E-learning 2.0: challenges for lifelong learning

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Abstract: In this paper we look at the changing face of education and go on to consider the different ways in which the so-called 'net generation' is using technology for learning. We discuss the arguments that sustain the emergence of a new generation in e-Learning that is already known as e-Learning 2.0 or the social e-Learning, a concept derived from the application of Web 2.0 technologies to teaching and training, discussing its potentialities for supporting the modern and independent lifelong learners but, even more important, to justify the modeling of a new conception of what will be the future of teaching and learning in the knowledge society.

CONTEXT

The term Web 2,0 serves to rotulate a more open web to the users, an Internet that allows users to become producers and diffusers of the information in the global network (D´Souza, 2007). A new communicational paradigm supported by a fan of interactive tools and the web as a platform where social and professional relations take place, the natural habitat of the "digital natives" Marc Prensky (2004) presented as the "native speakers" of the digital language of computers, video games, and the Internet.

The learning habits of our students will have a great impact on tomorrows´ workers. In fact, nowadays young people are so familiar with the computer and network technology that they will expect a similar virtual working environment. Bill Seretta (2008), in an interview for CHECK point e-Learning newsletter, considers that today's youth are adapting and finding new ways to use technology. All of these have significant implications on higher education institutions and the work place. As always, today's youth culture gets incorporated into tomorrow's global culture. He thinks we should learn a lot from the next generation today. Today's youth live in the Web 2.0 era, they use the Internet to communicate, to publish and share contents, to form virtual teams with people they may not know, carry on and complete a task and then disband. In effect, they are forming small, temporary learning communities. Over the next ten years, higher education and the workplaces will be flooded with a group of tech and communication people expecting to be able to continue and grow their styles of communication (Barna & Lenghel, 2008).

Educational institutions should be aware of this new reality and take advantage to enhance and promote more effective lifelong learning policies. According to Barna and Lenghel (2008, s/p) lifelong learning means "high quality initial education for all, from an early age and throughout lifetimes, reducing drop-out rates from schools, world-class higher education, vocational training systems that respond to students and employers' needs, real opportunities and incentives to learn new skills throughout careers, including for older workers". Lifelong learning equips people for change and better jobs, and the technologies that the new Web paradigm offers, might have a great contribution to offer to the new "digital natives" generation. We should then consider moving teaching and learning away from conventional methods by which students are told what to learn, when, where, and how. Instead, knowledge should be actively constructed and students should be made responsible for their own learning. The opportunity for instant and global publication of information, thoughts, opinions, and ideas is something our "digital native" students take for granted as normal and commonplace. Perhaps, we should also consider some of the social networking tools and integrate these tools in teaching and learning. So the question can be formulated as follows: how can we use Web 2.0 tools and services to promote learning? What kind of skills can learners develop while using these tools and applications? How can we take advantage of these tools for e-Learning?

In this paper we look at the changing face of education and go on to consider the different ways in which the so-called 'net generation' is using technology for learning. We discuss the

arguments that sustain the emergence of a new generation of e-Learning that is known as e-Learning 2.0 or the social e-Learning a concept derived from the application of Web 2.0 technologies to teaching and training. We present the key concepts that sustain a new e-Learning generation discussing its potentialities for supporting the modern and independent lifelong learners (Bottentuit Junior & Coutinho, 2007).

FROM WEB 1.0 TO WEB 2.0

Web 1.0 applications typically consist of browsing and searching on the Internet, essentially a reading operation. In contrast, Web 2.0 applications allow users to read and also to write to the Web. Building on the read/write applications that have emerged in rich, interactive, user-friendly application platform, Web 2.0 has essentially transformed the Web from a Web page publishing venue to a global network community where every user is invited to create content (Alexander, 2006). The Web's shift from a tool of reference to one of collaboration, from passive to active, from consumer- to participant-oriented, allows teachers to use these tools to empower students and create exciting new learning opportunities (Richardson, 2006; D´Souza, 2007).

For Tim O'Reilly (2005), the term "Web 2.0" emerged in a conference brainstorming session between MediaLive International, Dale Dougherty and O'Reilly VP. O'Reilly considered then that the "Web 2.0 is the business revolution in the computer industry caused by the move to the internet as platform, and an attempt to understand the rules for success on that new platform. Chief among those rules is this: to build applications that harness network effects to get better the more people use them" (O'Reilly, 2006, online).

