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Integrating Selected Web 2.0 Tools Into the High School Curriculum to Enhance Student Engagement and Promote Learning Among the Millennial Generation

CAPSTONE REPORT

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**Integrating Selected Web 2.0 Tools Into the High School Curriculum to Enhance Student
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WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Abstract

This annotated bibliography explores the unique learning style of the Millennial generation and examines how Web 2.0 tools can be used by high school teachers to enhance student engagement. The bibliography is based on literature published from 1996 to 2012. Conclusions describe examples of using video sharing websites and social networking technologies in the classroom as well as some of the challenges that an educator might face when incorporating these tools into the curriculum.

Keywords: Web 2.0, Millennial Generation, Social Networking, YouTube, High School, Teaching

Table of Contents

Introduction..... 9

 Problem 9

 Purpose 10

 Significance..... 11

 Audience..... 12

 Research Questions 13

 Main question 13

 Sub questions..... 13

 Delimitations 14

 Focus..... 14

 Time frame 14

 Reading and Organization Plan Preview..... 15

 Reading plan preview 15

 Organization plan preview..... 15

 Definitions..... 16

 Research Parameters 18

 Search Report 18

 Keywords and phrases..... 19

 Search results..... 20

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

Literature Evaluation Criteria.....	21
Documentation approach.....	22
Reading and Organization Plan.....	23
Reading plan.....	23
Organizational plan.....	24
Annotated Bibliography.....	27
Web 2.0 Usage in the Classroom	27
Learning Styles of Millennial Generation Students	44
Social Networking Website Usage in the High School Curriculum	56
Video Sharing Website Usage in the High School Curriculum	70
Conclusion	83
Incorporating Video Sharing Websites into the Curriculum.....	87
Incorporating Social Networking Websites into the Curriculum.....	91
Challenges Faced in Schools when Incorporating Web 2.0 Tools into the Curriculum	93
References.....	96

List of Tables

Table 1 Social Studies content areas and associated YouTube video title examples.....	91
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Introduction

Problem

Individuals born during the 1980s and the 1990s, referred to as the *millennial generation*, (Vie, 2008 p.12) “expect learning to occur in an active format, and are quick to ‘change channels’ when their active learning expectations are not being met” (Saulnier, 2007, p. 4) From a historical perspective, there has been an evolution from learning *from* computers in the 1970s to learning *about* computers through the 1980s to a current emphasis on learning *with* computers (Karppinen, 2005). Akyeampong (2011) posits that the members of the millennial generation are seeking more self-regulated strategies instead of large amounts of memorization; they need to be motivated more. Students are no longer satisfied with learning only in the classroom, instead, they require learning in the real world (Akyeampong, 2011, p. 3860).

According to Greenhow, Robelia, and Hughes (2009) “Web 2.0 is both a platform on which innovative technologies have been built and a space where users are as important as the content they upload and share with others” (p. 247). “Web 2.0 is distinctive from Web 1.0 in that it seems to embody ‘knowledge’ as a ‘collective agreement’ that may combine facts with other dimensions of human experience, such as opinions, values and spiritual beliefs” (Greenhow, Robelia, & Hughes, 2009, p. 247). Furthermore, Web 2.0 tools make students educational producers and consumers, thereby giving students an active role in their own education (Martin, Diaz, Sancristobal, Gill, Castro, & Peire, 2011). Additionally, “high degrees of activity and criticality with Web 2.0 applications are associated with empowerment, because these abilities enable participation, invention and knowledge building” (Asselin & Moayeri, 2011, p. i).

Elementary school age children today obtain information via various interactive sources including social networking sites, where they are able to witness events as they happen, rather

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

than simply reading a traditional hardcopy newspaper (Jones & Cuthrell, 2011). Furthermore, teenagers are using Web 2.0 technologies, with 55% of teenagers using social networking sites which they access on a daily basis (Greenhow, Robelia & Huges, 2009).

Web 2.0 tools are being incorporated into the academic arena from preschool to university, and the tools are being used to enhance learning in an innovative manner (Jones & Cuthrell, 2011). For example, “online videos can be linked with slides, supporting texts, discussion boards, chat, resource links and so forth as part of a virtual learning environment” (Karppinen, 2005, p. 234). According to Mullen and Wedwick (2008) quick access to archived videos in an easy-to-use database such as YouTube enhances student learning. For example when students struggled with the definition of the word *nostalgia*, the teacher used YouTube to find and play PBS shows such as *The Big Comfy Couch*, after which students began reminiscing about their preschool years and formed an authentic understanding of the word *nostalgia* (Mullen & Wedwick, 2008).

Purpose

The purpose of this annotated bibliography is to examine how selected Web 2.0 tools can be integrated into the high school curriculum to enhance student learning and engagement (Rutherford, 2010; Schuck, Aubusson, & Kearney, 2010). Although many types of Web 2.0 technologies exist, this bibliography concentrates on social networking and video sharing websites as these pertain to the high school curriculum (Akyeampong, 2011). Even though technology use in the classroom is now pervasive with 98% of all U.S. public school classrooms having Internet access, and the availability of online learning tools is growing, there is ongoing debate as to how to use the tools in high school classrooms in an effective manner that promotes learning instead of distraction (Digest of Education Statistics, 2010).

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

Duffy (2008) believes that Web 2.0 technologies in general create new opportunities for teachers to engage students and to enhance their learning experience. This inquiry attempts to provide selected practical approaches as to how an educator might include the subset of Web 2.0 tools into the curriculum (Akyeampong, 2011).

Significance

According to the National Council for Accreditation of Teacher Education (NCATE) the use of technology among school age children has shown to enhance the development of problem solving skills and improve their ability to make decisions (Jones & Cuthrell, 2011). Web 2.0 technologies are tools that enable users to interact with other users, as opposed to passive viewing of websites that existed before the inception of Web 2.0 (Rutherford, 2010). Students can now “use Web 2.0 tools to enable new models of collaboration, personalize learning pathways, promote diversity and take advantage of a social context” (Bower, Hedberg & Kuswara, 2010, p. 179). Additionally, using Web 2.0 tools enable students’ use of “critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions” (Smith & Dobson, 2011, p.323).

According to Schuck, Aubusson, and Kearney (2010):

With the current rapid increase in usage of these technologies, it becomes necessary to understand what is happening in this social networking phenomenon, so that educators better understand the new spaces that students inhabit and the implications for students’ learning. (p.237)

They believe that investigation of adolescents’ current online culture is necessary in order for education to fully capitalize on using Web 2.0 tools to enhance learning through engagement (Schuck, Aubusson & Kearney, 2010).

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

According to Livingston (2011) “much of the investment in hardware has yet to show a benefit in educational practices and outcomes” (p.6). For many teachers, technology integration is limited to how equipment is used or as an add-on to meet evaluation requirements (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2011; Lund & Morris, 2002). Many school administrators who evaluate the teachers have a similar perception, that having a computer in the classroom is somehow using technology to enhance learning (Ameil, 2006; Ertmer et al., 2011). Ameil (2006) also posits that what is needed is a more student-centered classroom which embraces collaboration and problem solving and other developments in pedagogy. Other reasons why teachers do not use these tools in the classroom include (a) they are not available, or (b) they have been intentionally blocked because the administrators fear the sites might have inappropriate content for a public school classroom (Jones & Cuthrell, 2011; Rutherford, 2010).

Audience

The primary audiences for this paper are classroom teachers and principals of public high schools in the United States. Even though many resources have been spent on making sure that all classrooms have computers and internet access, there are still barriers to integrating Web 2.0 technology into everyday classroom instruction (Schuck, Aubusson, & Kearney, 2010).

The likelihood of integration of technology into the daily curriculum in general is largely dependent on the individual teacher’s preferences (Donnelly, McGarr, & O’Reilly, 2011). Schuck, Aubusson and Kearney (2010) believe that the “slow uptake of Web 2.0 technologies in schools is due to the lack of teacher familiarity with these tools and partly to the perceived dangers of using these technologies in the classroom” (p 235). However, Schuck, Abusson and Kearney (2010) also believe that teachers’ views about the harmful dangers of the use of Web 2.0 in the classroom are often associated with research based on outdated assumptions.

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

Furthermore, according to Rutherford (2010) even though the education community has been initially slow to incorporate these tools into the curriculum, the proliferation and popularity of these tools in a short span of time has forced them to investigate how these tools can be beneficial to education. As the volume of online content and the availability of technology continue to grow, educators need up-to-date information on how to integrate online content and technology into their curriculum (Revere & Kovach, 2011).

Research Questions

The purpose of this annotated bibliography is to examine how selected Web 2.0 tools are being integrated into the high school curriculum to enhance student learning and engagement (Rutherford, 2010; Schuck, Aubusson, & Kearney, 2010). Although many types of Web 2.0 technologies exist, this bibliography concentrates on examples of integration of social networking and video sharing websites within various areas of the high school curriculum (Akyeampong, 2011).

Main question. How can the integration of selected Web 2.0 tools in the high school curriculum enhance student engagement and promote learning among the millennial generation?

Sub questions. According to Saulnier (2007) millennial students “expect learning to occur in an active format, and are quick to ‘change channels’ when their active learning expectations are not being met” (p.4). What are the unique characteristics of the millennial students’ learning style?

How are high schools using social networking websites in the curriculum to enhance engagement and promote learning?

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

How are high schools using video sharing websites in the curriculum to enhance engagement and promote learning?

According to Schuck, Aubusson and Kearney, (2010) “so far school systems have generally been cautious about using social technologies in the classroom and are banning social webspaces out of concern about the safety of their changes” (p. 238). What are the challenges in implementing Web 2.0 into the high school curriculum?

Delimitations

Focus. This annotated bibliography examines literature that describes how selected Web 2.0 tools are being utilized in the high school curriculum to engage the millennial student. Specific focus is given to the following applications: social networking and video sharing websites. Video sharing websites such as YouTube share similarities with social networking sites because users are able to share video and comment on the work of others (Jones & Cuthrell, 2011, p.76). For example, writing teachers are now using the Web 2.0 tools in their teaching and have students engage in course work using social networking sites such as Facebook and other forms of multimedia that combine static and moving words and images (Kaufer, Gunawardene, Tan & Cheek, 2011). Literature that addresses general challenges that teachers in high schools face when implementing these selected technologies into the curriculum is also presented in this bibliography.

Time frame. The millennial generation is defined as those born between 1980 and 1990 (Saulnier, 2007); these individuals would have started attending high school between 1996 and 2006. Literature written before 1996 is not considered for this bibliography. In addition, Tim O’Reilly coined the term Web 2.0 in 2004; greater emphasis is given to literature published after 2004 (O’Reilly, 2005). While internet connectivity and Web access in schools have been

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

pervasive in the past 10 years (Greenhow, Robelia & Hughes, 2009), Web 2.0 features such as YouTube have grown exponentially in the last 5 years (Jones & Cuthrell, 2011).

