

Engaging the YouTube Google-Eyed Generation: Strategies for Using Web 2.0 in Teaching and Learning

Peter Duffy

The Hong Kong Polytechnic University, Hong Kong

etpeterd@inet.polyu.edu.hk

Abstract: YouTube, Podcasting, Blogs, Wikis and RSS are buzz words currently associated with the term Web 2.0 and represent a shifting pedagogical paradigm for the use of a new set of tools within education.

The implication here is a possible shift from the basic archetypical vehicles used for (e)learning today (lecture notes, printed material, PowerPoint, websites, animation) towards a ubiquitous user-centric, user-content generated and user-guided experience.

It is not sufficient to use online learning and teaching technologies simply for the delivery of content to students. A new "Learning Ecology" is present where these Web 2.0 technologies can be explored for collaborative and (co)creative purposes as well as for the critical assessment, evaluation and personalization of information.

Web 2.0 technologies provide educators with many possibilities for engaging students in desirable practices such as collaborative content creation, peer assessment and motivation of students through innovative use of media. These can be used in the development of authentic learning tasks and enhance the learning experience.

However in order for a new learning tool, be it print, multimedia, blog, podcast or video, to be adopted, educators must be able to conceptualize the possibilities for use within a concrete framework. This paper outlines some possible strategies for educators to incorporate the use of some of these Web 2.0 technologies into the student learning experience.

Keywords: Web 2.0, e-Learning, YouTube, blog, Wiki

1. Introduction

Why should the notion of incorporating Web 2.0 and interacting with for example socially distributed and user-created videos (e.g. from www.youtube.com) be important within education? In what ways has the rapid development of digital technologies associated with the term Web 2.0 and their use in education enabled individuals to interact differently within existing ecologies of learning? How can we as educators engage the YouTube, Google-eyed generation?

Students today have grown up within a world of pervasive technology including mobile phones, digital cameras and the omnipresent internet. Described as, "Gen-X, Millennials, the Nintendo and Net Generation" (Tapscott, 1997; Oblinger, 2003; Olsen, 2005), these students blog, play games in immersive 3-D worlds, listen to podcasts, instant message friends, listen to music, author their own video for www.youtube.com and collaborate on the creation of 'digital stories' for their ePortfolio. They absorb information quickly, in images and video as well as text, from multiple sources simultaneously. They operate at what Prensky (2004) describes as, "twitch speed", expecting instant responses and feedback. They prefer random "on-demand" access to media; expect to be in constant communication with their friends and ease of access in the creation of their own content.

In his article, *Growing Up Digital: How the Web Changes Work, Education, and the Ways People Learn*, John Seely Brown (2002) uses ecology as a metaphor to describe an environment for learning. Brown says, "An ecology is basically an open, complex adaptive system comprising elements that are dynamic and interdependent. One of the things that make an ecology so powerful and adaptable to new contexts is its diversity." Brown further describes a learning ecology as, "a collection of overlapping communities of interest (virtual), cross-pollinating with each other, constantly evolving, and largely self-organizing."

New Web 2.0 technologies and websites, such as a blog, wiki or YouTube, make new demands on learning, and they provide new supports to learning, even as they also dismantle some of the learning supports upon which education has depended in the past. If we agree that there are changes occurring across the learning ecology and, that new conceptualisations are required to use these emerging technologies, then some care should be taken to think deeply about the impacts of Web 2.0 on the processes and practices of pedagogy.

The focus of this paper will be on a pragmatic exploration of blogs, YouTube and wikis as illustrative and typical examples of technologies and websites that reflect the changing landscape of our Web 2.0 learning ecology. Clearly, the choice of these three areas does not delimit the categorisation of Web 2.0 tools to only these three, and other areas such as Virtual Worlds / aka Second Life (<http://www.secondlife.com/>) or social sharing sites such as Face-book (<http://www.facebook.com/>) or, Myspace (<http://www.myspace.com/>), etc could be dealt with, however, by limiting the choice within this paper to an exploration of blogs, YouTube and wikis as illustrative of Web 2.0 it is envisaged that this will provide some starting frames of reference within which to consider strategies for using Web 2.0 within teaching and learning for the reader. Explored will initially be definitional aspects of Web 2.0 and a general understanding of Web 2.0 before delving into a detailed focus on some possible strategies for educators to incorporate the use of blogs, YouTube and wikis (as representational of Web 2.0) into the student learning experience.

