

Web 2.0 - Context Learning Projects: possibilities for the teaching practice

Dr. Eliane Schlemmer
Program of Postgraduation in Education
Universidade do Vale do Rio dos Sinos
Brazil
elianes@unisos.br

Daiana Trein
Program of Postgraduation in Education
Universidade do Vale do Rio dos Sinos
Brazil
daianatrein@hotmail.com

Abstract: This paper provides a reflection on possibilities for the teaching practice in the context of using Emergent Digital-Virtual Technologies — EDVTs, particularly relating to Web 2.0 tools. It establishes a relation between Web 1.0 and teaching practice, and between Web 2.0 and learning culture, addressing problem-based learning projects as an alternative for disciplinary curricula.

Introduction

The speed in producing information and the easy way to make it available and access to it through the Emergent Digital-Virtual Technologies — EDVTs cause changes in processes of teaching and learning. School has no longer been the only place for accessing information, and has gained an ally, the Internet, for example, which makes it available an information world within arm's reach in seconds. The emergent paradigm, the one of learning culture and collaborative/cooperative work, renders the needs of this novel society, sinking into this ocean of information and available technologies which can help in the processes of teaching and learning.

Information and culture production happen every time by way of digital media, thousands of people express themselves by the World Wide Web, creating and publishing texts, videos, photographs, among others. Thus, a novel type of culture, reader, writer, viewer, and thereby, learning subject emerge. For this, teaching practices focused on helping subjects to make relations enabling them to make sense of information s/he has access, rather than only supplying contents, are necessary. In this context and aiming at reflecting on possibilities to use EDVTs in education, this paper addresses Web 2.0 as a way towards a teaching practice encouraging interaction, collaboration, cooperation and favouring autonomy development and subjects' authorships.

1 Culture of teaching

The culture of teaching is structured from an empirical epistemological conception, which in tune with Becker (2003, p. 99), 'assigns for senses all the source of knowledge', and of an instructionist teaching approach, where the teacher has the knowledge, for Schlemmer (2002, p. 141) 'the educational space is hierarchical'. In the empirical standpoint, the student is seen as a tabula rasa (Locke, 1690), and his/her luggage of knowledge is not valued, s/he must only absorb what has been taught, as if knowing was independent from the subject's action. The primary preoccupation is not the subject's learning process, but rather the result, the 'finished product' Contents, previously defined by the teacher, are worked upon in class in a 'linear sequence'. 'The theory is not seen as a model constructed by the cognising subject by his interaction with the physical and social environment' (Becker, 2003, p. 98).

We have found the paradigm of this culture of teaching is also expressed in the EDVT use, as for example in the programmed instruction, CBT, WBT, WBI, and distance education. These technologies/practices provide short-section information, assess the student after each section and provide an immediate feedback for the answers. In this context, the computer is seen as a teaching machine. In this same context, Web 1.0 was long used, chiefly as a way to provide text pages, 'electronic books', and content depository, allowing for the subject a lower level of interaction.

1.1 Web 1.0

The World Wide Web or simply Web is a system of interconnect pages available on the Internet. This web was proposed by Tim Berners at the European Organization for Nuclear Research (CERN) and created in 1989. It came after the idea of hypertext, which emerged in the sixties by Ted Nelson. We call Web 1.0 this large web mainly characterised by allowing for information in the form of texts, which can be accessed by anyone connecting to the Internet. The Web 1.0 has a marked characteristic of the information society as it allows for the access of it in seconds. In the Web 1.0 paradigm, subjects are consumers of this information.

2 Culture of Learning

The culture of learning is structured from an epistemological conception and interactionist constructivist teaching approach. In this approach the educational process core lies in the interaction which is able to encourage learning, in the construction of knowledge, which occurs in a process of action/interaction between subject and object. The focus is no longer on the teacher and content organisation, but rather on questioning and problematisation by the very learning subjects, pushing research and problem solution, relating them with their living together.

In the culture of learning there is no space left for the closed, discipline-divided knowledge, which ignore the relationship among different fields of knowledge. Thus, the school traditionally obstructing the subject's spontaneous naïve curiosity, as Freire (1997) puts it, as it does not provide them the opportunity to ask questions, research, and go beyond, in search of knowledge, it begins to undergo changes, the famous teacher-centred classroom begins to leave room for a bold dynamic place dealing with teachers' and students' discoveries and wishes.

