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What, how and why Web2.0?

Abstract

This article focuses on introducing Web 2.0 technologies and possible uses for student and teacher learning and collaboration. Many of these tools are already used in social and business contexts. These new and emerging applications are also gaining popularity in classrooms across all education levels. Various applications are introduced to raise awareness and encourage educators to explore these new avenues for teaching and learning.

INTRODUCTION

Web 2.0 technologies cover a range of applications, which are claimed to offer new and improved ways of interacting for community building and networking, but also for knowledge creation and transfer in collaborative endeavours. In this article, we discuss what Web2.0 is and how it may be used for free or at least low cost in education.

For the purpose of this article, the Web 2.0 tools have been grouped into broad categories by their major characteristics. It is acknowledged that there is a fluidity between and hybridity of various tools and that the particular type of clustering used here is somewhat arbitrary. We also realise that the end users will ultimately determine how the tools are actually used regardless of the intended design. However, the proposed structure will assist the novice in gaining a quick overview of the main tools, their features and capacity for implementation in teaching and learning environments. The primary aims of this article is to provide an overview of the range of applications that Web2.0 offers and raise awareness of their potential use in education to invigorate educators, learners and collaborators.

C-map has been used to create Figure 1 to provide a quick look of Web 2.0 technologies. This is not intended to be an all encompassing picture of all Web 2.0 tools but rather an overview of the mostly popular and widely used applications. While there are many more products with similar capabilities as the ones shown, they are not included to eschew a distractive hotchpotch and thus confusion combined with overload. Also, there is certainly overlap between the applications as they can serve multiple functions, meshing of various applications further blurs clear distinctions. We have categorised and indicated possible uses for many of the types of applications. However, additional uses will emerge from students' perceptions and interactions with the new generation of web applications. It can therefore not be predicted, how users will actually interpret and apply the available tools.

The Web 2.0 tools have been grouped into five broad categories according to their most commonly used purpose. Applications with an audio-visual focus such as Flickr (used for photo sharing), YouTube and its sub-section TeacherTube (for video sharing) and Google Earth (for maps) are grouped together. Another category focuses on knowledge management and transfer, with learning management systems (LMS), namely the commercially available WebCT, Blackboard and open source Moodle serving as the vehicles for this purpose. Wikis, Google Docs, C-maps, WebEx are applications with a collaborative focus for publishing or project work. MySpace, Facebook and Blogs are typically used for social interactions, networking and community building which is more or less also true for Virtual Worlds such as Second Life.

Web 2.0 applications

Audio-visual focus

The audio-visual focus group of applications we have included photo and video sharing hosting and archival sites. An application that is different from these is Google Earth which has higher levels of interactivity. First we discuss some of the photo and video sharing sites and then we explain Google Earth and its applications in more detail.

There are numerous image and video hosting websites that offer an easy to use, online repository for sharing and archiving of photos and videos; many allow for tagging to easily find images according to a specific topic, for example a place or person's name or a particular subject matter. They can be marked as favourites, set up as group photo pools or organized into sets of higher order collections. When uploading an image, privacy controls enable a choice of storing images for public or private viewing. These sites are popular with bloggers, who use them as main repositories for their digital photos. For others they are an easy way to share photos with family and friends without directly sending all the images to their email addresses.

The biggest web-based audio-visual sites are Photobucket (www.photobucket.com), Webshots (http://www.webshots.com), ImageShack (http://www.imageshack.us), Kodak Gallery (http://kodakgallery.com) and Flickr (flickr.com). As of July 2008, Photobucket hosts more than 6 and a half billion images, Flickr holds around 6 billion images. Photos may be viewed from the Flickr website without signing up, whereas Kodak requires a user to register before being able to see other people's photos. However, some school internet service providers block sites.

Teachers may consider uploading photographs for their students on certain themes or topics for use in student created websites or projects. Students in a photography class may contribute images to these sites free of copyright for others to use in their multimedia, web pages or other creative works. In education, the most useful image repositories are provided by government or not-for-profit
Figure 1: Basic overview of Web 2.0 applications and examples

Internet Archive (www.archive.org/) is an example of such a resource where the public can submit and/or download materials. As at 31 July 2008 this site had 126,616 moving images, 51,721 live concert recordings, 278,694 audio recordings and 473,866 texts. This is an excellent resource for teachers and students to illustrate their research or use in creative works. Many of the resources are in the public domain and can be freely used.

YouTube (www.youtube.com/) is a video sharing website, created in February 2005. It uses Adobe Flash technology to upload and view user-generated video content. Videos can be watched on the site although some are limited to those over 18 years; uploading of videos requires prior registration. A YouTube search on 17 July found 80 million users and 85 million videos. YouTube is blocked in some schools. It is possible to extract video files from YouTube.