2. A student context

Why would the notion of incorporating user-created videos (e.g. from www.youtube.com as one illustrative example of Web 2.0) be important within education? From a student perspective we must reflect on the changing nature of our students as key stakeholders in the educational process. Sometimes called "digital natives" or the "Nintendo generation", these new millennial's approach work, recreation and certainly education in new ways. (Tapscott, 1997) They absorb information quickly, in images and video as well as text, from multiple sources simultaneously. They operate at what Prensky (2004) describes as, "twitch speed", expecting instant responses and feedback. They prefer random "on-demand" access to media; expect to be in constant communication with their friends and ease of access in the creation of their own new media.

There is some debate about students' ability to transfer these technological 'real world' skills to an academic context (refer for example to The ECAR Study of Undergraduate Students and Information Technology, released in December 2006. But certainly not debated is the dominance and pervasive use of the technology by students. According to an American study on teen content creators and consumers, (Lenhard & Madden, 2005), 57% of online teens create content for the Internet. That amounts to half of all teens ages 12–17, or about 12 million youth. The study referred to students being involved in the following activities: create a blog; create or work on a personal web-page; create or work on a webpage for school, a friend, or an organization; share original content such as artwork, photos, stories, or videos online; or remix content found online into a new creation. In learning, these trends are manifest in what is sometimes called "learner-centered" or "student-centered" design (Marzano, 2006). This is however, more than an adaptation to accommodate different learning styles or allowing the user to change the display of a website; it is the placing of the control of learning experience itself into the hands of the learner. The phenomena of Web 2.0 provide for students an unprecedented way to access, socialize and co-create.

3. Web 2.0

"Web 2.0", a phrase coined by O'Reilly Media in 2003 (O'Reilly, 2005), refers to a perceived second generation of web-based interactions, applications and communities. It is considered to be inclusive of a shift from a World Wide Web that is "read only" to a Web that is being described as the "Read Write Web" (Gillmor, 2007). Instead of content that was for the most part static, we are now seeing the ability to remix content in different ways, in order to suit contextual needs. The Web is evolving to become more like an area for social and idea networking. Students negotiate meanings and connections within Web 2.0 social spaces or idea networks, exchange bits of content, create new content, and collaborate in new ways.

The term Web 2.0 has been applied to a heterogeneous mix of the familiar with the innovative and emergent and as such can be considered problematic in a definitional sense. What must be considered here though is not the shifting ground in relation to definitional aspects of Web 2.0 but how the term is defined for the purposes of this exploration of its use within education and pedagogic possibilities? As Alexander, (2006, p.32) states, "Ultimately, the label "Web 2.0" is far less important than the concepts, projects, and practices included in its scope".

Presented here are some broad characteristics of a Web 2.0 web-site in order to further delimit the term for the reader;

- "network as platform"; delivering (and allowing users to use) applications entirely through an internet browser
- users own the content on a site and exercise control over it

- an architecture of participation that encourages users to contribute
- a rich, interactive, user-friendly interface
- social-networking functions

In summary, O'Reilly (2005) indicates that, "Web 2.0" stands for the idea that the Internet is evolving from a collection of static pages into a vehicle for software services, especially those that foster self-publishing, participation, and collaboration

User-centered Web 2.0 phenomena such as blogging, social video sharing (exemplified by YouTube) and collective editing (wiki or Wikipedia as an example) are disrupting traditional ideas about how students interact online and how content is generated, shared, and distributed. Presented next are some specific characteristics of blogs, YouTube and wikis as well as, educational benefits and strategies for the educational use of each.

Examples of Web 2.0

Tim O'Reilly (2005) provides a comparison between websites and functions that typically illustrate Web 1.0 and 2.0. In his initial brainstorming, he formulated the following examples and this initial list has been adapted to include some previous terms such as read-write web to provide further insight and a context for the reader in relation to these terms.