When we speak of interactionist constructivist conception, it is about virtual learning environments, virtual learning communities, blogs, Wikipedia, Orkut, 3D Digital-Virtual Worlds, among others. They are spaces in which subjects may interact an construct knowledge, when the subject develops his/her autonomy, becoming an author of his/her own process. In this context, the computer is seen as a means for social and cognitive development.

Thus, along with the EDVT evolution and novel ways to open up processes of communication, interaction and production in the Web, a novel paradigm emerges, relating to this culture of learning, which allows for a higher level of interaction, this paradigm of using Web finds space in the heart of Web 2.0.

2.1 Web 2.0: Origin, definition and main tools

The term Web 2.0 was first used in lecture by O'Reilly, of O'Reilly Media in 2004. O'Reilly spoke of Web's great boom, and the 2001 crisis when many companies had lost millions. So what would be Web's future? What Web sites and companies which were not affected by the crisis had in common? For many years the Web was regarded as mere means of disseminating information and marketing services, where companies were concerned in providing materials, and users wanted to access and consume this information. Over time novel software and websites emerged attempting to get users closer to their products, allowing this user to interact with information and thereby change its content. This coming closer to and interacting with the users were, for O'Reilly (2005), what in a way protected companies responsible for these websites and software so that they could not be affected by the 2001 crisis.

Thus the Web 2.0 concept has emerged, not as a novel technology, but rather an attitude, a novel way to perceive the world web (O'Reilly, 2005). The Web 2.0 concept has approached the Web as an enabling platform for users to interact, collaborate and cooperate with one another. The prevailing Web 1.0 and Web 2.0 characteristics are provided in Table 1 below.

Web 1.0	Web 2.0
Publishing	Participating
Input-Output	Throughput Process (Primo, 2000)
Personal pages	Weblogs
Technology	Attitude
Desktop – hard disc	Webtop – remote disc
Browser	Web Platform
Complex systems	Friendly Interfaces
One-one	All-All
Information Society	Knowledge Society
Reactive Interaction (Primo, 2000)	Mutual Interaction (Primo, 2000)
HTML	XML
Hierarchical	Heterarchical
Content control	Collective collaborative construction – authorship
Reflexive	Autonomous

Table 1: Web 1.0 and Web 2.0: main characteristics

To clarify this different way to deal with information and approaching users, we took the example of the distinguished Encyclopædia Britannica. This encyclopaedia provides its content for users who in turn access, consume, and respond when they need to. Wikipedia, an open user-built encyclopaedia, has emerged in the Web 2.0 context. Users who surf the Internet (*cybersurfers*) interact, make changes, feed back the Web, making the latter a constantly-updating environment. Thus the more users use and collaborate for it, the wider it is.

Another example of a company similar to the Web 2.0 concept is the giant Google. With a simple interface, rather than a search tool it has become a facilitator, using more and more the platform concept, embracing different services like Google Docs, Google Earth iGoogle, Blogger, Gtalk, Orkut, Lively, among others. We provide some of the main Web 2.0 tools and their recourses in Table 2:

Weblogs and Photologs or Fotologs
Weblogs, or simply 'blogs', are pages available on the Web, allowing constant updating from different users, through de 'posts' or 'commentaries'. Cybersurfers commonly use blogs as virtual diaries, but the tool is not only a diary as it allows communication and interaction, and it can enable discussion of particular subjects like education, politics, technology, health, sports, among others. Fotologs follow in the same line, but they are focused on graphical language, in picture publishing.
Wiki
The word Wiki comes from the Hawaiian term "Wiki Wiki" meaning 'very fast' and is a set of Web pages many users all at the same time can edit them collaboratively. These pages have a simple HTML-based interface, and there are many types of Wiki tools, such as Word, Slide and Picture Processors.
Virtual Learning and Relationship Communities
Virtual communities happen in the cyberspace and are characterised as spontaneous groupings occurring as cybersurfers have common interests and identify with particular subjects. Participants make rules and models as they live and live together in a virtual community. Any subject may make up a virtual community.
Instant Messaging
The Instant Messaging amplifies communication on the Internet. Software programmes like mIRC and ICQ enabled technology evolution from the classical chats via text. Today programmes like MSN, Skype, G-Talk among others enabled the real-time voice and image communication.
Virtual Learning Environments
AVAs are platforms aiming at encouraging teaching and learning processes. AVAs allow synchronous and asynchronous interactions to occur. AVAs are used for Distance Education (EaD), hybrid model and/or support for physical presential teaching.
Virtual Worlds
Virtual Worlds are different because they made it possible to assemble all communication languages in one single technology. In the Virtual Worlds, it is possible to make textual, gestural, oral, and graphic communication, which allow for a high level of mutual interaction (Primo, 2000). It is a dynamic environment whereby avatars represent users. The world occurs by way of interactions, and if the user does not interact, the world does not evolve.