Reading and Organization Plan Preview

Reading plan preview. The reading plan describes how references are analyzed in relation to the concepts embedded in the main research question and the sub questions. The references are initially selected based on the criteria mentioned in the literature evaluation criteria section above. Using the guidelines described in Busch et al. (2005), the references are subjected to a deeper reading through conceptual analysis. According to Busch et al. (2005) conceptual analysis involves an eight step coding process by examining literature through the use of key words and phrases. The eight steps, as applied in this study, are detailed in the Research Parameters section of this paper.

Organization plan preview. The selected references are organized thematically in the Annotated Bibliography section of this paper. The references pertain to four themes, each related to one of the research questions, as follows: (a) Web 2.0 usage in the classroom, (b) learning styles of *millennial* generation students, (c) video sharing website usage in the high school curriculum, and (d) social networking website usage in the high school curriculum. A more detailed organizational plan is found in the Research Parameters section of this paper.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Definitions

The following definitions of acronyms, words, and phrases are included to enhance understanding of the concepts examined in this annotated bibliography. The definitions are derived from selected literature, including online sources.

ICT - Information and Communication Technology that is used for accessing, gathering, manipulating and presenting or communicating information. The technologies could include hardware (i.e. computers and other devices); software applications; and connectivity (i.e. access to the Internet, local networking infrastructure, videoconferencing) (Margaret, 2005).

Millennials - Individuals born between 1980 and 1999, also known as the Nexters, the Digital Generation, Net Geners, and Digital Natives (Wisniewski, 2010).

Social media - A group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content (Kaplan & Haenlein, 2010).

Social networking - Web-based services that allow individuals to (a) construct a public or semi-public profile within a bounded system, (b) articulate a list of other users with whom they share a connection, and (c) view and traverse their list of connections and those made by others within the system. Product examples include Facebook, MySpace, and Ning. The nature and nomenclature of these connections may vary from site to site (Boyd & Ellison, 2007).

Student Engagement- Behaviors indicative of their interest and investment in learning activities (Lee & Shute, 2010).

Video Sharing- Websites where users can upload, view, and share video clips (Duffy, 2008).

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Web 2.0 – Internet based technology – such as social networking sites, wikis, communication tools, and folksonomies – that emphasize online interactive collaboration and sharing among users (O'Reilly, 2005)

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Research Parameters

This section, which is divided into four sub-sections, provides an overview of the methods used to formulate this Annotated Bibliography. The four sections are: Search Report, Literature Evaluation Criteria, Documentation Approach and Reading and Organizational Plan. The Search Report contains information on keywords and phrases used to locate relevant literature as well as a description on how keywords are formulated. This section also contains the list of databases and search engines that is used to locate literature. The Literature Evaluation Criteria section describes how the literature is evaluated for credibility, relevance and quality. The Documentation Approach describes the tools and methods used to sort and store the literature that is selected. The Reading and Organizational Plan is a description of the process that is used to conduct the conceptual analysis of the literature selected for this Annotated Bibliography.

Search Report

The collection of literature for use in this study is based on its relevance to the topic and the audience. Prominence is given to literature that focuses on the use of selected Web 2.0 tools to meet the unique learning styles of the Millennial generation, including social networking websites such as Facebook, Ning and MySpace and video sharing websites such as YouTube and TeacherTube (Jones & Cuthrell, 2011; Lewis, 2011; Mullen & Wedwick, 2008). Additionally, the goal is to identify materials that provide examples of how Web 2.0 tools are being used to enhance and promote learning in various areas of the high school curriculum (Akyeampong, 2011; Asselin & Moayeri, 2011; Revere & Kovach, 2011). Literature that highlights the challenges faced when incorporating Web 2.0 technologies into the classroom is also used (Jones & Cuthrell, 2011; Rutherford, 2010; Schuck, Aubusson, & Kearney, 2010).

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Keywords and phrases. Keywords used for search parameters are derived from information industry terminology such as Web 2.0, social networking, YouTube, and social media. Several organizational websites are used to derive keywords, including the government entity of the Oregon Department of Education and the professional organization the Consortium for School Networking (CoSN). Professional publications including T.H.E. Journal are used to derive other keywords such as student engagement, student achievement, Information Communication Technology (ICT), student performance and K12. Multiple combinations of keywords are used to narrow the search results. If the results are not satisfactory then the search is repeated with a different combination of phrases. Keywords appearing in identified literature are also used to build search phrases. The following keyword combinations are used to conduct searches:

Web 2.0, high school, curriculum

Pedagogy and Web 2.0

Video sharing websites in the classroom

Social networking in the classroom

Social media k12, education, teaching

YouTube in the classroom

Facebook in the classroom

Education technology Web 2.0

ICT in education

Student engagement

Millennial students

Learning styles of Millennials

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Search results. The literature that is chosen for this annotated bibliography is limited to material published between 1996 and 2012. Many of the technologies that comprise Web 2.0 did not exist before the year 2000. Furthermore, restricting articles to the above time period eliminates dated material which is important, since this bibliography is intended to convey the current practices of Web 2.0 tool integration to its audience. Older literature is used to give context to this study. Furthermore, the majority of the literature chosen for this annotated bibliography is considered scholarly. Scholarly literature is measured against criteria listed below:

- A publication is regarded as scholarly if it is authored by experts for experts.
- The publication is considered academic in focus if it reports original research.
- The publication is targeted for professional or academic researchers and provides detailed analysis concentrating on a single discipline or academic field.
- The publication is peer reviewed or refereed by external reviewers. Peer reviewed publications are those that have gone through a rigorous assessment of review and involvement by the author's peers, who are expert in the same area of study (Leedy & Ormrod, 2010).

The searches are performed using University of Oregon Libraries One Search tool. Independent searches are also performed on Ebscohost, EdITLib, and ScienceDirect databases. Specific professional journals including the Australasian Journal of Educational Technology are searched for relevant articles. Google Scholar is also used to locate articles of interest although lack of access to full text is a limiting feature. Search results are scanned to ascertain the relevance to the audience of the bibliography. Results considered to be relevant include titles that relate to Web 2.0 tool usage in an educational setting and or the inclusion of the Millennial

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

generation's ICT usage. Topics that relate to ICT in relation to student engagement are also determined to be pertinent. Articles considered to be relevant are further examined by reading the abstracts to determine applicability.

Databases and search engines

- Science direct- <http://www.sciencedirect.com>
- Web of Science index- <http://apps.webofknowledge.com>
- EBSCO HOST - Academic Search Premier index - <http://web.ebscohost.com>
- UO Libraries Catalog- <http://libweb.uoregon.edu>
- Project Muse- <http://muse.jhu.edu/>
- JSTOR- <http://www.jstor.org/>
- EdITLib - <http://www.editlib.org/>
- Google Scholar- <http://scholar.google.com/>
- Yahoo-<http://www.yahoo.com>

Journals

- Journal of Online Learning and Teaching- <http://jolt.merlot.org/>
- Australasian Journal of Educational Technology- <http://www.ascilite.org.au/ajet/ajet.html>

Literature Evaluation Criteria

The literature selected for this study goes through several levels of sorting, evaluation, and classification. This process determines if literature is relevant for this study and if an adequate amount of literature is available. Literature is evaluated based on whether it is peer reviewed, from an industry expert or a credible source. According to Smith (2006), academic

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

research tends to “favor scholarly sources over popular ones” (Scholarly or Popular? Para 1). Other literature by authors considered to be an authority on the subject through experience or research are also chosen for inclusion in this bibliography (Smith, 2006). Information that indicates the qualifications of the author and whether they are affiliated with an academic institution can be found at the beginning or the end of most of the resources selected for this bibliography. While popular publications are excluded, if work is cited repeatedly by authorities on the subject, but it is not peer reviewed, it is included in this bibliography. Works published by academic institutions are also chosen over those released by commercial organizations. If the source is published by a university press, it is likely to be scholarly and reputable. “Although the fact that the publisher is reputable does not necessarily guarantee quality, it does show that the publisher may have high regard for the source being published” (Ormondroyd, Engle, & Cosgrave, 2011, para 8).

Documentation approach

To make this task more efficient and more manageable, the initial results of the search for literature are captured using Zotero, which is a software plugin designed to gather, organize, and analyze sources (citations, full texts, web pages, images, and other objects) (“Zotero | About”, 2012). Folders are created within Zotero to thematically store relevant literature further into smaller sub topics. The themes that are used for this bibliography are: (a) Millennial generation and their learning styles, (b) ICT usage in schools, and (c) Web 2.0 usage in the classroom. The third folder is further divided into two subfolders: (a) social networking website usage in the high school curriculum, and (b) video sharing website usage in the high school curriculum.

Full text articles are downloaded into the folders at which point notes are added to each article to indicate the relevance to the high school curriculum and tags are added so that key

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

references and supporting references can be easily sorted. Abstracts of the articles are retrieved automatically if included in the metadata or entered manually to easily get the gist of the article and aid in cross referencing articles. Reading an abstract before reading an article helps readers anticipate what is coming in the text itself. Using an abstract to get an overview of the text makes reading the text easier and more efficient (“Abstracts”, 2012.). While most literature is stored digitally within each individual folder on Zotero, hard copies of the literature are printed for more convenient reading and highlighting of relevant information.

Reading and Organization Plan

Reading plan. The reading plan is designed to enable the researcher to read through the selected references in this study in order to identify the concepts embedded in the set of research questions. Development of the plan is framed in relation to the conceptual analysis strategy, presented by Busch et al. (2005). The eight step coding process described by Busch et al. (2005) is used to code and analyze the references. Details are provided below.

1. Level of analysis. The level of analysis during coding is based on single words or sets of words such as *Facebook* or the use of *Facebook in the high school curriculum*. Words and phrases are tied to the search terms used to collect literature.

2. How many concepts to code for. The number of concepts to code is based on the thematic areas of the organizational plan. This means that four larger concepts are coded initially. If other relevant concepts emerge during the coding process, these are noted.

3. Existence or frequency of a concept. For this study coding focuses on existence as opposed to frequency. Some literature may focus on one concept in great detail, for example *social networking usage in a writing class*, and the goal in this analysis is to record the meaning of concepts.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

4. Level of generalization. Terms with similar meanings such as *Millennial* and *Nexters* are coded similarly, as long as the context is the same. Terms with dissimilar context and/or scope such as *social networking* and *social media* are coded separately.

5. Coding rules. In order to decide what to code for, a set of rules referred to as “translation rules” (Busch et al., 2005) are followed. Based on these rules, some phrases and words with similar meaning are categorized as the same. For example, social networking and Facebook both refer to the same larger concept.

6. Irrelevant Information. Concepts that are irrelevant that would not benefit this study are ignored. For example, *social networking and its negative implication on high school students outside of the educational context* will not be included.

7. Text Coding. The coding of text is accomplished by doing electronic searches within the selected references. The find feature of Adobe Acrobat is used to search through text that is available in PDF format. Results from these searches are recorded in an Excel spreadsheet, organized by the predetermined four thematic concepts. Manual coding is performed by highlighting the hard copy of literature that is not available in PDF format. All coding, both electronic and manual, is recorded in the Excel spreadsheet to aid in quick discovery.

