Guidelines for Integrating Web 2.0 into Teaching and Learning

Linda Vervynckt Smith/EDCI513

Purdue University
Abstract

Teaching and training delivery options have been broadening over the past several years as a result of the rapid changes in information technology. Instructors are attempting to integrate new technologies in with current teaching and learning models. The growth of internet collaboration tools has emerged with exciting possibilities but no collective literature guidelines exist on using these innovations known as Web 2.0 tools. Web 2.0 tools not only include the digital entities of the internet and software, they are deeply based in the development of communities and in what Aristotle described as “wisdom of crowds (Cristea,Ghali, 2010, P. 199).”

The effectiveness of learning outcomes of web 2.0 collaboration are dependent upon “technology task fit” or the ‘constructive alignment’ (Biggs, 1999) between assessment and intended learning outcomes” (Bennett, Bishop, Dalgarno, Waycott, Kennedy, Gregor, 2012, p. 532). Essentially, a good task design will motivate students to be drawn to collaboration and achieve the intended outcomes.

The purpose of this paper is to provide best practice guidelines for integrating web 2.0 tools into teaching and learning environments for the purpose of achieving the maximum potential learning outcomes.
Introduction

According to Selwyn (2010).

“…the academic study of educational technology could be accused of having worked itself into an analytic corner-well-able to discuss how educational technologies could and should be used, but less competent and confident in discussing how and why educational technologies are actually being used (p.66).”

This paper will address the how and why by presenting a structure to develop unique and powerful learning experiences afforded by Web 2.0 tools. While there are many studies that evaluate the role of various educational technology efforts, Web 2.0 tools promise to be the most engaging and revolutionary in current day teaching and learning.

“Web 2.0 technologies and processes include, social media, blog, wikis, search engines, file and bookmark sharing sites, homemade videos, interactive webinars, a range of popular social media, crowd sourcing, virtual worlds, telepresence, voice and video over IP, and really simple syndications (RSS) (London, 2013, P. 73).”

Web 2.0 tools emphasize community and collaborative communication woven together to solve problems by “harnessing collective intelligence (Cristea, Ghali, 2012, P. 199).”

While there is a long list of Web 2.0 environments, there are other factors that come into play when working with actual people in these spaces. When designing meaningful use of Web 2.0 tool it is imperative to consider the end user. Careful thought must go into selecting Web 2.0
tools. There must be “interaction between the tools and the instructional philosophy (Hodges, Clark, 2011).” Hodges and Clark (2011) have suggested two main criteria; easy to use and readily available, when selecting a web 2.0 tool for instructional purposes.

Lai, Wang and Lei (2012) developed criteria, for introducing web tools in an educational environment, based on results from a study of undergraduate students’ use of technology.

Lai (2012) points out the importance of evaluating student’s “…attitude toward technology use -an individual’s positive or negative feelings about performing the target behavior”, “…educational compatibility-the degree to which an innovation is perceived as being consistent with the existing values, needs and past experiences of potential adapters”, “…perceived behavioral control-perception of the availability of skills and opportunities and perception of the availability of resources and support for achieving the expected outcome” and facilitating condition-availability of support that “…encourages and facilitates technology adoption, which is hypothesized to enhance the intention to use technology (Lai et al, 2012, P. 570)” prior to implementing a technology based learning program.

For technology tools to be effective learning tools instructors and students need to understand how to use them properly and in the proper context of the tasks they are asked to perform.

Participants need to be “interpersonally sensitive, develop virtual communities of practice and produce innovative results for our efforts to be successful (London, 2013, P. 73).” “We become what we behold. We shape our tools, and thereafter our tools shape us” (McLuhan, 2013, P. 1).

This is interactive learning whether as a group or individual. We must understand the culture and attitudes of participants in collaborative learning for it to be successful.
Students need E-Literacy skills

Web 2.0 tools, when used in the proper context, provide a learning environment that is rich in cooperation, and collaboration having predictable learning outcomes. One challenge to learning in this environment is students must have previous knowledge to successfully navigate within a digital community. Loureiro (2013) uses the term digital literacy or E-Literacy which he describes as “a group of competences that allows and individual to acquire knowledge through digital processes (P. 53).”