For teaching and learning purposes, TeacherTube (www.teachertube.com), launched March 2007 is recommended. It is based on YouTube but designed specifically for educational resources, containing mainly classroom teaching materials, aids for teacher training and student produced work. TeacherTube is a safe environment as videos can be flagged by viewers, with review and possible removable by Teacher Tube staff. As of July 2008, TeacherTube contains over 26,000 videos. Statistics on the origins of teachertube.com users reveal, that 49.6 % comes from the United States, 7.4 % from India, 5.6% from the United Kingdom, 3.4 % from Canada, 3.1% from Italy and 1.7 % from Australia (http://www.alexa.com/data/details/traffic_details/teachertube.com).

Google Earth (http://earth.google.com/) is a virtual globe program, which maps the earth by superimposing images from satellites, aerial photography and GIS 3D globe. This means viewing locations in three dimensions rather than just two dimensions, like other available map programs. In Google Earth, the world can be seen from a bird’s eye view. Depending on the degree of resolution of a particular area, points of interest, houses and even cars can be seen. For some countries, addresses can be searched; other options include entering coordinates or using the mouse to browse to a location. The most obvious use for Google maps for educational purposes is as an atlas for geography instructions.

With the added interactivity of Web2.0 applications, Google Earth can be so much more due to the numerous available overlays. For example, http://earth.google.com/gallery/index.html has overlays where students can explore population distribution, photo tours, historic timelines and simulated climate change. KML (Keyhole Markup Language) is the file type that accommodates this kind of information. A KMZ is a zipped KML file, with students
creating a KMZ overlay in Google based on their own research and submit it for sharing with others. Google Earth can be used to mark a geocacher or traveller's journey. A real world task for students could be to create a virtual tour of historical places. Alternatively, they could design a holiday tour and use Google Earth to produce a virtual tour marketing tool.

The availability of vast repositories of images, sound and video is beneficial to educators as resources to supplement and enhance their courses. For students, these repositories provide an instant resource for researching projects. These repositories are invaluable when providing real world tasks for students, for example, as a resource for student created media on world events. Students can become real historians relying on primary sources to support their argument.

This section covered video and image repositories and Google Earth, with the next section covering applications intended for knowledge management and transfer, with overlap already emerging.

**Knowledge management and transfer focus**

There are two main types of applications: The first are wikis or websites where people contribute to the existing information on the internet. The second are Learning Management Systems (LMS) for communication and instructional purposes, usually with restricted access to people associated with the provider organization.

Wikipedia (en.wikipedia.org) is a free encyclopedia and currently the most popular reference on the Internet with the aim to summarize all human knowledge. All articles are written and edited collaboratively by volunteers. Accuracy, reliability and lacking credentials in its editorial method are criticisms and concerns.

This deficiency is overcome by Scholarpedia (www.scholarpedia.org), which - just like Wikipedia - uses MediWiki software. It has a narrow focus on the neurosciences. Articles are written by invited scholars, peer reviewed and edited by registered users. However, this is subject to approval by the curator of the article, usually the author to whom credit is given on the article page. Contributors retain copyright on submitted articles but allow Scholarpedia unlimited and exclusive rights for reproduction, which can be licensed to publishers for printed versions. In the classroom, students may work on articles for inclusion in the junior school newsletter.

In Wikispaces, students could become creators of the content. Wikispaces are a set of web pages that can be edited by more than one person. They can be set up for a class at wikispace (http://www.wikispaces.com/site) and limited to a particular audience, thus combating privacy issues. Wikispaces can be used to put up course materials and a discussion board for a VCE class. Alternatively, a junior class might have a page each on their project or topic under investigation. Students could provide peer assessment through a medium such as a wiki.

Search engines such as Yahoo!, Magellan, Lycos, Infoseek, Excite, Dogpile, HotBot, AskJeeves and the like are designed to search information on the World Wide Web. They find web pages, images and other types of files. Statistics from December 2007 indicate that 66.2 billion searches are conducted worldwide. By far the most popular search engine is Google, with over 62% of the total. It is followed by Yahoo! with nearly 13%. In third place is Baidu, the most popular search engine in the People's Republic of China with over 5% of the worldwide searches. Google offers an advanced search feature and the ability to just search images, scholarly papers or maps. Free email and educationally useful software downloads are also available.