8. Analyze results. The results of the coding process are analyzed and presented in the Annotated Bibliography section of this paper according to the organizational plan and in the Conclusions of the study.

Organizational plan. The references in this annotated bibliography are organized around the topic as opposed to the progression of time and emphasis is given to literature that is related to the overall topic (“Literature reviews,” 2012). The references are organized according to four themes defined for this study; each theme is directly related to one of the research questions.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Themes include: (a) unique characteristics of the Millennial students' learning style, (b) using social networking websites in the high school curriculum to enhance engagement and promote learning, (c) using video sharing websites in the high school curriculum to enhance engagement and promote learning, and (d) challenges in implementing Web 2.0 into the high school curriculum.

Anticipated topics for discussion in theme one, Millennial students' learning style, include (a) a more independent style of learning which is a more hands-on, inquiry based approach which has grown out of the ingrained habit of seeking and retrieving information from the internet (Barnes, Marateo, & Ferris, 2007), (b) using multiple forms of media at the same time (multitasking) to gather information as opposed to using a single medium to gather information (Dede, 2005), as well as (c) using wide collaboration and networking through technology to achieve their goals (Nicholas, 2008).

Anticipated topics for discussion in theme two, social networking websites, include (a) the potential for teachers to use social networking applications to incorporate multimedia and multimodal texts as a way to share these quickly with ease, which provides for a collaborative learning environment that encourages communication among students (Casey & Evans, 2011), and (b) the potential for students to use social networking sites to compose digital compositions using text, images, sound and hypertext links to express themselves using multiple mediums (Vie, 2007).

Anticipated topics for discussion in theme three, video sharing websites, include (a) using online videos in a pedagogically meaningful manner, to enhance the overall learning experience, by linking video with slides, supporting texts, discussion boards, chat, and resources links (Karppinen, 2005), and (b) giving students the opportunity to produce videos themselves, which

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

benefits the students' learning process through enhanced motivation and engagement with the subject matter (Karppinen, 2005).

Anticipated topics for discussion in theme four, implementation challenges, include (a) teacher and school administrators perceptions on the value of technology integration into the curriculum (Hew & Brush, 2007), and (b) designing a new learning model which promotes collaboration, and personalized learning that promotes diversity, in order to take advantage of a social context (Bower, Hedberg & Kuswara, 2010).

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Annotated Bibliography

The references (with published abstracts) that are selected for inclusion in this annotated bibliography are listed below and arranged thematically. Each annotation includes (a) an abstract, which “provides prospective readers the opportunity to judge the relevance of the longer work to their project” (“Abstracts”, Para 13), (b) a summary of the content relevant to this study, and (c) an evaluation of the credibility of the reference.

Web 2.0 Usage in the Classroom

Topics for discussion in this theme address implementation challenges, including (a) teacher and school administrators perceptions on the value of technology integration into the curriculum (Hew & Brush, 2007), and (b) designing a new learning model which promotes collaboration, and personalized learning that promotes diversity, in order to take advantage of a social context (Bower, Hedberg & Kuswara, 2010).

Akyeampong, A. (2011). The millennial generation: Using Web 2.0 technology to support meaningful learning. In M. Koehler & P. Mishra (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2011*, Nashville, Tennessee, USA, 3860-3863. Retrieved from <http://www.editlib.org/p/36933>

Abstract. The Millennial Generation also known as Digital Natives refers to those born between 1981 and 1999 (Lancaster & Stillman, 2002). The commonly access to and use of Information Communication Technology (ICT) have provided Millennial Generation with more information than any generation in history, thus, the environment that Millennials must navigate is more complex. Millennials are more familiar with, comfortable with and curious about emerging technologies (Considine, Horton &

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Mooreman, 2009). Howe and Strauss (2000, 2003) hold a positive opinion of this new generation as optimistic, team-oriented achievers who are talented with technology, and claim they will be America's next 'great generation'. Those differences between this generation and previous ones are so significant that the nature of education itself must fundamentally change to accommodate the skills and interests of these 'digital natives' (Prensky, 2001). The author recommends using Web 2.0 tools to help support meaningful learning.

Summary. According to Dr. Ayeampong teaching Millennials is a daunting task for today's educator and therefore educators should consider how to incorporate the new technologies that Millennials use on a daily basis into their teaching practices.

Furthermore, he adds that traditional learning theories and social learning theories should be considered within the context of the digital world. Dr. Ayeampong posits that instructors should be able to integrate web-based learning and social networking technologies into the course design to improve learning and to suit the Millennial generation learner. He provides examples on a select set of web 2.0 technologies that can help support meaningful learning. The technologies include Wikis, podcast, blogs, social networks, and virtual worlds.

Credibility. Dr. Albert Akyeampong teaches instructional technology at the Instructional Technology Program, Department of Educational Studies, Gladys W. & David H. Patton College of Education and Human Services at Ohio University. Dr. Akyeampong holds a Bachelor's degree from University of Ghana, a Master's degree from the University of Reading in England, a certificate in Project Management from Aalborg University in Denmark and a PhD in Instructional Technology from Ohio University. Dr.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Akyeampong's research includes the use of instructional technology in the development and delivery of instruction (online and face to face), the use of digital media in education, young peoples' use of digital media, open source software, and web 2.0 technologies and their emerging role in education.

This paper is published as part of a conference proceedings, which includes an initial blind review process.

Asselin, M., & Moayeri, M. (2011). Practical strategies; the participatory classroom: Web 2.0 in the classroom. *Australian Journal of Language and Literacy*, 19(2), 45-45 Retrieved from

<http://web.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=3&hid=17&sid=bac4db64-e41b-4696-9815-3d61cf0f1369%40sessionmgr115>

Abstract. Many young people use the interactive web, or Web 2.0, in their everyday lives, primarily for socializing and entertainment. Particularly empowering to learning are abilities to produce content on the World Wide Web, and a critical, reflective, metacognitive approach to using the web. In the face of a growing 'participation divide' between youth who have opportunities to engage in these higher order participatory and reflective literacies and those with fewer opportunities, there is an urgent need for teachers to expand literacy instruction. This article offers examples of classroom practices that draw on social elements of Web 2.0 that are favored by youth to support less practiced usages required for learning. Specifically, we describe ways of using new literacies and new forms of texts for locating and critically examining information, and ways of sharing and building knowledge within the participatory and creative landscape of Web 2.0.

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

Summary. According to the authors the use of Web 2.0 tools in the classroom leads to student empowerment because it enables participation, invention and knowledge building. Furthermore, according to these authors, not being able to contribute to today's networked society can be a damaging form of exclusion to students. Additionally, with regard to literacy practices of Web 2.0, these authors posit that although the "Net Generation" is familiar with the practices, they are not embedded. While there is an increase in the use of Web 2.0 tools in the classroom, they are still being used in the consumerist manner, such as when Wikipedia is used to obtain information, but not taken advantage of to edit and produce information.

Credibility. Dr. Marlene Asselin is an associate professor in the Department of Language & Literacy Education (LLED) in the School of Education at the University of British Columbia. Dr. Marlene Asselin is a prominent researcher in the field of multiple literacies. She has made key contributions to the interdisciplinary fields of School-Librarianship and Education with the creation of the extensive Information Literacy Project (ILP) in British Columbia in 1997. Dr. Asselin has multiple publications that deal with teaching and literacy.

Dr. Maryam Moayeri holds a PhD from the University of British Columbia, a Master's degree from University of British Columbia, Canada, and a Bachelor's degree from McGill University, Canada. She is an instructor at the University of British Columbia and also teacher at the West Vancouver secondary school.

This paper is published in The *Australian Journal of Language and Literacy* which is peer-reviewed.

Bower, M., Hedberg, J., & Kuswara, A. (2010). A framework for Web 2.0 learning design.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Educational Media International, 47(3), 177-198. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=55053956&site=ehost-live&scope=site>

Abstract. This paper describes an approach to conceptualizing and performing Web 2.0-enabled learning design. Based on the Technological, Pedagogical and Content Knowledge model of educational practice, the approach conceptualizes Web 2.0 learning design by relating Anderson and Krathwohl's Taxonomy of Learning, Teaching and Assessing, and different types of constructive and negotiated pedagogies to a range of contemporary Web 2.0-based learning technologies. The learning design process can then be based upon the extent to which different Web 2.0 technologies support the content, pedagogical, modality and synchronicity requirements of the learning tasks. The model is resilient to the emergence of new Web 2.0 tools, as it views technology as only a mediator of pedagogy and content with attributes to fulfill the needs of the learning episode. A range of possible use cases, categorizations and examples are offered to illustrate the learning design concepts and processes, in order to promote more savvy and expedient application of Web 2.0 technologies in learning and teaching contexts.

Summary. Bower, Hedberg and Kuswara describe "learning design" as the learning space where students use tools and devices to collect and interpret information by collaboratively with others. The authors suggest that research indicates that Web 2.0 increases collaboration, personalizes learning pathways and promotes diversity in a social context. The authors also posit that there is very little research on how educators might use Web 2.0 technologies in the context of learning design so as to incorporate these technologies to match the learning requirements of the curriculum. The authors refer to

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

the intersection of technological knowledge, pedagogical knowledge and content knowledge as the TPACK approach and posit that effective incorporation of technology into the curriculum requires a thorough understanding of the dynamic relationship between these three components.

Credibility. Dr. Matt Bower is a Senior Lecturer in ICT for the School of Education at Macquarie University, Australia. His research interests are in the areas of, technology-enabled learning design, innovative applications of synchronous technologies (for instance using web-conferencing and virtual worlds), and computer supported collaborative learning.

Dr. John Hedberg holds the Millennium Innovations Chair of ICT and Education in the School of Education at Macquarie University, Australia. He has taught postgraduate courses on cognitive strategies, interface design for learning, and implementation and evaluation of technology-based learning. He has also taught strategic planning for technology implementation in schools and has also written on policy aspects of new technologies in education. He has designed training needs assessments, evaluation systems and conducted workshops on the instructional design and evaluation of e-learning environments. He has been keynote speaker at numerous conferences on educational technologies in Canada, United States, Singapore, Malaysia, China, Europe, and many states in Australia.

Andreas Kuswara is a PhD student and research assistant at the school of education, Macquarie University.

This paper is published in *Educational Media International*, which is a peer-reviewed publication.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Cochrane, T. D. (2010). Beyond the yellow brick road: Mobile Web 2.0 informing a new institutional e-learning strategy. *Research in Learning Technology*, 18(3), 221-231
doi:10.1080/09687769.2010.529110

Abstract. Mobile learning (m-learning) has moved beyond the realms of fantasy to become a viable platform for contextual learning that bridges formal and informal learning environments. This paper overviews how mobile Web 2.0 has been instrumental in facilitating pedagogical change and informing an institution's new e-learning strategy that focuses upon social constructivist pedagogies. The project developed an intentional community of practice model for supporting new technology integration, pedagogical development, and institutional change. Beginning with a small selection of early adopter trials, the results of the research are now informing a wider integration of wireless mobile computing.