Marin and Ashworth (2004) discuss digital literacy as the “awareness, skills, understandings and reflective approaches necessary for an individual to operate comfortably in information-rich and IT-enabled environments (Martin, Ashworth, 2004).” “Being digitally literate gives us the ability to communicate and work more efficiently through efficiency in finding, using, summarizing, evaluating, creating and communicating information through digital technologies; this is more than just using the computer, it involves understanding how all digital devices work and how they can be used to interact with society (Loureiro, 2012, P. 534).”

While students may possess skills necessary to access social networks, text and surf the internet (Web 1.0 competency), they may still lack the skills needed to interpret all matters of digital materials necessary for successfully using Web 2.0 tools. One description of this Web 2.0 usage is described by Terdiman (2005), “The spirit of Web 2.0 is to encourage users to share information thereby changing websites from single-source information to diversified linkage and changing users to active information contributors or collaborative information creators (http://news.cnet.com/Study-Wikipedia-as-accurate-as-Britannica/2100-1038_3-5997332.html).”
Knowing how to use 2.0 technology is key to incorporating these tools into an education plan for both instructor and student. After accessibility and technology skills are solidified, the tools can be introduced.

**Student Engagement**

The definition of student engagement as defined by Astin (1984) is “the amount of physical and psychological energy that the student devotes to the academic experience (p. 297).” Student engagement is critical to the learning success of educational programs. Social collaboration tools used in web 2.0 are a platform in which student engagement can be fostered. Tools that have been effective in fostering student engagement are Facebook and Twitter. It has been suggested that “digital natives”, those learners born into the age of social technology, learn differently than non-digital natives. They are reliant upon the web for everyday activity and knowledge (Svendsen, 2012). Web 2.0 tools work well in the educational environment because knowledge is constructed rather than reproduced in social learning experiences. The taking in and reusing of information is key to growing in knowledge and web 2.0 tools keep students engaged in this uptake and reuse of information cycle.

**Establishing Information Literacy**

The information age is upon us. Students use most of their leisure time mining information on mobile devices and computers. With all of the information out in “inter-space” “one of our biggest challenges is to guide students in how to use this readily available information and to teach them to be discriminating (Eales-Reynolds, Gillham, Grech, Clarke, & Cornell, 2012, P. 753).” Students are so intimately involved in creating information and forming knowledge that it is critical for them to be able to disseminate what is true and what is false. They need to be
equipped to judge fact and verify it before passing on information. Eales-Reynolds (2012) states, “Clearly there is a need to identify ways in which we can teach these skills particularly in relation to online resources (p. 753).” One way to teach these skills is to provide exercises that develop critical thinking skills. This can be done through lessons in critical review of information using a systematic approach. This approach, though thorough, is cumbersome and time-consuming because it forces participants to critically review a broad range of material and to apply the analysis of the material to the topic being addressed. (Eals-Reynolds et. al., 2012). Students who are new to the process of critical review can also be guided by the instructor choosing a paper for them and then providing direction on how to review it in lieu of throwing them into the process on their own.

**Using a Constructivist Approach as a Web 2.0 Framework**

While several learning theories can be used as a framework for Web 2.0 use in learning, the work conducted by Wendell Johnson (2007) in informational literacy, inspired constructivist pedagogy in creating a guide to Web 2.0 learning requirements. Bobish (2010) provides five requirements in his guide to using Web 2.0 tools for learning.

*The first requirement: “Complex and Challenging Learning Environments”*

Challenges and complexity are found on the internet due to issues like legal use of materials, and rules of engagement that are not clear. Lack of clarity may be related to individual website rules or to cultural differences. Another challenge for instructors is to keep students focused on authentic learning in 2.0 communities. It is important for the learner to use opportunities to relate the material to real life experiences, for example, how they might use a particular subject
or exercise in a business environment. By using a workplace scenario the learner can practice applying their analysis as soon as they learn it. (Hodges, C. et al, 2011).