Table 2: Different tools typical of Web 2.0

Web 2.0 tools provide higher or lower interaction, depending on resources they allow for, so that the higher interaction the higher the possibilities for teaching and learning processes.

3 Problem-Based Learning Projects

When we speak of EDVT use as a way of social and cognitive development, we refer to a novel methodological conception, and with the Project Pedagogy a response as to encourage the 'good use for this technology' (Schlemmer, 2002) as it is based on an interactionist/constructive/ systemic proposal.

One of the aspects differentiating the Problem-Based Learning Projects from traditional methodologies is, for example, is subject learning focus, which emerges from curiosities, doubts, individual and collective problematisations giving rise to themes to be investigated to search for elements helping to solve the caused problematics. Constructing and developing the problem-based learning project occurs collaboratively and cooperatively among subjects involved in the process.

A project for learning will be created by conflicts, disquiet, in this meaning system, which consists of the particular learner's knowledge. How can we have access to these systems? The very student is not aware of it! Therefore, choosing variants to be tested in attempting to solve any problem needs to be based on rising questions the very student make (Fagundes, Sato, and Maçada, 1999, p. 16).

Moreover, differentiating teaching projects from learning projects within the pedagogy of projects is essential, as Fagundes, Sato, and Maçada, (1999, p. 17) show in the table below

	Teaching by way of Projects	Learning by way of Projects
Authorship. Who chooses the subject?	Teachers, pedagogical coordination.	Students teachers, individually and cooperatively.
Contexts	Formal received criteria	Students' real life
Whom does it satisfy?	Received curriculum content sequence.	Learners' curiosity and will to learn
Decisions	Hierarchical ones	Heterarchical
Determining rules, directions, and activities	System-based, no choice	Collective work, agreement between teachers and students.
Paradigm	Received knowledge	Constructed knowledge
Teacher's role	Agent	Facilitator
Student's role	Receptive	Agent

Table 3: Teaching Projects x Learning Projects

The project methodology in itself is challenging for the teacher as it breaks paradigms constructed along the centuries. The teacher no longer determines the process as decisions are made collectively and built with the teaching and learning process. Thus the teacher also learns, researches, and questions.

4 Program of Teaching and Learning in the Digital World: an experience with the use of the learning project methodology

The proposal of organising the teaching course curriculum at Universidade do Vale do Rio dos Sinos (UNISINOS) is relies on Learning Programs (LPs). LPs propose going beyond traditional structures, and allow for novel ways of reflecting on relationships in teaching and learning context, effectively articulating teaching, research, and extension. LPs are built from real-life problematising areas, or skills and abilities the future teacher will need.

The Program of Teaching and Learning in the Digital World is provided as a b-learning in the AVA-UNISINOS Virtual Learning Environment, and it was designed to create learning and digital inclusion spaces to allow theoretical and methodological stance and technological knowledge encouraging integration among different digital technologies (DTs to construct knowledge). It attempts to reflect upon DTs use in the context of human and social development.

This PA-developed teaching practice is grounded on using methodology and learning projects (Fagundes, Sato, and Maçada, 1999), Schlemmer (1999, 2001, 2002) where from the thematic platform 'Digital Education', discussing students list their temporary certainties and doubts. From this moment on, there are groups with common doubts whereby the project begins to be planned with participating subjects enrolling what they know about the problematics they wish to investigate, and what they do not know yet. They will need then to research, describe the project's aim, how they will develop it, how they will collect data, what resources and materials they will use, and how they will introduce it.

We start to build the project and the work goes through half a year, with teacher and students working collaboratively and cooperatively. While it is built, all students in the class have access, may make comments, and give their contribution, to it. Moreover, there are two specific moments to present the projects during the term. The first is when they are closing the planning stage, and the second, when they conclude the project. At these moments, the groups assess one another through agreed criteria.

