Web 2.0: A Vehicle for Transforming Education

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ABSTRACT

Web 2.0: A Vehicle for Transforming Education includes practical and accessible overviews of some of the most commonly used and most useful technologies. The article serves as an idea generator, especially for teachers looking for ways to update their courses or to explore new concepts in learning. Technologies once only imagined are now opportunities to be implemented in the classroom. Audio and video conferencing, blogs, podcasts, RSS feeds, social bookmarking, and wikispaces are popular means of communicating in today’s society. However, Web technology is developing at such an exponential rate that even the newest of these technologies, like Web 2.0, may one day soon be a footnote in computer history. Once these newer technologies are better understood and appreciated, educators can evolve their teaching strategies to help their students remain competitive in the global society.

Keywords: audio and video conferencing; blogs; podcasts; RSS feeds; social bookmarking; wikis; World Wide Web

INTRODUCTION

It seems that every institution, academic or corporate, is eager to gain access to anything involving Web 2.0. Although this term was coined by Timothy O’Reilly in 2004, it has evolved into a colloquialism that refers to the current state of the ever changing World Wide Web. Formerly, as amazing as the Web was, it was mostly a static entity on which programmers posted information in a specific format which others could simply view. Or, as Baumann (2006) asserts, “Before Web 2.0, programmers posted Internet content, and the exchange of information was only one way” (p. 38). However, society was pleased because it had information at

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its fingertips that previously required much time and labor to access.

As is generally the case, consumers demanded more. Perhaps this was, in part, due to the advances in the computer-animated graphics used in movie making, the highly interactive nature of the newest video games, or the increased dependence on e-mail and instant messaging that have permeated society. Whatever the case may be, computer users insisted that the newest technologies be made available to them. Fortunately, Web technology is developing at such an exponential rate that what we now know as Web 2.0 may one day soon be a footnote in computer history. In the meantime, what do you know about Web 2.0?

Although definitions abound which attempt to describe this phenomena, a prevailing theme of collaborative interaction arises. Web 2.0 provides “… ubiquitous access to data, an architecture of participation, and distributed independent developers ‘playing well together.’ Most importantly, everything is ‘always in beta’—that is, constantly open for improvement by user feedback” (Umbach, 2006, p. 192). Hauser (2007) echoes this assertion of Web 2.0 as being “… an environment filled with opportunities to not only create content in new ways but also to share information, communicate differently, collaborate easily with the rest of the world, and self-publish” (p. 27). Coombs (2007) provides yet another interpretation. “It [Web 2.0] is often defined by the technologies that are part of it: social software, Weblogs, linklogs, folksonomies, wikis, podcasts, RSS feeds, and Web services” (p.17). Other applications include tagging, social bookmarking, online learning communities, and online office applications. All of the aforementioned share the characteristics of being user-centered, user-generated, and user-controlled. Or, as Breeding (2007) suggests, it involves “… building an environment that’s more focused on the user, that embraces the dynamic content over static pages, that not only delivers content to users but also seeks content from users, and that fosters engagement, participation and collaboration” (p. 22).

Many teachers are taking notice of these new technologies because many are inexpensive and easily accessible methods to incorporate technology, to increase critical thinking, and to promote substantive conversation in the classroom. According to Driscoll (2007), teachers are “… discovering many cross-curricular projects such as conducting interviews, creating classroom news broadcasts, recording class discussions and explorations, sharing feedback about books, or discussing papers they have written” (p. 12). Podcasts, wikis, and blogs seem to be at the forefront of their efforts; however, audio and video conferencing, RSS feeds, and social bookmarking activities are also increasing in popularity. This is, in part, due to the ease of use and affordability of these tactics; and, as Driscoll contends, “Teachers can now focus on the important question, ‘Why do I want to
use this technology?’ instead of, ‘How do I use this technology?’” (p. 10). The following examples are merely a few of the technologies available as part of Web 2.0, but are the most pervasive at this juncture.

Audio and Video Conferencing

With academic standards and 21st century skills emphasizing reasoning, communication, and technology, it is vital that educators are finding more expedient ways of communicating with others outside the classroom. Newer forms of telecommunicating, which were previously available to only wealthy corporations, are now available at little or no cost to everyone.