Summary. According to this author, pedagogical changes and the e-learning strategy that focuses on social constructivist pedagogies have been attributed to Web 2.0 technologies. Furthermore, Web 2.0 technologies have moved beyond simple delivery of content to focusing on interactive collaborative environments that highlight sharing, ease of use, customization, and publication. As a result students are creators of unique works that have resulted from collaboration and sharing on a global scale. The author posits that the incorporation of Web 2.0 tools can enhance learning further when students are able to access social networking sites and other Web 2.0 technologies on their mobile device.

Credibility. Dr. Thomas Cochrane is an academic advisor and senior lecturer in educational technology at AUT University's Centre for Learning and Teaching (CfLAT) in New Zealand. He was recently awarded as an Ascilite Fellow

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

<http://www.ascilite.org.au/index.php?p=awards>. Previously Dr. Cochrane was an Academic Advisor (elearning and Learning Technologies) with Unitec from 2004 to 2011. His research interests include mobile learning, Web 2.0, and communities of practice. He has over 70 peer reviewed publications, receiving best paper awards at Ascilite 2009 and ALT-C 2011, and has been invited to keynote at educational conferences including: the New Zealand Moodle Moot 2011, and the inaugural Technology for Teaching and Learning Summit in Melbourne Australia.

Papers submitted to *Research in Learning Technology* are subject to peer review.

Duffy, P. (2008). Engaging the YouTube Google-Eyed generation: Strategies for using Web 2.0 in teaching and learning. *Electronic Journal e-Learning*, 6(2), 119-130. Retrieved from www.ejel.org/issue/download.html?idArticle=64

Abstract. YouTube, Podcasting, Blogs, Wikis and RSS are buzzwords 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.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

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.

Summary. According to Mr. Duffy, simply using online technologies to deliver content is not sufficient for today's learners. He posits that a learning ecology is present where Web 2.0 technologies can be used for collaborative and creative purposes as well as for the critical assessment, evaluation. Duffy contends that the learning design and content elements that form a learning ecology must be dynamic and interdependent. He also suggests that it is possible to use Web 2.0 technology to construct and organize personalized, unique interactions with an educational context. Duffy posits that technology use in the classroom has given students the access to concise compilations of information that can rival the library of Alexandria. According to Duffy, the number of YouTube videos, and the number of young people watching them has grown exponentially since mid-2004. While there are benefits to using Web 2.0 tools in the classroom, some critics ask if students are going to strive to be "Wiki writers" or real research writers. Others are concerned about the distraction and misleading information that students might be exposed to when using Web 2.0 tools in the classroom.

Credibility. Peter Duffy is the Educational Development Officer of the Polytechnic University in Hong Kong. He is the special assistant (eLearning) to the vice president of academic development at the university. Mr. Duffy has been involved within the

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

educational field for the last 20 years. In 2002 he was awarded an Apple Educator of Excellence Award by Apple Asia Pacific and has been an invited keynote speaker at conferences and presenter at the Minister's Awards for Excellence in the IT and Art fields respectively in Australia. He is currently working at The Hong Kong Polytechnic University as a Learning Designer. He has multiple publications on e-learning design, curriculum design, and interface design.

All papers that are published in *Electronic Journal e-Learning* are double-blind peer reviewed.

Greenhow, C., Robelia, B., & Hughes, J. (2009). Learning, teaching, and scholarship in a digital age Web 2.0 and classroom research: What path should we take now?.

Educational Researcher, 38(4), 246-259. doi:10.3102/0013189X09336671

Abstract. Since Windschitl first outlined a research agenda for the World Wide Web and classroom research, significant shifts have occurred in the nature of the Web and the conceptualization of classrooms. Such shifts have affected constructs of learning and instruction, and paths for future research. This article discusses the characteristics of Web 2.0 that differentiate it from the Web of the 1990s, describes the contextual conditions in which students use the Web today, and examines how Web 2.0's unique capabilities and youth's proclivities in using it influence learning and teaching. Two important themes, learner participation and creativity and online identity formation, emerged from this analysis and support a new wave of research questions. A stronger research focus on students' everyday use of Web 2.0 technologies and their learning with Web 2.0 both in and outside of classrooms is needed. Finally, insights on how educational scholarship might be transformed with Web 2.0 in light of these themes are discussed.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Summary. The authors posit that more research on how students use Web 2.0 tools in the classroom and outside the classroom is needed. They further add that the unique characteristic of Web 2.0 is that it embodies a more personal touch because it captivates opinions, values, and spiritual beliefs of users. Furthermore, the authors suggest that the validity of knowledge in Web 2.0 is a result of collective engagement with peers and that expertise is gained through understanding disputes and syntheses widely accepted by the community. Additionally, because collaboration can occur through the use of Web 2.0 tools, any space can be transformed into a virtual classroom, making it easily accessible. Greenhow and Robelia posit that today's media oriented, creative youth believe that an increased use of Web 2.0 tools will lead to better preparation and engagement in school. Furthermore, they posit that students of this generation actually prefer communicating through the use of Web 2.0 tools as opposed to face-to-face communication.

Credibility. Dr. Christine Greenhow is an Assistant Professor in the College of Education and the iSchool (joint position) at the University of Maryland at College Park. She completed postdoctoral work in learning technologies at the University of Minnesota's College of Education & Human Development and at the Institute for Advanced Studies. Her research focuses on learning in social media contexts such as online social networks, from learning sciences, new literacy studies, and learning technologies perspectives and always with the goal of improving theory, practice and policy. She is the Principal Investigator on the Youth and Social Media research & development project and Founding Chair of the Social Networks Research Collaborative, an interdisciplinary research group funded by the Institute for Advanced Study.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Beth Robelia is the executive director of Kitchen Table Learning, a research and evaluation company. Her work on informal learning has spanned youth development, tutoring, teaching, and shipboard environmental education programs. Her work addresses how learning technologies can be used to bridge gender differences in science.

Dr. Joan E. Hughes is an associate professor of instructional technology in the College of Education at the University of Texas at Austin. She has a PhD in Educational Psychology from Michigan State University. Her research examines preservice and in-service teachers' development of knowledge and practice of technology integration in content areas. She is currently leading a longitudinal study with more than 7 years of data that examines the impact of 1:1 laptop computing in preservice teacher education.

This paper is published in *Educational Researcher*, which is a peer-reviewed journal.

Luckin, R., Clark, W., Graber, R., Logan, K., Mee, A., & Oliver, M. (2009). Do Web 2.0 tools really open the door to learning? Practices, perceptions and profiles of 11-16-year-old students. *Learning, Media and Technology*, 24(2), 87-104.

Abstract. In this paper, we report on survey and focus group data relating to the activities and perceptions of learning with Web 2.0 technologies of students aged between 11 and 16 years in 27 UK secondary schools. The study confirms that these learners had high levels of access to Web 2.0 technologies and that Web 2.0 activities were prolific.

However, patterns of use were complex. The types of activity evidenced by the study suggest that learners can be categorised into four main groups: (1) researchers: mainly in terms of reading with little evidence of critical enquiry or analytical awareness; (2) collaborators: mainly with respect to file sharing, gaming and communicating; (3) producers and (4) publishers: mainly in terms of sharing experience through social

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

networking sites. Whilst most expressed an interest in using online technologies to support familiar school activities, such as presentations or for communication, learners seemed cautious about other values associated with Web 2.0 tools, such as the shared construction of knowledge in a public format. Few learners were familiar with the complete spectrum of Web 2.0 activities and only a small number were engaging in more sophisticated activities, such as producing and publishing self-created content for wider consumption. There was little evidence of groundbreaking activities and only a few embryonic signs of criticality, self-management or metacognitive reflection. The paper concludes that these higher order thinking skills need to be encouraged and supported in any attempt to use Web 2.0 for learning in formal education.

Summary. The authors explore how Web 2.0 technologies can better support learning and look at what type of learner skill and activity can support learning through Web 2.0 technologies. Their research involves looking at what specific Web 2.0 technologies learners make use of, what type of activities they use Web 2.0 technologies for and what differences are apparent between schools and non- academic engagement of Web 2.0 technologies. Their research reports that students use social networking sites to share videos and pictures, blogs and Wikis to find information, but not necessarily to produce information. Four categories of learners are derived out of their research, including (a) researchers, (b) collaborators, (c) producers and (d) publishers. The research further highlights that while there is a lack of sophistication due to lack of technological knowledge, when a teacher or experienced collaborator is present, there is a display of the use of higher order thinking skills. According to the authors, this is evidence that learners

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

depend on school input and inspiration from teachers in order to select and use Web 2.0 tools in a more complex and sophisticated manner.

Credibility. Rose Luckin is the Professor of Learner Centered Design at the London Knowledge Lab. Her research includes how to scaffold learning across multiple technologies, locations, subjects and times. She has authored many peer-reviewed publications in the areas of learning design, classroom technology, and web 2.0 usage in education.

Dr. Wilma Clark is a post-doctoral fellow at the London Knowledge Lab.

Rebecca Graber is a 3rd-year PhD student at the University of Leeds. She has a Master's degree in Psychology from Nottingham Trent and a Bachelor of Arts in Psychology and Political Science from McGill University.

Dr. Kit Logan works as a Learning Technology Fellow at the London Knowledge Lab. He also teaches part-time on the online Masters of Research (MRes) run by the University of London International Academy.

Adrian Mee teaches ICT in education at Institute of Education University of London. Adrian has undertaken a range of projects in the field of e-learning. This has included work for the European Union, Joint Information Systems Committee (JISC), British Educational Communications and Technology Agency (BECTA), and Canon Research Europe. These have included work in the field of lifelong learning, e-portfolios, ICT curriculum development and digital imaging.

Dr. Martin Oliver is a faculty member of Culture and Pedagogy at the Institute of Education, University of London. His research interests include the impact of new technology on roles and practices within Higher Education (including how this changes

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

what students learn and do), evaluating ICT use and the development of theory and in the field of e-learning. His recent work has involved studying learning in virtual worlds and from playing digital games. He is an editor of the *Journal of Learning, Media and Technology*. This paper is published in *Learning, Media and Technology* where all research articles undergo peer review, based on initial editor screening and review by at least two anonymous referees.