For Fagundes, Sato, and Maçada (1999) the learning project methodology encourages the cooperative learning practice, which occurs through reciprocal exchanges and mutual respect. One seeks to learn contents, deepen concepts, by helping subjects to grown their own ability to keep learning in a constructive and simultaneous process of wondering.

Web 2.0 tools open up possibilities for project methodology in PA because from the virtual communities shaped in AVA-UNISINOS students organise their common interests whereby working groups emerge to develop projects. Groups using Google tools conduct research and interviews, for example using instant messaging to understand the investigated theme, respond to temporary doubts, and confirm the temporary problem-related certainties or not.

By creating a blog, research emerges and is spread during the term. Blogs allow teacher and students to have access to the whole process developed, creating an effective collaborative/ cooperative working web around different problematics all integral to the 'Digital Education' theme. Below are blogs PA students built in the early term of 2008.



Figure 1. Working group blog ‘Why seems so hard learn in Distance Education?’
<http://projetoead2008.blogspot.com>

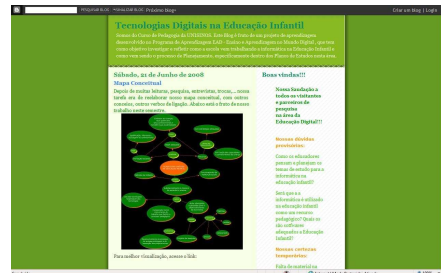


Figure 2. Working group blog ‘Digital Technologies at Children Education’
<http://tecnologiasdigitaisnaeducacaoinfantil.blogspot.com>



Figure 3. Working group blog ‘Pedophilia at Digital Worlds’
<http://projetoead2008.blogspot.com>

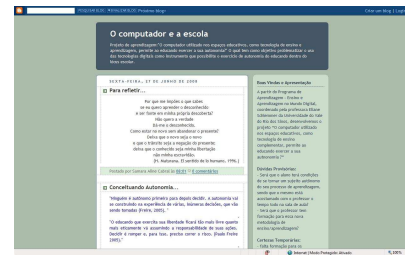


Figure 4. Working group blog ‘Autonomy at Digital Education’
<http://autonomiadageracaodigital.blogspot.com>

In addition to do the creation of blogs, there are other activities making up the LP, such as: forums and chat rooms to discuss the theory grounding the LP, creating of the digital-virtual identity in the Second Life, and interacting in the UNISINOS Island, learning diaries, where they weekly register their learning, perceptions, doubts, difficulties, and feelings towards them. The diary is an important space for reflection and metacognition for teacher and students, provides indices of student performance, which allows him/her to interact individually with every subject, and also controlling the teaching process. We provide below some diary snippets expressing some of feelings towards the project accomplishment and the blog creation, and about what one expectation the LP theme has caused:

Interactions in the learning diary in AVA-UNISINOS (Due to space limitation and as this is not the paper's aim, recorded diary comments were not analysed.)
It's the first time I've done a LP-EAD, I was afraid to subscribe, I was biased against the digital world, now I see that the fear I had was in fact for the unfamiliar, I had never studied this lest being interested. Now I think it's very important to rethink of the teaching practice and be open to novelties and technologies, this LP made me rethink, caused me to be curious and now I'm willing to research and learn. 'Without curiosity stirring, making me unquiet, to search for, I do not learn, and I do not teach.' (Paulo Freire) I think this sentence tell it all...bye!
This Thursday class was presential, every group presented his project, and it was quite interesting. While there were some similar topics, every group addressed and commented it in a different way! As I said in my introduction the blog is a different way to provide a topic, we are more excited because anyone can read our research. I loved to do this work! Bye.
We are reviewing our blog I hope for better. Coming to this PA helped me to learn very much. Earlier I saw computer science as something that was difficult, inaccessible. But now that I'm familiar with AVA environment and all resources included in it, I changed my mind. Now I believe that computer science is crucial when you talk about education, insofar as use it seriously. I know I have much to learn and improve cos life is constant learning
Results of the works were good. And a characteristic in most of the groups I've seen was the increasing interest for the work as we were shaping it and everyone was managing to master technologies they introduced to us. I keep saying that problems and biases towards Distance Education come from ignorance, that is, knowing resources this education can provide us — I myself found it very difficult this LP, from discipline relating to non-presential classes, and operational difficulties. But during the term I came to see the resources, not that I master them all, but it was most significant to go ahead
Hi. In class today we have presented or work in the blog and I've seen those from our colleagues. I was very nervous but I think it was okay. The work is fine, I'm enjoying it as I've learned very much it was very useful I came in here with one thought and I left with another one. I'm gonna make the school's blog and sent it to the teacher. I hope to use everything I've learned here it's a new world it's a long way to go it's a pity the school were I work has no computer for children to learn this digital world I hope I can teach what I've learned and researched, readings were nice, forums too, I only could not share in chats for problems of time. It's pity we're coming to the end I know I'll miss my colleagues.