Audio and video conferencing are becoming more popular and only require a simple computer with a microphone, and webcam—standard equipment for today’s computer systems and available as an inexpensive upgrade for older models. Services like MSN Messenger or AOL provide video links as part of their IM services at no charge.

Equally exciting is the opportunity to skypcast. A skypcast is actually a large-hosted call for groups of up to 100 people from anywhere in the world. By accessing www.skype.com, business leaders, teachers, and students can host or participate in a skypcast. This service is also free, and can be used for online lectures, class discussions or even guest speakers.

 Blogs

“A blog is a personal diary. A daily pulpit. A collaborative space. A political soapbox. A breaking-news outlet. A collection of links. Your own private thoughts. Memos to the world. Your blog is whatever you want it to be” (http://www.blogger.com/tour_start.g). Driscoll (2007) adds, “Blogs are simple online journals primarily used to support communication in the form of presentation, and they provide a great tool for class interaction” (p.10). These journals take many forms, but they all contain entries by a variety of persons, with the most recent information posted first. They may be considered similar to reverse threaded discussions, in which each new entry is a response to previ-
ous ones. To blog or not to blog? That is the question.

Creating a blog is as simple as writing an e-mail, and the services are free through many providers including www.weblog.com, www.blogger.com, Bravenet.com, edublogs.org, and 360.yahoo.com. Each of these providers offers brief online tutorials to assist the user in creating his or her own free blog. Freyer (2006) suggests that teachers set up blogs for use with their students, or even to have students create their own. Many are still reluctant to do so, for fear of their misuse. However, Freyer argues that blogs are safe.

Teachers can set up classroom blogs so that only students’ first names are used, and blog visitors cannot reach out and touch a student. Similarly, teachers can moderate comments posted to classroom blogs to ensure that inappropriate or offensive content is not published (p. 30).

Blogging allows students to create, publish, and share their thoughts. They provide the opportunity for critical thinking and collaboration. This collaboration can be among the students in a particular classroom, in a particular school, or even another class somewhere else in the world. Support for the use of blogs is also presented by Thornburg (2007) as follows:

Often students create documents that only a teacher will see. But when students create online reports of their work, they can hear from others who have an interest in their work. This give-and-take provides tremendous incentive for students to share their perspectives with clarity and vision (p. 21).

Podcasts

The word podcasts is another morpheme of two words describing audio or video broadcasts that can be played on an iPod. Because of the abundance of iPods and the advent of iTunes, most people are familiar with podcasting. When implementing iTunes, the user can subscribe to hundreds of free podcasts or download music, videos, or audio books for a small fee. Though this is the most prominent site for podcasting, one can access podcasts at a variety of individual Web sites, as well.

Aside from merely accessing podcast, individuals or groups can also design, create, and publish their own. This process can also be done for little to no cost by using a computer, a microphone, and free online studio services like http://www.audacity.com. And once podcasts are produced, they have to be uploaded and hosted somewhere on the Web. Sites that will facilitate this process include iTunes, OurMedia, and podcastpeople, among others.

Why go through all of this trouble? Richardson (2007) contends, “When groups of learners coalesce around shared passions online, they experience something that is difficult to replicate in a physical space” (p. 151). Support for this position is found in Driscoll’s (2007) statement, “Podcasting gives teachers and students an audio distribution syndication ability to share their research, perspectives, and stories with
an audience beyond their classroom” (p. 12). Similar to blogs, they could describe mathematical processes, interpret laboratory data, describe how they would conduct experiments, or even share their results. Other ideas for student podcasts, as presented by Hauser (2007) include the following: “interview visiting authors, teachers, and other students; record morning announcements; practice foreign languages; record their own stories or poems; record comments during field trips; [and] discuss topics taught in class” (p. 47).

**RSS Feeds**

RSS is an acronym for “really simple syndication,” which is basically a language for publishing informational feeds and distributing them throughout the Web. These feeds, according to Perkins and Pfaffman (2006), “…are the type of newsfeeds most people are familiar with as part of their Web homepage where they appear as breaking news, sports, [or] entertainment” (p. 35). RSS documents can contain anything the author chooses, from a brief summary, or abstract, to a full-text document.

