

Chapter 1.1

Virtual Learning Environment

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ABSTRACT

This paper describes a mathematical model of virtual learning environment considering both technology and users. Recognized interested users are teachers, parents and students. Interaction between interested parties in elementary and high school education process is presented by using complexity science. The idea is to model and create educational virtual environment that would attract engagement of all parties. Initial engagement would be motivated with the e-grade book. After initial involvement of seeing grades, the users would be motivated for further involvement using forums, blogs, and chats to interact with each other in one place. This would lead to creating groups of students or parents with similar problems and interests. For example, why is mathematics so hard to some students, and for other not? The created virtual environment will enable teachers to additionally inform parents of existing e-learning materials. Virtual environment is modelled as multilevel, multidimensional educational environment, considering communication of all participants, and every aspect of technology that could improve that communication.

VIRTUAL LEARNING ENVIRONMENT AND WEB 2.0

Before beginning to talk about virtual learning environment it is necessary to define meaning of terms that are used in everyday communication. We hear on a daily bases the term Web 2.0, but the

question is: What is Web 2.0? At its simplest, the term ‘Web 2.0’ denotes a transition from a classic content delivery system to a collaborative system. Sometimes it is referred to as the ‘participatory web’, which is perhaps a more appropriate term to use.

The term ‘Web 2.0’ first appearance came in 1999.(DiNucci, 1999) The term originally coined by Darcy DiNucci relates mainly to Web design.

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She argues that the Web is ‘fragmenting’ due to widespread use of portable Web-ready devices.

The Web we know now, which loads into a browser window in essentially static screenfuls, is only an embryo of the Web to come. The first glimmerings of Web 2.0 are beginning to appear, and we are just starting to see how that embryo might develop. The Web will be understood not as screenfuls of text and graphics but as a transport mechanism, the ether through which interactivity happens. Darcy DiNucci, 1999

The article is written for designers, emphasizing the need to code for an ever-increasing number of Web-ready devices. Although her use of the term announced, it did not directly relate to the current use of the term.

‘Web 2.0’ term as we use it today is closely associated with Tim O’Reilly because of the Web 2.0 conference organised by O’Reilly Media in 2004. At the time it was supposed to mean using ‘the web as a platform’. The term suggested a new version of the World Wide Web, but did not refer to any update to any technical specification. It addressed cumulative changes in the ways end users and programmers used the Web.(Oreilly, 2007)

Like many important concepts, Web 2.0 doesn’t have a hard boundary, but rather, a gravitational core. You can visualize Web 2.0 as a set of principles and practices that tie together a veritable solar system of sites that demonstrate some or all of those principles, at a varying distance from that core. Tim O’Reilly

World Wide Web inventor, Tim Berners-Lee challenged the term by calling it a ‘piece of jargon’.(Laningham, 2006) After a lot of criticism O’Reilly offered new, compact definition of Web 2.0(O’Reilly, 2006)

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: Build applications that harness network effects to get better the more people use them. (This is what I’ve elsewhere called “harnessing collective intelligence.”) Tim O’Reilly

To summarise we can say that the Web 2.0 is a term to describe a variety of developments on the web and a shift in the way the Web is used. This is often characterised as the evolution of web use from passive consumption of content to more active participation, creation and sharing—to what is sometimes called the ‘read/write’ web.

From the students perspective Web 2.0 is seen as set of internet activities and tools that are encouraging communication and participation among internet users. Web 2.0 covers a range of technologies, services and trends underpinned by the growth of a critical mass of internet users. Technologies used by the students are helping change some characteristics of actual and future students.

The current situation has to also consider and the other populations that are directly connected to changing population. Before all we are talking about teachers and parents populations taking an active role in virtual environments, and the most important one is the environment containing elements of virtual learning environment. Changes in student population trigger changes in teaching and learning methods. Students participating in learning process are part of digital natives, so called digital generation that have grown up with digital technology. They are native to deal with multiple tasks simultaneously and quickly. Digital environment to which population members have been exposed during the development had an impact on reasoning development. Although those students are less patient and less thoughtful regarding the subject under consideration they possess better visual knowledge and skills and are able to follow multiple media simultaneously. In teaching and learning process the learning group

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