McLoughlin, C., & Lee, M. (2010). Personalised and self-regulated learning in the Web 2.0 era: International exemplars of innovative pedagogy using social software. *Australasian Journal of Educational Technology*, 26(1), 28-43. Retrieved from <http://www.ascilite.org.au/ajet/ajet26/mcloughlin.pdf>

Abstract. Research findings in recent years provide compelling evidence of the importance of encouraging student control over the learning process as a whole. The socially based tools and technologies of the Web 2.0 movement are capable of supporting informal conversation, reflexive dialogue and collaborative content generation, enabling access to a wide raft of ideas and representations. Used appropriately, these tools can shift control to the learner, through promoting learner agency, autonomy and engagement in social networks that straddle multiple real and virtual learning spaces independent of physical, geographic, institutional and organisational boundaries. As argued in this article, however, in order for self-regulated learning to come to fruition, students need not only to be able to choose and personalise what tools and content are available, but also to have access to the necessary scaffolding to support their learning. Emerging practices with social computing technologies, a number of examples of which are showcased in this article, signal the need for pedagogies that are more personal, social and

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

participatory. The authors conclude with a discussion of some of the key implications for practice, including an outline of the current challenges faced by tertiary educators.

Summary. According to the authors, if Web 2.0 tools are used appropriately learning can be autonomous, learner controlled and engaging through the use of social networking, which straddles geographical, physical, institutional and organizational barriers. Furthermore, the authors posit that the digital age students expect learning to be active, socially participatory, and supported by rich media. Web 2.0 social software tools facilitate the interactive learning experience by enabling students to have a more active and engaging learner experience. With this type of learning the student is able to carry out learning activities, which lead to higher order learning, comprehension and knowledge creation. Educators are beginning to understand that the philosophy of Web 2.0 is incongruent with the teacher-controlled classroom and teacher designed syllabi popular in the past.

Credibility. Catherine McLoughlin is an Associate Professor at the School of Education (ACT) Australian Catholic University. She is also the state research coordinator for the National Centre for Science, ICT, Mathematics for Rural and Regional (SiMERR) Australia. She is an editor for the *Australian Journal of Educational Technology*.

Mark Lee is an adjunct senior lecturer, for the school of education at Charles Sturt University in Australia and is also an adjunct senior lecturer at the Distance Education Hub (DEHub), Faculty of the Professions, University of New England. He holds a Master of Science degree in Information Technology from Charles Sturt University. He is an editor for MERLOT *Journal of Online Learning and Teaching* (JOLT).

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

This article appears in the *Australasian Journal of Educational Technology*; the journal uses a 'double blind' review process.

Schuck, S., Aubusson, P., & Kearney, M. (2010). Web 2.0 in the classroom? Dilemmas and opportunities inherent in adolescent web 2.0 engagement. *Contemporary Issues in Technology and Teacher Education, 10*(2), 234-246. Retrieved from <http://www.citejournal.org/vol10/iss2/general/article1.cfm>

Abstract. The paper discusses the implications of the current phenomenon of adolescent engagement in digital spaces. Young people are increasingly active Web 2.0 users, and their interactions through these technologies are altering their social identities, styles of learning, and exchanges with others around the world. The paper argues for more research to investigate this phenomenon through the use of virtual ethnography and identifies the ethical challenges that lie therein. It raises questions for school education and presents an argument for studying the area in culturally sensitive ways that privilege adolescents' voices.

Summary. The authors suggest that Web 2.0 technologies are currently enjoying great popularity among young people and that these technologies hold great potential for learning. They state that education should recognize the potential of unexpected relationships with technologies that are not historically leveraged by schools.

Furthermore, the authors posit that when schools ban the use of Web 2.0 technologies in the schools out of concern about safety of the students, including fears or complaints from parents and legal consequences, they prevent the opportunity to capitalize on their potential for learning. Additionally, the authors posit that Web 2.0 usage in schools is growing even though some educators are apprehensive about its usage.

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

Credibility. Dr. Sandy Schuck is a Professor of Education in the Faculty of Arts and Social Sciences (FASS) at the University of Technology Sydney, Australia. She is the Head of Research Degrees in FASS. She convenes the Pedagogical Practice and Innovation stream of the Research Strength, Learning and Change. She started her career as a secondary school teacher and then became a lecturer in primary and secondary mathematics education. She currently teaches in a number of areas concerning teacher education.

Dr. Matthew Kearney is a senior lecturer in the area of ICT in Education at the University of Technology Sydney, Australia. His scholarly interests focus on innovative technology-based learning in K-12 and teacher education contexts. He teaches across three programs in the Faculty, coordinating several e-learning subjects in the Bachelor of Education, Bachelor of Teaching in Secondary Education, and MEd programs. He has a PhD from Curtin University in Australia and has multiple peer-reviewed publications to his credit. This article is published in the peer reviewed *Contemporary Issues in Technology and Teacher Education* journal.

Learning Styles of Millennial Generation Students

Topics for examination in this theme include (a) an independent style of learning which is a more hands-on, inquiry based approach, and which includes an ingrained habit of seeking and retrieving information from the internet (Barnes, Marateo, & Ferris, 2007), (b) using multiple forms of media at the same time (multitasking) to gather information as opposed to using a single medium to gather information (Dede, 2005), as well as (c) using wide collaboration and networking through technology to achieve their goals (Nicholas, 2008).

Barnes, K., Marateo, R. C., & Ferris S. P. (2007). Teaching and learning with the net generation.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Innovate Journal of Online Education, 3(4) 771-772. doi.10.1111/j.1467-

8535.2009.00994_2.x

Abstract. A decade ago, the first wave of the Net Generation began to enter college, forcing educational institutions to deal with a new population of learners with unique characteristics. With the Net Generation representing nearly 7% of the population today (Bartlett 2005) and with nearly 49.5 million students enrolled in schools in 2003 (Enrollment Management Report 2005), responding to the specific needs of this generation of learners is becoming increasingly important. The challenge of evolving pedagogy to meet the needs of Net-savvy students is daunting, but educators are assisted by the fact that this generation values education. These students learn in a different way than their predecessors did, but they do want to learn. In this article we will define the characteristics of Net Geners' learning styles and discuss how educators can make the most of these particular traits.

Summary. According to these authors, the Millennial generation is very education oriented but yet learns differently from their predecessors. Furthermore, they are the first generation to grow up with digital and cyber technologies and their lives are saturated with technology. The authors posit that one characteristic that is unique to this generation is their independent and autonomous style of learning, which dictates what they want to learn and how learning should occur. Additionally, they are assertive information seekers who make conscious choices about the learning techniques that work best for them. However, while the net generation often uses electronic tools, there is a lack of critical thinking skills and information literacy skills among this generation.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Credibility. Kassandra Barnes received her BA in sociology with a minor in philosophy from Transylvania University in Lexington, KY. She has a Master's degree in media studies from William Paterson University. Her research interests focus on race issues in the African American community

Raymond C. Marateo is a graduate student in communications and media studies at New Jersey's William Paterson University. Marateo graduated magna cum laude with an undergraduate degree in communications from the same university. He has focused much of his graduate research on gendered communication.

Dr. Sharmila Pixy Ferris is a professor of interpersonal communications studies at William Peterson University in New Jersey and also the Director for the Center for Teaching Excellence at the university. She has a PhD in Communication, from the Pennsylvania State University.

This paper was published by the Fischler School of Education and Human Services, Nova Southeastern University, which is a reputed academic institution.

Dede, C. (2005). Planning for Neomillennial learning styles. *Educause Quarterly*, 28(1).

Retrieved from

<http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolume/PlanningforNeomillennialLearn/157325>

Abstract. Rapid advances in information technology are reshaping the learning styles of many students in higher education. The standard “world to the desktop” interface is now complemented by multiuser virtual environments in which people’s avatars interact with each other, computer based agents, and digital artifacts in a simulated context; and augmented realities in which mobile wireless devices infuse overlays of digital data on

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

physical real-world settings. This article illustrates the Millennial generations' learning style differences.

Summary. According to this author, faculty will find the shift in incorporating technology to suit the learning styles of Millennial students to be difficult. The Millennial student is used to multitasking, from listening to MP3 players while reading a textbook to dialoging with a number of classmates via instant messaging. Therefore, educators need to tailor educational programs to fit the individual needs of students, rather than opt for the one-size-fits-all option. The author further posits that collective learning that involves seeking, sieving, and synthesizing experiences is better suited than absorbing information from a single source. The author predicts that in the future there will be more student participation in far-flung virtual communities in the education arena.

Credibility. Chris Dede is the Timothy E. Wirth Professor in Learning Technologies at Harvard's Graduate School of Education. His fields of scholarship include emerging technologies, policy, and leadership. His research includes seven current grants from NSF, Qualcomm, the Gates Foundation, and the U.S. Department of Education Institute of Education Sciences to explore immersive simulations and transformed social interactions as means of student engagement, learning, and assessment. In 2007, he was honored by Harvard University as an outstanding teacher, and in 2011 he was named a Fellow of the American Educational Research Association.

Dede has served as a member of the National Academy of Sciences Committee on Foundations of Educational and Psychological Assessment and a member of the 2010 National Educational Technology Plan Technical Working Group.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

This article is published by *EDUCAUSE Quarterly*. Articles published in this journal undergo review by an editorial committee.

Nicolas, A. (2008). Preferred learning methods of the Millennial generation. *The International Journal of Learning*, 15(6) 27-34. Retrieved from http://escholar.salve.edu/fac_staff_pub/18/

Abstract. The learning and communication style of the Millennial generation is through multi-media. Also known as the Net Generation, they have been raised in an era of instant access. Their common method of contact is text messaging and instant messaging as well as cell phones. Learning for them has moved into web-based tools such as web-ct, online journals, and i-pod downloads. The attitudes of Millennial generation students from a small private college were measured regarding the style of learning they use, prefer and which method they perceive has resulted most successfully in their acquiring and retaining knowledge.

Summary. According to this author the Millennial generation predominantly communicates through multi-media and is by far the most computer literate generation to enter the workforce. Furthermore, the Millennial generation is aware of the need for global orientation and interconnectivity and understands the importance of collaboration, interdependence and networking. The author suggests that Millennials have the need to work in a quick and creative manner and facilitate this through a high-tech and highly networked style. Additionally, Millennials are used to creating with technology and prefer to work in collaborative teams consisting of their generational peers. On the downside, routine multitasking may have led to short attention spans leading to a lack in critical thinking skills and introspection.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Credibility. Dr. Arlene Nicholas is the Assistant Professor and Graduate Program Director of Business Studies and Economics at Salve Regina University in New England. She has a PhD in business administration from Touro University International. Her research includes include generational studies that focus on Generation Y, e-textbook usage, human resource management, social responsibility and teleworking. This article is published in *The International Journal of Learning* which is a peer reviewed journal.

Nikirik, M. (2012). Teaching stem to Millennial students. *Tech Directions*, 71(7), 13-15.

Retrieved from

<http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=72288604&site=ehost-live&scope=site>

Abstract. The article provides strategies for teaching the Millennial Generation, or students who have grown up with the use of computer technology, science, technology, engineering, and mathematics (STEM) education. Topics include the use of graphics and visual communication in teaching instruction, the use of educational technology, and the implementation of teamwork in group work activities. Also discussed is the use of interactive computer games in education.