Table 4: Interactions in learning diary

5 Concluding Comments: possibilities for teaching practice

Curriculum organisation in disciplines is a striking feature in most educational institutions, regardless of the offered level. There are many discussions about how to organise curriculums in school time and space, and many research works showing new ways to account for demands coming from an online society (Castells, 1999) the continuous and constant use of digital technologies interconnects and is pervading. But it is still difficult to make changes that are significant and visible for the society. Concern about the time for a particular discipline, whether or not it is enough, what should be included in the curriculum as a compulsory discipline, among others, represent a critical issue in reviewing curriculums.

We believe that Web 2.0 may contribute to a paradigmatic rupture concerning curriculum organisation, time and space for learning, provide a solution for fragmentation, and help to create a learning culture, because interaction, collaboration, cooperation, and collective construction are critical for invoking subjects to be agents, authors for their own learning. Using these technologies may represent an alternative for a disciplinary curriculum through the problem-based learning projects. At this suggestion the teacher becomes a mediator between information and the learning subject, who may or not change it into knowledge from resignification he may do. Curriculum content gain space in the student's projects, but the teacher must know how to help the students to set the required relations among developed subjects.

The EDVT use and project methodology stir the teacher as he has to work with the unexpected. As Almeida (2000) puts it, even the teacher who is ready to use the technology is constantly challenged as he cannot completely master it.

Thus we can summarise our concern in the questions above: What is really critical to learn for one to understand and live in the present world, to account for the reality in which we live, to look for solutions for problems emerging, and if they do not exist, to create them, to make this world more human and fair? Is it possible to think of a systemic, dynamic, and online curriculum that may be constructed during the process? How can these EDVTs help us in this process? For us these are only a few questions we have to reflect and act upon. Changing teaching practices and the way to organise the curriculum represent a paradigmatic rupture which must be in the subject's essence to be novelty, rather than only a discourse, or only representing a novelty.

References

- Almeida, M. E. (2000). *ProInfo: Informática e formação de professores* / Secretaria de Educação a Distância. Brasília: Ministério da Educação, Seed.
- Becker, F. (2003). *Ciência e Construção do Conhecimento*. Porto Alegre: ARTSMED.
- Fagundes, L. C.; Sato, L. S.; Maçada, D. L. (1999). Projeto? O que é? Como se faz? In: _____. *Aprendizes do Futuro: as inovações começaram!* Coleção Informática para a mudança na Educação. Brasília, MEC.
- Freire, P. (1997). *Pedagogia da Autonomia*. São Paulo: Paz e Terra.
- Lévy, P. (1999). *Cibercultura*. São Paulo: Editora 34.
- Lévy, P. (2001). Pierre Lévy, Entrevista. *Revista Pátio* Ano V, n. 18 Ago/Out, p.28-31.
- O'Reilly, (2005). What is Web 2.0? Available in <http://oreilly.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
- Primo, A. (2000). Interação mútua e reativa: uma proposta de estudo. Porto Alegre: *FAMECOS magazine*, n. 12, p. 81-92.
- Schlemmer, E. (2002). AVA: Um ambiente de convivência interacionista sistêmico para comunidades virtuais na cultura da aprendizagem. Porto Alegre: *URFGS*.
- Schlemmer, E. (2001). Projetos de Aprendizagem Baseados em Problemas: uma metodologia interacionista/construtivista para formação de comunidades em Ambientes Virtuais de Aprendizagem.. In: *Congresso Internacional de Informática Educativa 2001 Universidad Nacional de Educación a Distancia UNED, Madrid*.
- Schlemmer, E. (1999). O Trabalho por Projetos em Educação a Distância - uma parceria. In: *VI Congresso Internacional de Educação a Distância, 1999, Rio de Janeiro. ABED*.