The second requirement: “Social Negotiation and Shared Responsibility”

Group collaboration is the key to supporting this requirement however each member should take time to study the dynamic of the group they are communicating with. Bobish (2010) points out that, communication should be reinforced by a collaborative group project based on the communication. This motivates groups to work together (Bobish, 2010). Examples of tools that support communication and cultivate relationships are wikis, blogs and social networking (Light et. al., 2010).

The third requirement: “Multiple Representations of Content”

Content repetition is rampant on the internet and sorting through similar content to realize what is and what is not appropriate can be challenging. Students have quick access to information on YouTube or internet sites, and they need to be able to distinguish between what is real and what is not. According to Loureiro (2012) students need to be able to evaluate the information they recover to determine the accuracy and relevance to the purpose of the project. They can evaluate the appropriateness of the information and the sources from which they are being pulled (Loureiro et al., 2012).

The fourth requirement: “The Understanding that Knowledge is Constructed”

“One key dimension of the power of these social networking tools is their potential to create meaningful collaborative environments…providing the learner with a means to nurture the ability to view issues from multiple perspectives and engage in multiple modes of inquiry (Wenkel, Blessinger, 2012, P.6).”
Collaborative environments help users construct new knowledge through participating in others' stories.

Students can use tools like wikis to communicate while creating collaborative projects together. This is beneficial because peer groups are critiquing each other's materials and providing feedback. This feedback and critiquing can lead to a more meaningful understanding of the project and its content.

(Bobish, 2010).

*The fifth requirement: “Student-Centered Instruction”*

Students are able to create artifacts that represent what they are learning through video production, podcasting and web-based multimedia tools. They can craft these artifacts by mirroring real-life situations then receive performance evaluation and feedback in a cohesive group environment (Wenkel, Blessinger, 2012).

Resources to support teaching and learning are video and audio, multimedia, games and skill-building sites. (Light et. al., 2010).

**Outcomes**

Participants sharing information with each other are enriching knowledge for both themselves and others. (Wang et al, 2011)

London (2013) describes three outcomes of Web 2.0 learning: Interpersonal Insight in which participants learn about each other and themselves; Communities of Practice where members
take common interests and communicate about experiences in another forum, keeping in touch and continue to rebound ideas and information and Innovation where Web 2.0 is active learning with a concentration on “creation rather than consumption” (Blees and Rittberger, 2009).

**Conclusion**

As common place as Web 2.0 tools are in education and everyday activities, there is still need for structure and support for using the tools effectively. Hodges et al., (2011) provided two criteria to consider when adopting web 2.0: ease of use and availability. Lai et al., (2012) recommends evaluation tools prior to web 2.0 implementation: attitude, educational compatibility, perceived behavioral control, and facilitating condition. Loureiro et al., (2012) recommends students have E-Literacy skills prior to using web 2.0 tools. Eales-Reynolds, et al., (2012) suggests the importance of information literacy prior to using web 2.0 tools. Bobish (2010) suggests a constructivist framework developed by Wendell Johnson with requirements as a guide to web 2.0 learning: Complex and Challenging Learning Environments, Social Negotiation and Shared Responsibility, Multiple Representations of Content, The Understanding that Knowledge is Constructed, and Student-Centered Instruction. Efficient use of Web 2.0 tools can provide for a deep learning experience between individuals who can enlighten each other and come together to develop new and meaningful creations (Wenkel et al., 2012). With Web 2.0 learning, “…we look at learning from the perspective of strengths, believing that when people can identify and deploy core strengths in self and others, magic happens (Scatliff, Meier, 2012, P.18).”

Additional research is needed in the areas of the way “networked tools blur older boundaries between public and private, school and home (Light et al., 2010, P. 30).” There is need for more
measurement tools including development of empirical ways of analyzing how knowledge is acquired by users of web 2.0 platforms (Palacios-Marques, Cortes-Grao, Carral, 2012). More exploration is needed regarding differences in cultural use of Web 2.0 and how these differences may create challenges to learning in a globally integrated environment (Lai, 2012).
Resources