Table 1: Comparison of Web 1.0 to Web 2.0

Web 1.0		Web 2.0
DoubleClick	-->	Google AdSense
Ofoto	-->	Flickr
Akamai	-->	BitTorrent
mp3.com	-->	Napster / Podcasting
Britannica Online	-->	Wikipedia
personal websites	-->	blogging
evite	-->	upcoming.org and EVDB
domain name speculation	-->	search engine optimization
page views	-->	cost per click
screen scraping	-->	web services
publishing	-->	participation
content management systems	-->	wikis
directories (taxonomy)	-->	tagging ("folksonomy")
stickiness	-->	RSS - syndication
Read Web	-->	Read-Write Web
Linear	-->	Non-Linear
Daily ME	-->	Daily WE
Old Media	-->	New Media / or Social Media

(This table has been adapted from <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>)

Some of the terms above may be problematic for the novice Web 2.0 reader and so a brief description of some of the more common terms is provided. Blogs provide a personal commentary or news on a particular subject and many function as a personal online diary. A typical blog combines text, images, and links to other blogs and web media. The ability for readers to leave comments in an interactive format is an important part of many blogs. Blogging is content created from a personal point of view, in a personal voice. A wiki (sometimes wiki wiki) is a web application designed to allow multiple authors to add, remove, and edit content. (Cunningham and Leuf; (2001). The multiple author capability of wikis makes them effective tools for mass collaborative authoring. Wikipedia, is one of the best known wikis. RSS, folksonomies and tagging are often part of the transformation to the "Read Write Web." The term folksonomy (derived from "folk" and "taxonomy") was coined by Thomas VanderWal (Vanderwal, 2006) and refers to a form of organic categorization that comes from internet users as they encounter new information. Podcasting, is the creation and distribution of an audio or more recently video recording online. It is distributed over the internet using RSS or syndication feeds and is often suitable for playback on portable players such as an iPod.

Various 'social' new media sharing websites have become associated with the term Web 2.0 as well. Photo-sharing Web sites such as Flickr, (www.flickr.com) are becoming hubs for students sharing photos. In addition to being a popular Web site for users to share personal photographs, the service is widely used by

bloggers as a photo repository. Its popularity has been fueled by its innovative online community tools that allow photos to be tagged and browsed by folksonomic means. Video-sharing web sites continue to proliferate on the internet. The article "The ultimate Online Video List", indicates 210 different online video sites. (refer to <http://www.everybodygoto.com/2007/05/21/the-ultimate-online-video-list/>). At present the website with the largest market share is www.youtube.com and it is this site that we will be focusing on in relation to new media and an exploration of specific strategies to use YouTube in teaching and learning.

4. What is a blog?

Paquet (2003) refers to the term, blog, initiated by Barger in 1997, as a log of the Web – or Weblog. In its simplest form it is a Website with dated entries, presented in reverse chronological order and published on the Internet. The word blog is both a noun and a verb. People who maintain a blog are called bloggers. The act of posting to a blog is called blogging and the distributed, collective, and interlinked world of blogging is the blogosphere.

4.1 Characteristics of a blog

A Weblog or blog can be described as an online journal with one or many contributors. Besides straight text and hyperlinks, many blogs incorporate other forms of media, such as images and video.

Blogs differ from traditional websites and provide many advantages over traditional sites, including:

- easy creation of new pages, since new data is entered into a blog usually through a simple form and then submitted with the blogger (or person adding the entry to the blog website) updating the blog with little or no technical background - blogs have thus become the novice's Web authoring tool;
- filtering of content for various blog entries, for example by date, category, author, or one of many other attributes;
- most blog platforms allow the blog administrator to invite and add other authors, whose permissions for creating content and access are easily managed;
- providing a personal writing space that is easy to use, sharable, and automatically archived;
- ability to link and inter-link to form learning communities;
- opportunity to serve as a digital portfolios of students' assignments and achievements;
- extensions into fully-featured content management systems

4.2 Educational benefits of blogs

Potential benefits as identified by learning specialists Fernette and Brock Eide and cited by Will Richardson (2006) in *Blogs, Wikis, Podcasts, and Other Powerful Webtools for Classrooms* include the following:

- can promote critical and analytical thinking;
- can promote creative, intuitive and associational thinking;
- (creative and associational thinking in relation to blogs being used as a brainstorming tool and also as a resource for interlinking, commenting on interlinked ideas);
- can promote analogical thinking;
- potential for increased access and exposure to quality information;
- combination of solitary and social interaction

Within the structure of a blog, students can demonstrate critical thinking, take creative risks, and make sophisticated use of language and design elements. In doing so, the students acquire creative, critical, communicative, and collaborative skills that may be useful to them in both scholarly and professional contexts. The growing popularity of blogs suggests the possibility that some of the work that students need to do in order to read well, respond critically, and write vigorously, might be accomplished under circumstances dramatically different from those currently utilized in education.