According to D´Souza (2007), Web 2.0 is a new attitude in the way we see, build and use it: a work space for all users, an online platform where personal and professional relationships take place. Collaboration between programmers and users are stimulated, and that represents a change from the "Read Only" Internet to the "Read Write" model (D´Sousa, 2007). The advantages to the users are many and some still have to be discovered: a) the content that used to be static, can now be divided and reunited in different ways to fulfill the interests and needs of each individual; b) the contents are created online in a collaborative way and according to the most dominant interests of a huge number of users; c) a new a social community emerges, a space where "the web surfer negotiates the connections within a social or idea network, exchanges bits of content, creates something new, and then the cycle begins again" (D´Sousa, 2007, p. 6).

Web 2.0 applications hold profound potentials in education because of their open nature, ease of use and support for effective collaboration and communication (Ferreira, 2007; Moura, 2007). They change the traditional view of human knowledge and open up more opportunities in teaching and learning. Educational institutions must use Web 2.0 tools not only to attract learners attention but to enhance participation in new learning experiences. Today, over several hundreds of the Web 2.0 applications are available and have potentials in teaching and learning. Some of these tools include: podcasts (i.e., iTunes), Weblogs (i.e., Blogger), wikis (i.e., Mediawiki, PBWiki), social bookmarking tools (i.e., del.icio.us), social networking tools (i.e., EduSpace, Facebook, MySpace), social media sharing tools (i.e., Flickr, SlideShare, YouTube), virtual 3D community (i.e., Second Life), social library tools (i.e, LibraryThing), customized sites (i.e, Googlepages) and collaborative writing tools (i.e., Google docs).

In 2007, the OECD (2007) published an extensive study on the key role of the contents created by the users on the fast growth of the Web 2.0 and its social implications, cultural and respective impact in the economical opportunities of the countries. In accordance with this study, all the commercial agents have already understood the motivation of the young for the characteristics of the Web, related with the creation of contents by the users and, are investing seriously in offers that aim to amplify this interest. The commercial and services sites are opening up to the contents produced by the users, significantly increasing all the interactivity as value added for its customers. Education cannot ignore this reality: e-Learning 2.0 is essential to improve the quality and effectiveness of education and training systems and to ensure that they are accessible to all.

KEY IDEAS IN E-LEARNING 2.0

Generally, e-Learning is a broad definition of the field of using technology to deliver learning and training programs. It is a concept typically used to describe media such as CD-ROM, Internet, Intranet, wireless and mobile learning. Some include Knowledge Management as a form of e-learning. First, in 1995, it was all called "Internet based Training", then "Web-based Training" (to clarify that delivery could be on the Inter- or Intra-net), then "Online Learning" and finally e-learning, adopting the in vogue use of "e-" during the dot com boom (Barna & Lenghel, 2008). On the European e–Learning portal, we find the next interesting definition: "E-learning means the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration."

Silva et al. (2008) consider that the explosion of popularity of Web 2.0 paradigm is due to the triviality of the Internet access and the largest availability of broadband at attractive prices as well as the easiness of use of the content's creation tools with free applications based on the Web. These applications are available anywhere and in several hardware platforms due to the emergence of some innovative technologies - such as AJAX1 and Flex2, simplified access to databases through JavaScript, Java or Flash, the language XML3 and the RSS – enhancing the emergence of a new paradigm for online distance education that is titled e-Learning 2.0.

The term e-Learning 2.0 intends to name the new generation of e-Learning that followed the change of paradigm in the Web (Rosen, 2006; Voigt, 2007). The main challenge for educators is how to take pedagogical advantage of this new generation of web services to create new formats of more individualised and collaborative distance learning programs. Blogs open new spaces for debate, wikis allow a group of authors to write and edit texts, podcasts support written contents through the creation of audio files that are easily downloaded for ipods or mobile devices, social software allows for the creation of communities that share the same interests; why not to that advantage of these resources in to improve new models and formats for e-Learning?

Almost all characteristics of the Web 2.0 technologies can be applied to e-Learning within Learning Content Management System (LCMS) or platforms like Moodle or even outside them. Interaction with and among students is more active and, because of this built-in interactivity, students are offered new possibilities to become involved and to interact with the content (Balog-Crisan et al, 2008). The key ideas that support the concept of e-Learning 2.0 can be summarized as follows: i) students are co-producers of contents (Karrer, 2006); ii) social software facilitates communication and the construction learning communities (Rosen 2006); iii) The contents stay open for search and share with all the community (Leene, 2006); iv) adaptive learning that enables students to select their modular contents to customize their learner-centric learning environments (Martinez, 2007).