Summary. According to this author, the brains of Millennial students are wired differently and educators must teach in ways that facilitate those differences. According to Nikirk, students remember 10% of what they read 20% of what they hear and 30% of what they see and therefore teachers must take advantage of the technological devices that enable visual and hands-on learning. Furthermore, when students watch someone perform a task they remember 50%, but if they actively participate and do the job

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

themselves, they remember 90%. Because the Millennial generation is a “wired” generation educators must take advantage of the interactive multimedia tools that stimulation creativity and innovation. Additionally it is the task of the teacher to create an environment that values creativity and independent thinking.

Credibility. Martin Nikirk is a teacher at the Computer Game Development and Automation Program at the Washington County Technical High School. He was awarded the National NASDCTE Distinguished Service Award-Secondary Teacher in 2007. He has various publications that relate to teaching and computers in education. He has a Masters of Education in Supervision and Administration.

This article is from *Tech Directions* which is a magazine and website for technology, career/technical, and pre-engineering education.

Niles, P. (2011). Meeting the needs of the 21st century student. *Community & Junior College Libraries*, 17, 47-51. doi:10.1080/02763915.2011.591707

Abstract. This paper will examine the learning needs of Millennial students, a generation different from any previous generation, so librarians should adjust their teaching methods to accommodate their needs. Should we, as librarians, consider changing our reference services—the way we present instruction and the materials that we order for the library? Will traditional library methods meet the needs of our current students or will students stop coming to the library in favor of finding their information on Google?

Summary. This author describes the Millennial generation as being sheltered, confident, conventional, team oriented, achieving, and pressured. They are also environmentally concerned and more cyber literate than previous generations and have an innate ability for technology and multitasking. According to this author, while books are good,

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

YouTube is even better and it facilitates the interactive learning style that is indicative of the Millennial generation. With regard to accessing information, the Millennial student is now able to access information via their mobile devices at any given time, instead of visiting the reference desk, making learning convenient and accessible. However, what educators and librarians should bear in mind is that not all information found on the web is reliable.

Credibility. Phyllis Niles is the chief Librarian and archivist at the Borough of Manhattan Community College.

This article is published in *Community & Junior College Libraries* peer reviewed journal.

Roehling, P., Kooi, T., Dykema, S., Quisenberry, B., & Vandlen, C. (2011). Engaging the millennial generation in class discussions. *College Teaching*, 59(1), 1-6.

doi:10.1080/87567555.2010.484035

Abstract. Students in the Millennial Generation (late 20s and younger) have been raised in an environment in which individuality is highly valued and information, entertainment, and social interactions are unlimited and at their fingertips. As a result, these students may have different educational expectations and needs than previous generations. Class discussions, if conducted correctly, can be a learning activity that complements the learning styles of this variety seeking, collaborative generation. To understand how to effectively engage Millennial students in active class discussions, we conducted six focus groups with students between the ages of 18 and 21 to explore whether and why they value class discussions and to identify the barriers and the facilitators of active participation in class discussions. The present article summarizes the focus group findings, integrates them with what we know about students in the Millennial Generation,

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

and uses this information to develop suggestions for actively engaging today's students in classroom discussions.

Summary. According to the authors, the Millennial generation student has different needs than other generations. Millennials are easily bored and therefore expect learning to be highly interactive and self-directed, and ethnically diverse. Because the expectations of the Millennial generation are different with regard to classroom instructions, the traditional lectures used with previous generations may not be effective. The Millennial student has been raised in an entertainment rich multimedia environment that shifts their attentions from one source of stimulating information to another. Furthermore, learning occurs via discussion and collaboration as opposed to passive learning associated with lectures. Additionally, the Millennial student values discussion because it is active and promotes thinking and reflection.

Credibility. Dr. Patricia V. Roehling is a Professor of Psychology at Hope College, Michigan. She has a PhD in Clinical Psychology from Wayne State University. She has numerous peer-reviewed publications to her credit.

Stephanie Dykema is currently pursuing a Masters in Psychological Counseling at Hope College, Michigan.

Brooke Quisenberry works as a legislative assistant with State Rep. Joe Haveman. She is attending Michigan State University pursuing a degree in Education Psychology.

Chelsea Vandlen works as the Associate Human Resources Manager at General Mills. She has a Masters degree in industrial and labor relations from Cornell University.

This paper is published in *College Teaching*, which publishes peer-reviewed articles on how instructors across all academic disciplines can improve student learning.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Schuck, S., Aubusson, P., & Kearney, M. (2010). Web 2.0 in the classroom? Dilemmas and opportunities inherent in adolescent web 2.0 engagement. *Contemporary Issues in Technology and Teacher Education*, 10(2) 234-246. Retrieved from <http://www.citejournal.org/vol10/iss2/general/article1.cfm>

Abstract. The paper discusses the implications of the current phenomenon of adolescent engagement in digital spaces. Young people are increasingly active Web 2.0 users, and their interactions through these technologies are altering their social identities, styles of learning, and exchanges with others around the world. The paper argues for more research to investigate this phenomenon through the use of virtual ethnography and identifies the ethical challenges that lie therein. It raises questions for school education and presents an argument for studying the area in culturally sensitive ways that privilege adolescents' voices.

Summary. The authors posit that the increase usage of Web 2.0 tools by today's youth is altering their social identities, styles of learning, and exchanges with others around the world. The authors theorize that Web 2.0 technologies have the power to (a) affect human cognition; (b) change the knowledge and skills necessary to participate in one's local and global communities; (c) impact upon the future development of society; and (d) disrupt school education. Furthermore, they argue that the reason for slow uptake of Web 2.0 technologies in schools is due partly to the lack of teacher familiarity with these technologies and partly to the perceived dangers of using these technologies in the classroom. The authors further point out that the social learning that occurs in these spaces, facilitated by informal groups that meet regularly, is recognized as contributing significantly to student achievement.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Credibility. Dr. Sandy Schuck is a Professor of Education in the Faculty of Arts and Social Sciences (FASS) at the University of Technology Sydney, Australia. She is the Head of Research Degrees in FASS. She convenes the Pedagogical Practice and Innovation stream of the Research Strength, Learning and Change. She started her career as a secondary school teacher and then became a lecturer in primary and secondary mathematics education. She currently teaches in a number of areas concerning teacher education.

Dr. Matthew Kearney is a senior lecturer in the area of ICT in Education at the University of Technology Sydney, Australia. His scholarly interests focus on innovative technology-based learning in K-12 and teacher education contexts. He teaches across three programs in the Faculty, coordinating several e-learning subjects in the Bachelor of Education, Bachelor of Teaching in Secondary Education, and MEd programs. He has a PhD from Curtin University in Australia and has multiple peer-reviewed publications to his credit. This article is published in *Contemporary Issues in Technology and Teacher Education* journal, which is a peer-reviewed journal.

Vie, S. (2008). Digital divide 2.0: “Generation M” and online social networking sites in the composition classroom. *Computers and Composition*, 25(1), 9-23.

doi:10.1016/j.compcom.2007.09.004

Abstract. The digital divide has been largely theorized as a problem of access. Compositionists have attempted to move beyond a binary view of technology access in examining the digital divide and in doing so have raised important questions about the larger societal issues connected to issues of technological literacy and access. While much attention has been paid to students at risk of growing up without access to, and

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

experience with, computers, attention also needs to be paid to students' critical digital literacies. Additionally, we now face a new instantiation of the digital divide where students are often more technologically adept than their instructors. The problem is not so much providing access for Generation M students surrounded by technology but rather to effectively integrate technological literacy instruction into the composition classroom in meaningful ways. Compositionists should focus on incorporating into their pedagogy technologies that students are familiar with but do not think critically about: online social networking sites, podcasts, audio mash-ups, blogs, and wikis. To do so, however, instructors first need to familiarize themselves with these technologies. In essence, compositionists must catch up with the Generation M students who have left them behind.

Summary. Dr. Vie suggests that while much attention has been paid to students at risk of growing up without access to computers, attention also needs to be paid to students' critical digital literacy skills. According to Dr. Vie we now face a new instantiation of the digital divide where students are often more technologically adept than their instructors. The problem is not so much providing access for Generation M students surrounded by technology but rather to effectively integrate technological literacy instruction into the composition classroom in meaningful ways.

"Generation M" students often exceed the technological literacy of their instructors, and this contributes greatly to the Digital Divide in the classroom. The author calls this "Digital Divide 2.0." Dr. Vie recommends integrating technology literacy training into composition "in meaningful ways." Part of the solution is engaging students' minds in regard to technologies they often use but "don't think critically about." Some of these

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

technologies include: blogs, wikis, podcasts, audio mash-ups, and online social networking sites.

Credibility. Stephanie Vie is an Assistant Professor of Composition and Rhetoric in the Writing Program at Fort Lewis College in Durango, Colorado, where she teaches professional and technical writing, first-year composition, public speaking, and science fiction. Her research interests are in online social networking and computer games, particularly how these technologies impact literate practices. She is an Assistant Editor for *Kairos: A Journal of Rhetoric, Technology, and Pedagogy* and a copyeditor for *Community Literacy Journal* at Michigan Technological University. Her work has been published in *Computers and Composition*, *e-Learning*, and *Computers and Composition Online*. This article was published in the peer reviewed *Computers and Composition* journal.

Social Networking Website Usage in the High School Curriculum

Topics for examination in this theme include (a) the potential for teachers to use social networking applications to incorporate multimedia and multimodal texts as a way to share these quickly with ease, which provides for a collaborative learning environment that encourages communication among students (Casey & Evans, 2011), and (b) the potential for students to use social networking sites to compose digital compositions using text, images, sound and hypertext links to express themselves using multiple mediums (Vie, 2007).

Cain, C., Seals, C. & Nyagwencha, J. (2010). Social networking teaching tools: a computer supported collaborative interactive learning social networking environment for K-12.

Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare,

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

and Higher Education 2010. 1612-1617. Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/35782>.

Summary. Although it has been established that social networking tools such as Facebook can enhance collaborative learning, social networking has not been well received as a tool for educational use. The apprehension to use Facebook as an educational tool stems from the fact that Facebook was not built to be used as an educational tool. Furthermore, some educators are concerned about the social networking philosophy of Facebook and the security concerns that come along with it. According to these authors, there are two ways in which Facebook could be used by teacher. The first way would be to set up an account and invite friends and family to connect. The second way, which is probably the best way to enhance the student teacher relationship, would be for the teacher to set up a page specifically for the class; students and even parents can then become “fans” of the page and post homework questions and feedback. The author suggests other examples on how teachers can use social networking sites to enhance the learning experience of the students.

Credibility. Curtis Cain is a current PhD candidate in the College of Information Sciences and Technology (IST) at The Pennsylvania State University. He has a Master’s degree in Computer Science and Software Engineering, specialization in Human Computer Interaction and Computer Supported Collaborative Learning from Auburn University.

Dr. Cheryl Seals is an associate professor in Auburn University's Department of Computer Science and Software Engineering. Her research areas of expertise are human computer interaction, user interface design, usability evaluation and educational gaming

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

technologies. Seals also works with outreach initiatives to improve computer science education at all levels. The programs are focused on increasing the computing pipeline by getting students interested in STEM disciplines and future technology careers. She has a PhD in computer Science from Virginia Tech.