4.3 Strategies for using blogs in teaching and learning

The following are some possible uses of blogs in education:

Within a personal academic perspective a blog can support;

- reflection on teaching experiences;
- categorized descriptions of resources and methodologies for teaching;
- ramblings regarding professional challenges and teaching tips for other academics, and
- illustration of specific technology-related tips for other colleagues

Within an organizational perspective a blog can support;

- a common online presence for unit-related information such as calendars, events, assignments and resources, and an
- online area for students to post contact details and queries relating to assessment

Within a pedagogical perspective a blog can support;

- comments based on content, literature readings and student responses;
- a collaborative space for students to act as reviewers for course-related materials;
- images and reflections related to industry placement;
- an online gallery space for review of works, writings, etc., in progress, making use especially of the commenting feature;
- teachers encouraging reactions, reflections and ideas by commenting on their students' blogs, and
- the development of a student portfolio of work

4.4 Further questions to be explored

Consider asking your students how much reflective writing they do? Then, for comparison, ask them how much time they spend writing emails, using ICQ or MSN Messenger, and surfing the Internet? Most will be heavily involved in the latter. To the current generation of students, the Internet and other forms of electronic discourse are not necessarily associated with their concept of “reading and writing” in an educational sense, but rather are tools for social interaction. Blogging, as a socially driven public written reflection, can change the dynamic of teaching rhetorical sensitivity and reflection. Many students are already highly socially active in Internet-based environments, interacting with and commenting on one another’s written materials – even without formally realising that they are doing so. The proclivity and popularity of Websites such as the video sharing site www.youtube.com and the blogging space www.blogger.com indicate a growing impetus towards personal expression and reflection, and the sharing of “personal “spaces.

5. What is YouTube?

YouTube is a popular video sharing website where users can upload, view, and share video clips. YouTube has become an enormously popular form of web 2.0 new media. A recent article in Wired cites an average of 65,000 uploads and 100 million videos viewed per day on YouTube (Godwin-Jones, 2007).

5.1 Characteristics of YouTube

A typical YouTube webpage is usually made up of the following components:

- the wide variety of video content including movie and TV clips and music videos, as well as amateur content such as video blogging and short original videos;
- unregistered users can watch most videos on the site; registered users have the ability to upload an unlimited number of videos;
- Flag – ability to indicate a video that has inappropriate content;
- Title - main title of the video;
- Tags – keywords specified by the person who has uploaded the video;
- Channels – relating to groupings of content;
- Related videos - determined by the title and tags, appear to the right of the video;
- Subscribe – registered users can subscribe to content feeds for a particular user or users;

- Comments – often not monitored can be provided by any registered user about a video uploaded;
- Views – the number of times a video has been watched;
- Rating - videos can be rated by registered users

5.2 Educational benefits of YouTube

Video can be a powerful educational and motivational tool. However, a great deal of the medium's power lies not in itself but in how it is used. Video is not an end in itself but a means toward achieving learning goals and objectives. Effective instructional video is not television-to-student instruction but rather teacher-to-student instruction, with video as a vehicle for discovery.

YouTube is increasingly being used by educators as a pedagogic resource for everything from newsworthy events from around the world to “slice-of-life” videos used to teach students within an ESL (English as a Second Language) course. From instructional videos to an online space to share student authored content.

Some general guidelines recommended by Clark and Mayer (2002) in relation to considering the appropriate use of any media to improve learning suggest that media must;

- be aligned with expected learning or performance outcome;
- reduce cognitive load;
- exclude superficial text or graphics;
- be appropriate for target learner's learning literacy's

Educators (and students alike), will find that video is an effective catalyst and facilitator for classroom discourse and analysis.

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Video learning shouldn't be passive. These are some guidelines relating to the specific use of video to promote active viewing and maximize learning;

1. **SEGEMENT** - allow your students to watch the video in short segments
2. **NOTES** - videos are ideal for developing note-taking skills. Take notes on the first viewing, then rewind, replay and check them. This can be done individually or collectively as a class discussion / brainstorming session.
3. **PAUSE** - Use the "pause" feature to temporarily stop the tape and allow your students to try to predict/recall what will happen next.
4. **SOUND OFF** - for video sequences that rely on visuals, turn the sound off and narrate. This technique works especially well for listing the steps of a process.