In this context, George Siemens and Stephen Downes presentet "connectivism" a theoretical framework for understanding learning in the network era. According to connectivism, the starting point for learning occurs when knowledge is actuated through the process of a learner connecting to and feeding information into a learning community (Downes, 2007). The ability to seek out current information, and the ability to filter secondary and extraneous information are crucial in connectivism. One's personal learning network is formed on the basis of how one's connection to learning communities are organized by a learner.

Based on the ideas of collaborative learning and social networks within communities of practice, emerges the notion of the Personal Learning Environment (PLE), a new approach to the development of an e-learning tool (Attwell, 2007). A PLE values the role of the individual in organizing his or her own learning and considers that learning will take place in different contexts and situations and will not be provided by a single learning provider but many different sources both from formal and informal environments (Atwell, 2008). Since lifelong learning is recognized as being crucial in our knowledge societies, everyone will develop, as reported by Punie & Cabrera (2005, p. 33) "An individual learning space (that) could be, for instance, a personal space on the internet that contains all relevant learning information. However, it would also be a physical space where teachers and learners can meet". In this context, learning spaces should be considered as permanent, adaptable and evolving, enabling different types of learning, in different contexts and at different times in life. By doing so, learners gain control on their learning and adapt it according to individual needs and interests (Henri *et al.,* 2008). They therefore become part of a community – learning spaces are social (Punie & Cabrera, 2005) - for which they can create new content or play new roles. Institutions must then recognize their loss of control over content

production, modes of transmission, learning process and validation. They have to accept the fact that ownership of learning is moving on the students' side. Educational systems should not ignore this phenomenon but rather try to find ways to valorize learning which takes place outside the institution and recognize its contribution to personal and professional development. This mixture of formal an informal learning is, in reality, what we understand as e-Learning 2.0 a natural evolution of the standard learning management systems to the personalized learning environments: "It is a shift from the island paradigm of the LMS technique to understanding the web as a door, a portal to learning opportunities" (Jokisalo, 2008). According to a recent UNESCO report (2008, p. 10),

> The implications of this approach for changes in the curriculum and other components of the educational system are significant. With this approach, the curriculum goes beyond a focus on knowledge of school subjects to explicitly include the 21st century skills that are needed to create new knowledge and engage in life-long learning - the ability to collaborate, communicate, create, innovate, and think critically.

AND THE FUTURE?

Web 2.0 stops with the dependence of physical means of data storage, since through the available tools the user keeps everything online in a public or private way, increasing therefore its spread or privileging the security if available to just a restricted number of users. The Web 2.0 philosophy takes a stand because of the easiness in publishing and storage speed of texts and files, that is, it has as main objective to transform the web into a social and accessible environment to all users, a space where each one selects and controls the information according to its necessities and interests (Greenhow, 2007). In fact, Web 2.0 tools not only promote sharing and collaborating, they define it. These tools have personalized our experience and have dramatically changed the ways we communicate. We become part of a community for which we can create new content or roles, drive innovation (Wenger, 1998). According to Kurzel (2004) and Henri et al. (2008), PLE can bring together seamlessly various types of learning; learning by personal interest or the desire to solve a problem, community learning, school learning, experiential learning, workplace learning, etc. In short, a PLE embraces all formal and informal learning the individual gathers in lifetime and is in the centre of the lifelong education (Barna & Lenghel, 2008).

In the education's cultural and linguistic spheres, these student-centered personalized virtual spaces can be used most fully to promote creativity and new ways that see beyond Web 2.0 technologies to the future of the new emerging Web that is already upon us (Lansiquot & Rosalia, 2008). The Semantic Web, that for a while seemed to be arriving, continues to be a bet for the future, establishing the Web as tomorrow's intelligence (Berners-Lee, 2001). Will that be Web 3.0? One of the limits of Web 2.0 environments is the lack of contextual information, there is a lot of information but no one can organize it and structure it in a meaningful manner. Therefore, the Semantic Web technologies aim at providing contextual information and co-ordination through workflow tools as supporting infrastructure. To invest in semantic web means allowing the accomplishment of more complex research, impracticable with the search engines known today (Story, 2007). The purpose of this intelligent new generation web is to classify information in categories in such a standardized way to ease the access to the requested information, discussing already on search systems operated through human voice or even the search for similar pictures by means of digitalization (Teten, 2007). As educators, we must think about how we will interact with the possibilities of a semantic, media-centric, and pervasive Web and consider the challenges it offers in order to speed up changes in the education and training systems for our countries move to a knowledge-based society, by improving the access to lifelong learning.

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