Justus Nyagwencha is currently a graduate student in Auburn University's Department of Computer Science and Software Engineering. His research areas of interest are information assurance, human computer interaction and user interface design. He has a Master's degree in Computer Science Jackson State University. This paper was part of the Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2010 and is peer-reviewed.

Casey, G., & Evans, T. (2011). Designing for learning: Online social networks as a classroom environment. *International Review of Research in Open and Distance Learning*, 12 (7), 1-26. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/1011/2039>

Abstract. This paper deploys notions of emergence, connections, and designs for learning to conceptualize high school students' interactions when using online social media as a learning environment. It makes links to chaos and complexity theories and to fractal patterns as it reports on a part of the first author's action research study, conducted while she was a teacher working in an Australian public high school and completing her PhD. The study investigates the use of a Ning online social network as a learning environment shared by seven classes, and it examines students' reactions and online activity while using a range of social media and Web 2.0 tools. The authors use Graham Nuthall's (2007) "lens on learning" to explore the social processes and culture of this shared online classroom. The paper uses his extensive body of research and analyses of

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

classroom learning processes to conceptualize and analyze data throughout the action research cycle. It discusses the pedagogical implications that arise from the use of social media and, in so doing, challenges traditional models of teaching and learning.

Summary. The authors conducted a study to investigate the use of Ning, a Social Networking site, as a learning environment. They assessed students' reactions and online activity as they used a variety of Web 2.0 technologies. These authors posit that as active participants in a global economy, there is an immediate need for students to be literate in new digital technologies. According to Casey and Evens, a major concern that educators have is that students communicate in informal ways that are not currently recognized by the school system, but are being recognized by the workplace. Therefore, incorporating Web 2.0 technologies such as social networking web sites into the curriculum will benefit the student entering the workforce.

Credibility. Gail Casey has a master's degree in language and literacy education, a graduate diploma in computing, a graduate diploma in education and a bachelor of applied science in Mathematics. She is in her final year of completing her PhD from Deakin University Australia.

Dr. Terry Evans is a professor in the School of Education at Deakin University, Australia. He has a PhD from Monash University. He has publications in the fields of open, flexible and distance education including work on professional and vocational education and training, and new educational technologies. He is a member of several editorial boards and has consultancy experience in various fields. He is a member of the Council of Deans and Directors of Graduate Studies. He is the convener of the six Research in Distance Education conferences held at Deakin University since 1989.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

This paper is published in *International Review of Research in Open and Distance Learning* which is a peer-reviewed journal.

Khaddage, F. & Bray, E. (2011). Facebook as a dynamic educational tool in a mobile learning environment.. *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2011*. 3791-3798. Chesapeake, VA: AACE.
Retrieved from <http://www.editlib.org/p/38406>.

Abstract. Facebook is a worldwide phenomenon and a popular multi-user social platform. It has evolved into a dynamic powerful social multimedia platform, and currently it is the most popular among users of all ages. Facebook is evolving at a rapid rate especially with the wide spread of mobile Apps for Facebook that can be integrated to fit all mobile devices. Currently it is estimated that over 200 million users use Facebook on their mobile. In this paper Facebook as an educational tool is discussed, Facebook mobile Apps which could be used for this purpose are described, potential barriers and limitations are examined, students' acceptance of this technology are assessed, security and privacy issues are also examined. The paper concludes with a critical analysis of the barriers to the successful integration of Facebook as an educational tool via a mobile phone and maps a number of developments that are underway.

Summary. According to the authors, in order to have an efficient and effective learning process within a social network environment three major components should be considered: (a) collaboration, (b) learning content, and (c) learning services. They posit that the integration of Facebook Apps for teaching and learning is capable of providing learning services for collaboration in a social network environment and has shown to create learning communities. Furthermore, they posit that students can create topics and

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

study notes to share and communicate with others, so that they can generate group discussions, brainstorming for knowledge creation and effective collaboration. Therefore if the Facebook platform is used effectively, it can be capable of providing an effective, interactive, collaborative learning environment, and this could lead to a unique educational approach in teaching and learning which involves groups of students working together to solve certain problems and complete tasks. The authors provide specific examples of apps that are available on Facebook and how they can be used in an educational context.

Credibility. This article is included in the proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications (EDMEDIA) 2011 and is peer-reviewed.

Dr. Ferial Khaddage is a lecturer at Deakin University, Australia. He has a PhD in Information Technology from Deakin University.

Dr. Eric Bray is a professor in the Faculty of Environmental and Information Sciences, Yokkaichi University, Japan. He received his PhD in Educational Studies from the University of Nebraska.

Lewis, E. C. (2011). Friending Atticus Finch: English teachers' perspectives on MySpace as a contemporary framework for literary analysis. *Journal of Adolescent & Adult Literacy*, 55(4) 285-295. doi:10.1002/JAAL.00035

Abstract. The article presents an overview of research regarding a project assigned in a high school English course wherein students were required to use their knowledge of the social networking web site MySpace to create profiles of characters from classic American fiction, including the play "The Crucible" by Arthur Miller and the novel "To

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

"Kill a Mockingbird" by Harper Lee. It provides reflections from the teachers who assigned the project regarding their failure to recognize that all students were not familiar with MySpace, explores the definition of new literacies as it applies to education, and urges teachers to engage in creative teaching methods using technology.

Summary. The author describes a case study in which high school teachers redesigned an English writing class in order to evaluate their students' ability to analyze character in canonical texts using the MySpace social networking site. The author reports that students were able to connect more deeply with the content through the use of MySpace. She describes using social networking sites as new literary practices because individuals need to use digitally mediated skills online in order to communicate effectively through them. She provides 4 criteria with examples on how to make pedagogical design changes to accommodate today's students learning needs. They include: (a) consider the content, (b) choose the appropriate tool for the content and the context of the lesson, (c) consider the design requirements the student will be expected to follow, (d) share the expectations with students.

Credibility. This paper is published in the *Journal of Adolescent & Adult Literacy*, which is a scholarly monthly journal of the International Reading Association dedicated to teaching reading at the secondary and adult levels. Dr. Elizabeth Lewis is an Assistant Professor of Education at Dickinson College. Her research focuses on new and multiple literacies; multimodality in secondary education; and the literacy development and instruction of adolescent English language learners. She has also co-authored a paper presented at the Literacy Research Association (LRA, formerly the National Reading

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Conference) Annual Conference in 2009. She received her PhD from Syracuse University in New York.

Maguth, B. & Yamaguchi, M. (2012). Using social networking in the social studies for global citizenship: A Case Study of Japan's 3:11 Quake. *Proceedings of Society for Information Technology & Teacher Education International Conference 2012*. 3260-3287.

Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/40092>.

Abstract. Within a decade, the world has experienced more than three devastating earthquakes in Sumatra, Haiti, and Japan. During these natural disasters, citizens from all around the world turned to 21st Century communication technologies to learn about and support the victims of these events. This paper discusses the potential for social studies teachers and students in using social networks to learn about global issues. To highlight this point the authors discuss the educational potential of social networks in learning about the 2011 earthquake in northern Japan. This integration of social networks allows students to: 1. Use social media as a research tool to critically analyze different primary and secondary sources. 2. Tap into discussions and resources provided by global networks, communities, and organizations. And, 3. Use social networks to rally support and donations to help the victims. The authors reflect on this use of social networking in the studies classroom, and the potential opportunities and challenges in using it to foster global citizenship.

Summary. The authors of this article present potential uses of social networks in teaching social studies. The authors suggest that young people today are accustomed to living portions of their life online. As a result, online tools such as social networking sites can be leveraged by educators to help students advocate for civic causes. Even though

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

social networks have been utilized by government agencies to spread information as well as to gather information, civic educators have not embraced this technology to further education. The authors also argue that fears of online bullying, Internet predators, and the possibility of explicit language and advertising often make teachers and parents wary of the educational benefits and advantages available through the classroom use of social networking. The authors provide numerous examples on how to advance civic education through social networks such as Facebook.

Credibility. Dr. Brad Maguth is an Assistant Professor in the Department of Curriculum & Instructional Studies at the University of Akron, Ohio. He received his PhD in Social Studies & Global Education from Ohio State University. He is also the Program Chair of the American Education Research Association Annual Conference.

Dr. Misato Yamaguchi is an assistant professor at Augusta State University in Georgia. She received a PhD in Social Studies from Ohio State University. This article was presented at the *Society for Information Technology & Teacher Education International Conference* and is Peer-reviewed.

Maranto, G., & Barton, M. (2010). Paradox and promise: Myspace, Facebook, and the sociopolitics of social networking in the writing classroom. *Computers & Composition*, 27(1), 36-47. doi:10.1016/j.compcom.2009.11.003

Abstract. This article situates current theoretical, rhetorical, and ethical analyses of the net's most prominent social networking sites, MySpace and Facebook. It also discusses the implications of bringing these web sites into the classroom, comparing how students, teachers, and administrators use (and abuse) these spaces. Both MySpace and Facebook privilege a discourse based on the construction and representation of an identity. Rather

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

than assert unique identities, these sites ask users to label and classify themselves according to many criteria, including age, religion, political leanings, hobbies, and interests. Users can then list others who share these labels or interests and request to “add them as friends.” MySpace and Facebook emphasize categories and aspects of popular culture that teenagers find important. They remediate the traditions of high school for the Web and by doing so greatly extend their reach. Many writing instructors wonder how these sites can be used to teach writing. How users represent themselves online could help students understand postmodern logics of identity construction and political engagement. However, there are dangers for teachers who create their own profiles and add their students as “friends.” Like chat and email, these forums undercut concepts of more conventional rhetorical spaces. They both contribute to and undermine student and faculty ethos, although students may not appreciate that their profiles might have a lasting negative impact. Despite the public nature of most profiles, users often denounce these “invasions” as blatant violations of their privacy. Perhaps teachers and scholars should work to protect the integrity of these spaces.

Summary. According to these authors the use of Social Networking Sites (SNS) in the classroom is not only essential, but it is also inevitable. However, there is a divide between educators with regard to the use of SNS in the academic arena. Some educators feel that when teacher have Facebook profiles and correspond with students on a social networking platform they are blurring the line between acceptable communication and appropriate conduct between teacher and student. Although the teachers are afraid to use SNS in the classroom for fear of losing their job, this author argues that teachers should embrace these technologies and encourage students to use them as well.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Credibility. Gina Maranto is a Senior Lecturer; Co-Director, Ecosystem Science and Policy; Graduate Program Coordinator, Environmental Science and Policy at the University of Miami department of English. She received her M.A. in fiction from The Writing Seminars at The Johns Hopkins University in 1980. She is a prize-winning science writer who has covered biomedicine, the environment, and Earth sciences at the national level since 1982. Her articles, opinion pieces, and reviews have appeared in Discover, The Atlantic Monthly, Scientific American, The New York Times, and other publications. She is author of *Quest for Perfection* (1996), a history of attempts to alter birth outcomes and a critique of new reproductive technologies.