5. **PICTURE OFF** - use the audio clues to describe what is on screen. Compare and contrast the predictions with the actual video.
6. **PREVIEW** each video carefully to determine its suitability for the lesson's objectives and student's learning outcomes.
7. **INTEGRATE** the video into the overall learning experience by adding an experimental component to the lesson. Activities can be done prior to viewing; to set the stage, review, provide background information, identify new vocabulary words, or to introduce the topic. The activity can be done after viewing to reinforce, apply, or extend the information conveyed by the program. Often the video can serve as an introduction or motivator for the hands-on activity to come.
8. **CUT** – use online video editors like www.cuts.com or www.eyespot.com to capture the concepts that are most relevant for your lesson topic. It is often unnecessary and time-consuming to screen a program in its entirety. When previewing a program, look for segments particularly relevant or useful to the lesson or activity planned.
9. **FOCUS** - give students a specific responsibility while viewing. Introduce the video with a question, things to look for, unfamiliar vocabulary, or an activity that will make the program's content more clear or meaningful. By charging students with specific viewing responsibilities, teachers can keep students "on task" and direct the learning experience to the lesson's objectives. Be sure and follow-up during and after viewing the tape.
10. **AFTER** - when students have viewed the video consider; what interested them? What didn't they understand? How can you relate the program to their experiences and feelings? Ask the students to add comments / blog on the video. How can you validate and appreciate diverse reactions to the material?

Teachers and students alike will find that video is an effective catalyst and facilitator for classroom discourse and analysis. Coupled with hands-on learning, a new media, video-enhanced curriculum can be invaluable for expanding the learning experience and by incorporating a medium that is as popular, forceful and familiar; educators can tap into the existing enthusiasm towards this form of new media. (The above strategies were adapted from <http://www.idahoptv.org/ntti/strategies.html> and <http://www.edb.utexas.edu/fieldexp/SampleSeminars/SampleSeminar11.php>)

Below are some specific examples of approaches to incorporating YouTube into the teaching and learning experience:

- YouTube can be used to create a learning community where everyone has a voice, anyone can contribute, and the value lies equally within the creation of the content and the networks of learners that form around content discovered and shared. (adapted from Educause Learning Initiative, 2006);
- allow your students to create a short video as part of an assessment item instead of the traditional essay. Becoming involved in the creation of a video, "heightens a student's visual literacy, an important skill in today's electronic culture" (Educause Learning Initiative, 2006);
- YouTube allows the learner to experiment in new media to convey information and knowledge. "Many educators believe that the act of creating content, in virtually any form, is a valuable learning exercise" (Educause Learning Initiative, 2006);
- record a video of a guest presenter relevant to your content and use the YouTube comments feature to generate some discussion;
- pose a question at the end of class that can be considered from distinct viewpoints and ask your students to search for 2-3 video references relating to the different perspectives. The use of video as a part of an anticipatory set to promote discussion can be useful tool to engage with an audience already enamoured with the YouTube phenomenon;
- the use of video also has several advantages over graphic and textual media. E.g.: portrayal of concepts involving motion, the alteration of space and time; the observation of dangerous processes in a safe environment; dramatization of historical and complex events; demonstration of sequential processes the viewer can pause and review (Misanchuk, Schwier & Boling, 1996);
- to support language learning, at the end of one of your classes, decide on a particular topic and ask your students to search for short videos on this topic to watch it and create a difficult vocabulary guide;

- ask students to capture a series of video vignettes related to their work placement. This will provide a rich authentic resource both for current students and future use. One example this are the video vignettes described within Diane Skiba's (2007) article, "Nursing Education 2.0 via YouTube;
- within higher education Jenkins, (2007) describes the 'YouNiversity' and suggests an intellectual network where students interact not only with professors, but with industry and the community;
- YouTube can be used as a virtual library to support classroom lectures by providing students with access to video clips. (Conway, 2006)

5.4 Further questions to be explored

YouTube is not necessary for good teaching, in the same way that wheeling a VCR into the classroom is not necessary. Within an examination of Web 2.0 sites such as YouTube and the discourses that frame their use educators should consider: how do we engage with these Web 2.0 technologies, and how do we teach students to think critically about their potential uses? How do video sharing sites such as YouTube reshape our participation in and out of the classroom? Such questions, of course, do not have simple answers. Suggested is that educators need to go beyond treating video sharing sites as only virtual libraries and instead emphasizes the features more aligned with Web 2.0 such as the role of social comments, video responses to existing content, flexible possibilities for collaborative assessment and other features of media sharing collaboration.