Subscribing to an RSS feed is similar to subscribing to the print equivalent of a podcast. Individuals can access these feeds by clicking on the RSS icons which are located on Web pages, blogs, newsletters, and so forth. But knowing that this service is available is not enough. The feeds require special software in order for the user to view them in a traditional format rather than in the language, itself. This software is: A ‘feed reader’ or an ‘aggregator.’ The user subscribes to a feed by entering the feed’s link into the reader or by clicking an RSS icon in a browser that initiates the subscription process. The reader checks the user’s subscribed feeds regularly for new content, downloading any updates that it finds (http://en.wikipedia.org/wiki/RSS_(file_format)).

Free feed readers are available from www.feedreader.com, www.illumio.com, or www.newsgator.com, among other sites. “Once you get the idea and have chosen your preferred RSS reader you can subscribe to dozens of different feeds…news, newsletters, articles, blogs and more” (http://www.xml.com/pub/a/2002/12/18/dive-into-xml.html). “Useful information lies buried in data streams. All you have to do is find it. And that’s where RSS comes to the rescue” (Tebbutt, 2007, p. 17).

**Social Bookmarking**

Clicking on bookmarks or my favorites is commonplace for individual computer users as a means of storing links to sites on their own computers for future access. However, the newest trend of social bookmarking may soon replace the conventional method of categorizing personal information. Social bookmarking includes tagging, linklogs, and folksonomies. It is “designed to keep found things found, identify new communities, discover new websites, make us more productive, and allow us to create new tools to push the frontiers of the Web’s utility” (Gordan-Murnane, 2006, p. 27).
The philosophy behind social bookmarking is that of all of the new Web 2.0 technology: user-created with community access. In short, users identify items or sites of interest by tagging them.

Tagging is a term used in a number of contexts for different purposes, mostly referring to adding a tag of some form. Tags are best considered as a keyword that refers to an ‘ad hoc’ classification and sorting of information. Within Web 2.0 applications, tagging can be applied to the URLs of Web pages, to photographs and images as well as ideas, concepts and various projects (http://recap.ltd.uk/Web2/bookmarking.php).

These tags and categories are stored online, and thus can be retrieved, shared, and used by anyone at any computer with Internet access; hence, the “social” in social bookmarking. This social aspect promotes countless educational opportunities.

Examples [in which] children, young people and educators could derive benefit from this technology include:

- Finding and creating new learning communities of users based around a certain topic
- Sharing access to categorized resources in an efficient way
- Developing new insights about a topic by discovering the views and perspectives of others
- Creating a range of contextual taxonomies that carry a specific meaning for a learning community (http://recap.ltd.uk/Web2/bookmarking.php)

Social bookmarking can be done individually, as described previously, or as a group. When done collectively, it is often referred to as a folksonomy. “The term folksonomy is a portmanteau that specifically refers to the tagging systems created within Internet communities. A combination of the words folk and taxonomy, the term...literally means ‘people’s classification management’” (http://www.answers.com/topic/folksonomy?cat=technology).

Gordon-Murnane (2006) implies that the “development of folksonomies can be seen as a value-added feature of social bookmarking [because they] connect different groups of people together, and the more people that use them, the better the services become” (p. 29). Free sites providing this service can be found in Table 1.

**Wikis**

Anyone who has researched a topic on the Internet is familiar with Wikipedia. What that researcher may not realize is that it is one of the largest wikispaces on the Web. Huffman (2006) describes wikispaces (or wikis) like this one, as “...online collaborative communities that lend themselves to continuous editing and refinement of content. They work best at aggregating and distilling shared knowledge and include the ability to track article evolution so that content often reflects a blend of voices” (p.
The beauty of a wiki is that it not only promotes collaboration among individuals from around the world, it depends on it. The interactive nature of its design allows individual users to enter or edit entries in real time and to have those contributions published immediately. Wikipedia began with a small number of entries and has grown into one of the most popular and widely used source of information in the world. Because of the ability to constantly edit and update, users are kept abreast of current and accurate information without having to wait for the next edition of a book to be published. In other words, the more wikis are used, the better they become—in theory. The drawback here, since anyone can contribute, is that wikis should be continually monitored to make sure the information presented is, in fact, factual and accurate; hence, the belief is by some that Wikipedia, as well as other wikis, are not actually reliable reference sources.

