
Full time or part time student	+ Free time, other obligations
In-campus life	Home computer availability and technical characteristics, internet connection

4. From massive downloading to personalization

VLEs of the first generation were created around databases of learning material. Their primary use was the massive downloading of educational resources and most of the forum discussions were moving around technical issues regarding access difficulties, identification processes and information exchange about ‘who is teaching what’. Traditionally, students were treated as consumers of the educational material. Rules and processes forced students to follow specific behavior routes and thus VLEs were perceived as major downloaders.

Today VLEs are based on learning objects and metadata to deliver information and integrated learning services in a structured way. Students have access to multiple learning resources and under the support of the instructor they participate in content creation to make possible independent learning (Graham, 2005). VLEs are no more simple

communication tools or major downloaders, they are 'spaces for negotiation' (Dillenbourg and Baker, 1996). Their design is involved with multiple institutional strategies and finally with an open educational context. But behaviour routes are still being affected by processes. For example students may have the expectation that participation 'here and there' is enough to reach their goals. In a similar way teachers may evaluate projects and not their students. Strict plagiarism checking (a lot of VLEs include such tools and procedures) may deviate teachers from their initial role and create insuperable emotional obstacles in relationship with their students.

There is not enough space for real personalization in content and processes as VLE designers argue. Personalization is not restricted to personal profile settings, not to user driven responses of the system based on database queries. The high degree of integration of personalization into VLE should form learning services for specific personal goals. The lack of personalization on learning services drives content creators to make assumptions based only on curricula and teachers to recall their previous experience before even meeting their students and know their needs. Most virtual courses are introductory courses in IT skills because the learning content and activities are easier to be addressed (Koskela et al, 2005).

There is also a lot of security issues arise regarding personalized learning services. At first generations of VLEs security was limited to user authentication and access rights to educational resources. Last generations have to deal with collecting information about student's actions, profiles, social networks and uploaded projects. User's privacy issues involve improper storage and information transfer of personal information without the learner's consent. To protect student privacy institutions that rely part of their educational activities on VLEs must post their privacy practices.

5. Conclusions and Discussion

Virtual learning communities are about sharing experiences, not just information and communication messages. Generally, we should not have over-expectations from the use of VLE. Their effectiveness is maximized when Blended Learning principles and practices are in use. But, to be perceived by participants as socializing environments VLEs need to allow participants to express their feelings, wishes, level of satisfaction or complains and apply personal rules in information management. Moreover, all those issues must be seen as personal routes in school life. Comparing the traditional learning environments and VLEs as they are used simultaneously, we can depict the following contradictory pairs in cases of poor design and bad practices of sharing the information space:

- From knowledge authority represented by the teacher we move to the information managing authority represented by the administrator.
- From the social welfare and intellectualism of schools and academic communities we move to the individual welfare and user hierarchies regarding access rights and privileges.

- From the behavioral ethics and the construction of ideas about the world and ourselves we move to adoption of contradictory identities and the flat representation of ourselves. In other worlds from conceptualism to formalism.
- From evaluation of student effort and the formulation of personal goals we move to mechanistic file checking and the formulation of course goals.
- From living moments of social presence we move to spending time in reading past discussions in virtual spaces searching for evidence of being there.

Based on the above, VLE design and the everyday use in Blended Learning must allow participants to 'image' their school in a holistic way. Those mental images of the mixed school environment will affect the future use of VLE in a positive way because they will create personal memories. For example, if someone asks today students to show their school, it is much more possible that students will show the school building, than show its website. In future this may change as the physical environment and the virtual one will be more blended. Virtual identities are something more than user profiles, usernames and passwords. VLEs will be re-established as environments full of instinctive action when learners will realize the potentiality of their presence and will use it to create parts of school life history.

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