6. What is a Wiki?

A wiki is a group of Web pages that allows users to add content, similar to a discussion forum or blog, but also permits others (sometimes completely unrestrictedly) to edit the content (Arreguin, 2004). What distinguishes wikis from blogs, discussion fora, or other content management systems is that there is no inherent structure hard-coded: wiki pages can be interconnected and organized as required, and are not presented by default in a reverse-chronological, taxonomic-hierarchical, or any other predetermined order. In essence, the wiki offers a vast simplification of the process of creating HTML pages, and thus is a very effective way to build and exchange information through collaborative effort.

6.1 Characteristics of a Wiki

The following are some typical characteristics of a Wiki:

- where a blog is (usually) the writings of one person to be read by many, a wiki is a website that allows a user to add content, but also allows that content to be edited by any other user;
- they involve the creation of documents (individual pages as well as the entire wiki) without a detailed technical knowledge of HTML;
- they tend towards expressing ideas as relationships between pages, thus creating a network of interrelated topics;
- they are a-temporal, that is, the nodes (or interlinking textual references) change not according to time but by way of development within the evolving and edited text,
- they track the changes to individual pages over time;
- provides a space where knowledge becomes networked (situated, contextualized) but remains ephemeral: it changes, and can be changed and mediated by the community

6.2 Educational benefits of Wikis

In essence, wikis offer an online space for collaborative authorship and writing. They are available online for all Web users or for members of specific communities, and include version control tools that allow authors to track the history of specific pages, and the history of their personal contributions. Using wikis, students can easily create simple Websites without prior knowledge or skill programming in HTML or current software used for Website authoring, thus eliminating the time overhead necessary to develop these skills. Also, as more organisations adopt the wiki for internal and external collaboration and information, work with wikis at the tertiary level builds crucial skills for the workplace.

A wiki also offers the ability to interact with an evolving document over time. It allows teachers and learners to see the evolution of a written task, and to continually comment on it, rather than offering comments only

on the final draft. Considering students' busy schedules, a wiki can also be very useful for tracking and streamlining group projects.

6.3 Strategies for using Wikis in teaching and learning

The following are some possible educational uses of a wiki:

- students can use a wiki to develop research projects, with the wiki acting as ongoing documentation of their work;
- a wiki can be used for students to add summaries of their thoughts from the prescribed readings, building a collaborative annotated bibliography;
- in distance learning environments, the tutor can publish course resources like syllabus and handouts, and students can edit and comment on these directly;
- wikis can be used as a knowledge base for teachers, enabling them to share reflections and thoughts regarding teaching practices and allowing for versioning and documentation
- wikis can be used to map concepts: they are useful for brainstorming, and authoring a wiki on a given topic produces a linked network of resources;
- a wiki can be used to facilitate a presentation in place of conventional software, like Keynote and PowerPoint;
- wikis are tools for group authoring of a document;
- wikis are being used for course evaluation: students at Brown University have started CAW (n.d), the Course Advisor Wiki, a place for students to collaboratively write reviews of courses they've taken. CAW gives readers a flexibility to articulate their impressions, and enables richer reviews that combine multiple impressions and perspectives

For a further exploration of some of these ideas, also see *Pearce (2006), Wikis in Education and Other Tools for Collaborative Writing (2006), and ExamplesWikiUse (2006)*.

6.4 Further questions to be explored

Just as there are strengths in collaborative, co-authored online spaces there are also some challenges. Some wikis have no page locking system, so if two people edit the page simultaneously, one set of changes will be silently deleted. Some wikis do not include a versioning system, making them inappropriate for the task. Also, there are the social issues that occasionally crop up, particularly on very large projects such as the *Wikipedia*. Some pages on *Wikipedia*, dealing with controversial topics such as abortion or religious perspectives, can exhibit a phenomenon known as an "edit war" (Wikipedia, 2006). This is the continuous editing and re-visioning of content by a community member with a particular agenda. The easiest way to circumvent such disagreements is to place a block on the page edit functionality for a period of time.