Educators may be interested in the idea of wikis because they are easy to create and are free to publish. The only equipment needed is a classroom computer. Sites like www.wikispaces.com, www.wetpaint.com, or pbwiki.com provide free platforms on which to build and publish wikis. Driscoll (2007) suggests that wikis can be used for “group-based writing projects, collaborative note taking, or brainstorming” (p. 11). She further asserts, “The capabilities of wikis in the classroom can be a broadening learning experience, as student groups build rich, deep content over time” (p. 11). Organizations might appreciate the wiki because, as Huffman (2006) argues, “A wiki could easily be developed for distance learning or enhancements to in-class work and/or project collaboration and team experiences” (p. 18). This is bad news for expensive learning communities like E-College, WebCT, and Blackboard.

### SUMMARY

As society changes, so do the skills that are necessary for our survival in it. The Partnership for 21st Century Skills (2004) outlines five key learning and thinking proficiencies that are considered to be the cornerstones of that success. Those skills include: critical thinking and problem-solving skills, communications skills, creativ-
ity and innovation skills, collaboration skills, contextual learning skills and information and media literacy skills. “Web 2.0 is transforming the Web into a space that allows anyone to create and share information online—a space for collaboration, conversation, and interaction; a space that is highly dynamic, flexible, and adaptable” (Coombs, 2007, p. 17). Richardson (2007) implies that Web 2.0 technologies help address those 21st Century Skills because they:

- Require the ability to find relevant sources of information, to assess the trustworthiness of those sources, to coherently engage with the ideas those sources offer, and to make transparent our own experiences and ideas in ways that leave opportunities for others to engage (p. 150).

Many of the technologies presented can be exploited by teachers to increase substantive conversation in the classroom. But in today’s educational system, substantive conversation is not limited to just the classroom. As the National Science Education Standards (NSES) (1996) maintain, “Good science programs require access to the world outside the classroom” (p. 220). The challenge lies in the assertion that instructional technology has grown almost exponentially in the past decade alone, and it continues to do so at an amazing rate. Now, however, students can communicate with other classrooms around the world, take virtual field trips, and even talk directly with scientists in real time who are working in the field. Krueger and Sutton (2001) assert:

As classrooms become more science-like, teachers will provide students with activities that differ from those now typically in the curriculum. Rather than reading a text and answering written questions, students will be out in the field using probeware to collect data. They will use computer software to model or graph the data . . . The Internet and other communication technologies will provide opportunities for students to collaborate as most scientists do—not by doing experiments together, but by sharing data and hypotheses, and building on results from other groups. E-mail and videoconferencing link student scientists anywhere in the world so that science becomes a global behavior. (p.75)

This technology provides incredible opportunities for collaboration and conversation that must be incorporated into all classrooms if they intend to become and remain progressive. Support for this position is found in Rockman’s (1998) Leader’s Guide to Education Technology, in which he claims, “Students who use computers in schools demonstrate improved motivation and enthusiasm for school; critical thinking, problem-solving, and independent learning; skills and content knowledge; and ability to compete in the workforce” (p. 3).

Most teachers have experienced search engines, e-mail, chats, databases, or even online public access catalogs (OPACs) for personal or professional use. For example,

Sixth-graders…[from] Alaska used the e-mail based KIDLINK project to
correspond with peers around the globe. Even though these children of fishermen were puzzled by strange-sounding careers like ‘orthodontist’ and ‘seismologist’ and had to describe what it meant to slice muktuk with an ulu, they discovered, as one said, ‘when you look at people, they look real different, but when you look at their words, you realize we’re all alike inside’ (Rockmann, 1998, p. 8).

Finally, these and new technological opportunities which are surfacing should all be explored. Inventions and discoveries throughout history did not permeate society as quickly as these technologies, which will continue to do so as they evolve. So what does all this mean for the corporate or academic world? It means change. In order to compete, we must embrace change, if for no other reason than it is inevitable. As Freyer (2006) asserts, “Why focus on content transmission in the classroom when we can help students become content creators as well as consumers?” (p. 32). “We must be readers and writers, editors and publishers, to maximize the benefits of our participation; and we must be willing to collaborate and cocreate with others, working closely together to learn even more in the process” (Richardson, 2007, p. 150). Once we understand the newer technologies, become familiar with them, and appreciate their ever-changing nature, we can truly evolve with them and stay competitive in our global society.

REFERENCES


Mid-continent Research for Education and Learning.


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