Preparing students with essential 21st century skills is crucial in today’s technological driven world. Web 2.0 tools are one way that educators can incorporate a constructivist pedagogical approach to learning by providing inquiry-based, problem-based, and project-based activities with student collaboration that promote critical thinking skills.

Keywords: Collaboration, Constructivism, Critical Thinking, Problem Solving, Blogs, Wikis, VoiceThread, Social Bookmarking, Technologies

Introduction

Students today are growing up in a digital world and connect to the internet daily in some capacity by sharing their profiles on social network sites, researching projects, or just sending emails. Palfrey and Gasser (2008) call these students Digital Natives and point out that many of them also use Weblogs or blogs to post a mix of pictures and text which usually contain their online profile. Ferriter and Garry (2010) call them the iGeneration; but whether it is Digital Natives, the iGeneration, or Generation Y, educators have the responsibility to stay one step ahead of them by combining the desire of today’s students to be online and social, with valuable activities that can enhance classroom lessons.

Learning theories have also changed through the years, and educators need to take into account the role technology plays in the day to day lives of these students. Considering these factors, a social-constructivist approach to learning can provide educators with the means to design lessons that better suit these students’ learning styles by incorporating inquiry-based, problem-based, and project-based activities with student collaboration (Nordin & Klobas, 2010). The use of certain Web 2.0 technologies like Blogs and wikis can provide students with a collaborative environment that encompasses social-constructivist principles. Recent literature also concurs that the use of these technologies are important online social tools that encourage a constructivist learning pedagogy by promoting critical thinking skills (Su & Beaumont, 2010).
21st Century Skills

The students of today will require essential technology skills in order to be competitive, effective leaders in the 21st century. According to Richardson (2006), their futures will require them to be networked, globally aware, socially and politically active, and more collaborative, being connected to not only their communities, but the world. The Partnership for 21st Century Skills (2009) emphasizes three learning and innovation skills necessary for future work and life environments. Educators are encouraged to focus on creativity and innovation, critical thinking and problem solving, and communication and collaboration skills. The use of Web 2.0 technologies in the classroom can provide educators with the tools necessary for the integration of these instructional practices, encouraging the development of these crucial skills in today’s students.

Critical Thinking Skills

One of the greatest advantages of using Web 2.0 technologies as tools for collaboration is the fact that they promote important critical thinking skills. In order for students to begin developing these skills, instructors need to design their lessons centered on the learner with active, rather than passive activities (Ertmer & Newby, 1993). The majority of the studies involving the use of blogs, wikis, or other Web 2.0 tools for collaborative learning emphasized the importance of creating activities that encouraged the exchange of ideas and knowledge sharing. For example, social bookmarking tools can be used to support collaborative group based research projects. Using social bookmarking tools, students can share a collection of information, add digital highlights and create annotations. Boettcher (2003) also emphasized the importance of designing lessons with more open-ended, problem-based activities by engaging the learner critically, thereby assuring lasting knowledge. Learners are required to take a responsible role in their own learning process by identifying problems and collectively deciding on a possible solution to the problem (Grant, 2009). The research identified connects the importance of problem solving activities with critical thinking skills. Creating lessons with blogs or wikis for example, can promote knowledge building, and incorporating inquiry-based, problem-based, and project-based activities can enhance a collaborative learning environment supporting a social constructivist philosophy (Nordin & Klobas, 2010).

Collaboration and Social Interaction

In addition to the advantage of promoting necessary critical thinking skills through collaboration, the literature also supports the use of blogs, wikis, and other Web 2.0 technologies as essential tools for online social interaction. Whether the format is synchronous or asynchronous, these tools provide a medium for interaction for today’s students that are already comfortable with online media such as email, instant messaging, videos, and social networks. Learning is social, and sharing ideas is just the beginning in developing an online learning
community (Vogel, 2009). Collaboration is that social tool and knowledge is a product of that collective interaction.

With respect to the use of wikis, Grant (2009) sees them as a tool for “collective cognition,” because the work is something that could not have been accomplished by one individual, but as a group, or collective effort. This collective effort with the use of blogs also has many other advantages such as student feedback and peer assessment (Chandra & Chalmers, 2010; Grant, 2009; Su & Beaumont, 2010; Vogel, 2009). Redekopp and Bourbonniere (2009) also pointed out that the use of blogs can provide a platform of discussion for reluctant students who otherwise would not participate in a typical classroom situation. Educators can also create opportunities for asynchronous conversations with the use of VoiceThread. Voice threads utilize video, text, images, and audio recordings in an online forum facilitating a social, collaborative environment.

**Conclusion**

Technology and the internet has given educators a medium to design lessons that will engage students as well as provide them with the tools and social protocols that can enhance social learning (Brown, 2000). Moreover, social learning through collaboration has become a necessary skill for today’s students. That is why the International Society for Technology in Education promotes the use of effective collaboration using digital-age tools in their National Educational Technology Standards (Vogel, 2009). Some of the tools that can be used effectively to satisfy those standards are blogs, wikis, social bookmarking, and VoiceThread. Literature supports the use of these tools, with several studies that have shown encouraging results. These tools are all types of Web 2.0 social software that utilize social-constructivist principles in a collaborative environment, promoting the essential critical thinking skills necessary for students of the 21st century.
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