Asking students to develop new wiki pages can present considerations from an educational perspective which are comparable to teaching students the processes of authorship in any other written task. Depending on the nature of the task at hand, wiki entries may be structurally and procedurally different from standard writing tasks that students may be already used to – therefore, it is important that teachers provide sufficient help and instruction to learners as they come to understand the requirements of the wiki writing genre.

7. Conclusion - An evolving learning ecology

Like the early days of the Internet, there is an optimism driving experimentation and exploration across the learning ecology presented by technology. Web 2.0 presents educators with shifting frames of reference to consider in relation to teaching and learning. Students and educators now have access to a ubiquitous learning environment where it's possible to search for, locate, and quickly access elements of learning that address immediate needs. It is possible to use Web 2.0 technology to construct and organize personalized, unique interactions with an educational context.

The learning design and content elements that form a learning ecology must be dynamic and interdependent. The learning environment should enable instructional elements designed as small, highly relevant content objects to be dynamically reorganized into a variety of pedagogical models. This dynamic reorganization of content into different pedagogical models can create a learning system adaptive to varying student needs. Imagine for example, what could happen if our education curriculum operated more like Web

2.0, YouTube and Wikipedia, allowing for the rapid deployment of scattered expertise and the dynamic reconfiguration of content across contexts. Shifting conceptions of participation and connection for students could be explored and the contrast between 'Push' and 'Pull' Education (Richardson, 2005) can be mapped across this new learning ecology.

Richardson (2005) suggests that 'Push' models indicate students as passive whose needs can be anticipated and shaped by centralized decision-makers. 'Pull' models treat students as networked co-creators of media and are designed to accelerate capability building, helping students learn as well as innovate, by pursuing trajectories of learning that are tailored to their specific needs.

In part this shift from "Push" to "Pull" can be seen to relate to George Siemens's (2005) notion of *Connectivism*. Paraphrasing he indicates that, we derive our competence from forming connections.... unlike constructivism, which states that learners attempt to foster understanding by meaning-making tasks, this theory indicates that the meaning exists and the learner's challenge is to recognize the patterns which appear to be hidden. Meaning-making is seen to involve forming connections between specialized communities and information / knowledge architectures.

Within higher education Jenkins, (2007) describes the 'YouNiversity' and suggests an intellectual network where students interact not only with professors, but with industry and the community thus encompassing a change in the traditional classroom learning ecology and inclusive of collaborative broader perspectives usually described within a blending of online with face-to-face learning experiences.

Within business the model suggested within 'Wikinomics' (Tapscott and Williams, 2006) indicates that open-source technology and strategies involving mass collaboration "changes everything". That Web 2.0 tools such as wikis can be used successfully to enable tacit and other forms of knowledge to be shared. According to Tapscott, wikinomics is based on four ideas: Openness, Peering, Sharing, and Acting Globally. As educator's considerations of how to translate these ideas into our teaching and learning challenge notions of authorship, intellectual property and 'contingency' and 'technological imperative' models (Orlikowski, 1992) for the integration of technology to support teaching or learning.

Challenged must be the ways in which our educational system is designed to "push" the limited resources it accessed previously. Explored should be ecologies of access to a plethora of knowledge and resources, and a rethink and expansion of the choices for our students to find those resources most relevant and effective. We need to teach them to take ownership of their own learning and to develop skills in media and information literacy. It is this close examination of Web 2.0 technologies and the discourses that frame their use that attracts the interest of many educators.

Which tools are used by learners and teachers, and whether such tools will be used at all, will always depend on the specific pedagogical needs of a teaching situation. Common to all of these technologies is that they are strongly social and community based. The Blogosphere offers ongoing distributed expression of and interaction with personal news, views, and ideas. Youtube's popularity and authentic slice-of-life offers creative opportunities to share; respond to and author content. Wikis emphasise a more task-oriented collaborative editing of content and development of "collective" interlinked knowledge. The specific focus here on blogs, YouTube and wikis have presented for the reader some initial ideas in order to illustrate and prompt some thought in relation to the use of Web 2.0 technologies.

Such socially-based technologies sit well with the understanding of learning as socially constructed, which has been a cornerstone of recent pedagogical theory. Blogs, YouTube and wikis provide a means to encourage and make visible the social construction of knowledge which such theory postulates, and it is incumbent on teachers to embrace such tools where their use is beneficial to learners and teachers alike.

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