**Collaboration focus**

Concept mapping is a useful strategy to organise and represent knowledge in a graphical form. Figure 1 is an example of a concept map. Concept maps start with a key word, an idea or event, which is then linked to other concepts to show their relationships. They can be used across any curriculum area to generate ideas, organise thoughts for writing, visualize knowledge, summarize key points and assess comprehension. Web-based concept mapping offers the advantage of building and sharing work by a number of web users. For example Cmap Tools, which is a free web-based concept mapping tool (http://cmap.sourceforge.net). A Cmap can be constructed on a personal computer and then shared on the Internet. This allows for collaboration of two or more people. They can simultaneously edit or chat with each other; write notes, comments or posts; add a new discussion thread to the forum or search the web for relevant information.

Mind mapping is similar to concept mapping, except that there are no formal restrictions regarding the kind of links that are being used. A free online concept mapping tool is bubbl.us (www.bubbl.us), which can be used for multi-level collaborative brainstorming. It can be shared, emailed, embedded in other web pages or simply saved to a computer or storage device.

Intel has brought out a suite of thinking tools that are free for educators to use (http://www.intel.com/education/tools/index.htm). The visual ranking tool allows a teacher to set up a list of terms that students can rank according to their opinion of the items value. The tool encourages higher order thinking and collaboration. It allows the groups to come to a consensus are the opinions are correlated and a whole group average can be viewed.

Another tool that can be used to gather responses from individuals and aggregate them is survey monkey (http://www.surveymonkey.com/). It could be used for peer assessment. For example, students who have made a claymation could upload the video to Teacher Tube. Then, other students could respond to a survey that contains the marking criteria with the overall survey results becoming the final grade.

**Social networking focus**

A blog, or 'web log' is a website with entries in reverse chronological order. Most blogs function as personal online diaries, others report on particular topics. Typically, they contain text written 'posts', images, links and an interactive feature that allows readers to leave a 'comment'. Some blog focus on music (MP3blogs), photos (fotoblog), videos (vlogs), and audio sharing (podcasting). Since blogs are really open diaries, which are popular with students and teachers looking for other students work or ideas.

Edublogs are blogs created by or for teachers, either dealing with educational policy or classroom teaching and learning issues.

Collaborative blogs and wikis are growing in popularity in schools, where a whole class of students or a specific interest group (i.e. Netball, student newspaper) produces a blog together. Individual student blogs are often linked to a main blog, with teachers moderating postings and comments. Usually, these are only accessible on the school intranet and not available to the general public.
public. Blogs could be beneficial when they serve a specific purpose but overuse without strong curriculum reasons may quickly dampen the students initial enthusiasm.

Increasingly, applications appearing that can bring together snippets of different blogs, photosharing or news items called RSS/Atom feed aggregators. This way, users can read from multiple sources on the one page. Two popular aggregators are PageFlakes (http://www.pageflakes.com/) and iGoogle (http://www.google.com/ig).

Social networking sites such as MySpace (http://www.myspace.com), Facebook (http://www.facebook.com), Cyworld (us.cyworld.com), Ning (http://www.ning.com), Bebo (www.bebo.com) and plaxo (www.plaxo.com) support pre-existing real-life networks through online maintenance. Online communities are built by millions of people share interests and pursue activities through hundreds of social networking sites. They have comparatively equal technological features for user interactions (i.e. chat, mobile connectivity, blogging, and photo/video-sharing) but varied cultures due to their audiences. Users can create a 'profile', upload their picture and choose who can view or contact them through privacy controls. The programs will search the users' email address books to display people who already have a profile. They become 'friends' either by making a request or confirming requests from others. Facebook now contains a chat facility whereby you can see who is online and communicate synchronously.

**Virtual worlds**

One of the most well-known Internet-based virtual world video games is Second Life (secondlife.com); others are Kaneva (www.kaneva.com), Active Worlds (www.activeworlds.com), World of Warcraft (http://www.worldofwarcraft.com), There (www.there.com) and IMVU (www.IMVU.com). Interactions occur through avatars, which can be of human or other appearance. They can be customized (i.e. hair, skin colour, height, clothes), walk, fly or teleport to other locations and communicate through either chat or instant messaging (IM). Avatars can socialise, create or trade good (i.e. virtual clothing, drinks) and services (i.e. dancing) with others. Due to the mature content, users under 18 years of age are allowed only in restricted areas. Teen Second Life permits 13 to 17 years olds access to the teen grid, which is a designated area with age appropriate content. A very popular safe online environment used by students is Habbo (www.habbo.com.au). This virtual world has sites for use by teenagers around the world. Currently there are 19 habbo sites, each associated with a different country.

**CONCLUSION**

The Web2.0 applications presented in this article give the novice a basic overview and good starting point for further exploration. Teachers and administrators may wish to investigate how these new technologies can be used effectively for classroom use, to incorporate technology in meaningful ways into the curriculum and to develop best practice.

**REFERENCES:**


**BIOGRAPHY**

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