Dr. Matt Barton is an Assistant Professor of English at St. Cloud State University in Minnesota. He received his PhD from University of South Florida. His research interests are new media, computers, composition, rhetoric, and gaming.

This article appears in *Computers & Composition* journal where articles undergo a blind review process.

Mazman, G., & Usluel, Y. K. (2010). Modeling educational usage of Facebook. *Computers & Education*, 55(2), 444-453. doi:10.1016/j.compedu.2010.02.008

Abstract. The purpose of this study is to design a structural model explaining how users could utilize Facebook for educational purposes. In order to shed light on the educational usage of Facebook, in constructing the model, the relationship between users' Facebook adoption processes and their educational use of Facebook were included indirectly while the relationship between users' purposes in using Facebook and the educational usage of Facebook was included directly. In this study, data is collected from Facebook users with an online survey developed by the researchers. The study group consists of 606

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Facebook users whose answers were examined by using a structural equation model. The analyses of the 11 observed and 3 latent variables provided by the model showed that 50% of educational usage of Facebook could be explained by user purposes along with the adoption processes of Facebook. It was also found that Facebook adoption processes could explain 86% of all user purposes. Finally, while Facebook adoption processes explained 45% of its educational usage, it could explain 50% of variance in educational usage of Facebook when the user purposes were added into the analyses.

Summary. This paper concentrates solely on the educational usage of Facebook. The authors posit that social network tools enhance education by making interaction, collaboration, active participation, information sharing, and critical thinking possible. The authors suggest that social networking sites such as Facebook enhance communication and writing skills through informal learning in personalized environments. Educational usage of Facebook for resource and material sharing consists of activities such as exchanging multimedia resources, videos, audio materials, animated videos, resources and documents. According to the authors' research, students' use of Facebook in educational contexts could be categorized under four themes, namely (a) recounting and reflecting on their school experience, (b) exchanging practical information, (c) exchanging academic information, and (d) exchanging humorous or entertaining materials.

Credibility. Dr. Yasemin Koçak Usluel is an Assistant Professor for Computer Education and Instructional Technologies at Hacettepe University. She received her PhD from Hacettepe University, Social Sciences Institute, Dept. of Educational

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Administration and Supervision in Ankara, Turkey. She has been on the editorial board for the Journal of Education and Science.

Güzin Mazman is a Research Assistant at Hacettepe University working on her PhD in Computer Education and Instructional Technology. In addition to papers published in several peer-reviewed journals, he has numerous papers that were presented at refereed conferences and symposia.

This paper is published in the journal of *Computers & Education* which employs a double blind peer review process.

Vie, S. (2008). Digital divide 2.0: “Generation M” and online social networking sites in the composition classroom. *Computers and Composition*, 25(1), 9-23.

doi:10.1016/j.compcom.2007.09.004

Abstract. The digital divide has been largely theorized as a problem of access.

Compositionists have attempted to move beyond a binary view of technology access in examining the digital divide and in doing so have raised important questions about the larger societal issues connected to issues of technological literacy and access. While much attention has been paid to students at risk of growing up without access to, and experience with, computers, attention also needs to be paid to students’ critical digital literacies. Additionally, we now face a new instantiation of the digital divide where students are often more technologically adept than their instructors. The problem is not so much providing access for Generation M students surrounded by technology but rather to effectively integrate technological literacy instruction into the composition classroom in meaningful ways. Compositionists should focus on incorporating into their pedagogy technologies that students are familiar with but do not think critically about: online social

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

networking sites, podcasts, audio mash-ups, blogs, and wikis. To do so, however, instructors first need to familiarize themselves with these technologies. In essence, compositionists must catch up with the Generation M students who have left them behind.

Summary. This author cites social networking sites such as Facebook and MySpace as places where the Millennial generation create multimodal compositions to express themselves. Furthermore, because writing is taking place online without the influence of a teacher, this author posits that educators should pay attention to the online spaces that students inhabit. Dr. Vie posits that teachers must familiarize themselves with Web 2.0 technologies before attempting to incorporate them into the classroom in order to allow students to fully benefit from them. According to the author, Social Networking Sites (SNS's) such as MySpace and Facebook allow users to interact with each other and express themselves using many applications such as:

- Texting
- Sound
- Images
- Podcasts

These social networking sites are instrumental to the curriculum because they encourage participation. They might become crucial devices for teaching digital writing and general digital literacy, since users are already familiar with the technologies. However, while these technologies are already being used, students must learn to adapt and use them for higher order applications.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Credibility. Stephanie Vie is an Assistant Professor of Composition and Rhetoric in the Writing Program at Fort Lewis College in Durango, Colorado, where she teaches professional and technical writing, first-year composition, public speaking, and science fiction. Her research interests are in online social networking and computer games, particularly how these technologies impact literate practices. She is an Assistant Editor for *Kairos: A Journal of Rhetoric, Technology, and Pedagogy* and a copyeditor for *Community Literacy Journal* at Michigan Technological University. Her work has been published in *Computers and Composition*, *e-Learning*, and *Computers and Composition Online*. This article was published in the peer reviewed *Computers and Composition* journal.

Video Sharing Website Usage in the High School Curriculum

Topics related to video sharing websites, include (a) using online videos in a pedagogically meaningful manner, to enhance the overall learning experience, by linking video with slides, supporting texts, discussion boards, chat, and resources links (Karppinen, 2005), and (b) giving students the opportunity to produce videos themselves, which benefits the students' learning process through enhanced motivation and engagement with the subject matter (Karppinen, 2005).

Carter, G. V., Arroyo, S. J. (2011) Tubing the future: Participatory pedagogy and YouTube U in 2020, *Computers and Composition*, 28(4), 292-302.

doi:10.1016/j.compcom.2011.10.001.

Abstract. Our vision for the future of composition focuses on the “tube” and the culture inspired by online video sharing. Understanding composition in 2020 requires further theorizing about the participatory practices occurring in online video culture. Based on

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

practices found on the platform YouTube, we turn to the term “tubing” to explain phenomena taking place there, and we put forward the concept of “participatory pedagogy” that we see emerging in 21st century classrooms. The ubiquitous and historically loaded “tube” (noun) and its YouTube-specific counterpart “tubing” (verb), explain many of the shifts taking place as acts of writing expand to include participation in online video sharing. Other scholars have forwarded the notion of “postpedagogy” (Vitanza, 1991; Davis, 2000; Arroyo, 2003, 2005; Rickert, 2007), which places a high value on invention, encourages the playful, yet serious linking of disparate historical figures, and opens up new pathways that we see as working in tandem with what George Siemens (2005) called a “pedagogy of participation,” an offshoot of what Henry Jenkins named “participatory culture” (2009). Using tubing as a guiding metaphor, we develop our version of “participatory pedagogy” for 2020 by focusing on the propagation of Internet memes and the inventional possibilities found in the everyday practices of video culture, which create an historical archive, an untapped repository of cultural patterns, and a light yet ruthlessly public demand for participation.

Summary. The authors suggest that composition in the future will be largely influenced by the participatory practices found in online video culture. They posit that a participatory pedagogy is needed where learners are able to contribute to existing curricula. The authors suggest that by remixing different videos involves building relationships amongst many videos that in turn becomes an act of social participatory creativity. They illustrate that critique that is associated with traditional pedagogy can be combined with performance that is associated with participatory pedagogy and that both can be achieved simultaneously via online video sharing and editing. The authors provide

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

different examples of remixing videos based on current and past events and the possible educational outcomes that were observed.

Credibility. Dr. Geoffrey V. Carter is an Assistant Professor, Department of Rhetoric and Professional Writing at Saginaw Valley State University. He has a PhD in Rhetoric and Composition from Purdue University. Prior to teaching at Saginaw Valley University he was a graduate instructor at Purdue University where he was awarded the Quintilian Award for Teaching Excellence.

Dr. Sarah J. Arroyo is an Assistant Professor of English at the California State University at Long Beach. She has a PhD from University of Texas at Arlington.

This article appears in *Computers & Composition* journal where articles undergo a blind review process.

Duffy, P. (2008). Engaging the YouTube Google-Eyed generation: Strategies for using Web 2.0 in teaching and learning. *Electronic Journal e-Learning*, 6(2), 119-130. Retrieved from www.ejel.org/issue/download.html?idArticle=64

Abstract. YouTube, Podcasting, Blogs, Wikis and RSS are buzzwords 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

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

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.

Summary. Peter Duffy asserts that video can be a powerful educational and motivational tool and that the power of video lies in how it is used. He suggests using video as a “vehicle of discovery” that is used for teacher-to-student instruction. Mr. Duffy posits that YouTube is increasingly used by educators as a pedagogic resource. He offers general guidelines for appropriate usage of media to improve learning. Mr. Duffy suggests that media must:

- Be aligned with expected learning or performance outcome
- Reduce cognitive load
- Exclude superficial text or graphics
- Be appropriate for the target learner’s learning literacies

He iterates that video viewing should not be passive and that it should be an active process. He provides some specific examples of approaches for using YouTube videos in the classroom.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Credibility. Peter Duffy is the Educational Development Officer of the Polytechnic University in Hong Kong. He is the special assistant (eLearning) to the vice president of academic development at the university. Mr. Duffy has been involved within the educational field for the last 20 years. In 2002 he was awarded an Apple Educator of Excellence Award by Apple Asia Pacific and has been an invited keynote speaker at conferences and presenter at the Minister's Awards for Excellence in the IT and Art fields respectively in Australia. He is currently working at The Hong Kong Polytechnic University as a Learning Designer. He has multiple publications on e-learning design, curriculum design, and interface design.

All papers that are published in *Electronic Journal e-Learning* are double-blind peer reviewed.

Jones, T., & Cuthrell, K. (2011). YouTube: Educational potentials and pitfalls. *Computers in the Schools*, 28(1), 75-85. doi:10.1080/07380569.2011.553149

Abstract. The instructional potential of video technology in the classroom is promising, especially in light of the 21st Century Learning Framework (Siegle, 2009). Studies show positive gains in student outcomes as a result of the integration of video technology in instruction. This article explores potential uses of YouTube as an instructional aid in lessons and in planning. Emphasis is placed on using YouTube directly in social studies instruction and as a teaching resource in elementary classrooms. Attention is also given to the evaluation of YouTube videos. This article discusses the potential challenges of using YouTube in the classroom and offers suggestions for overcoming those challenges.

Summary. Materials obtained from the internet are being incorporated into the K-12 curriculum on a daily basis, for classroom instruction. The popularity of the video sharing

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

website YouTube, has grown exponentially since its inception in 2005, with over 100,000 videos being loaded every day. YouTube is classified as a social networking tool because users are able to share and comment on each other's work. Furthermore, YouTube has become an invaluable tool in the classroom and is being used in innovative ways to enhance the curriculum. Furthermore, the authors posit that research indicates that visual-spatial learners benefit from visual tools such as photographs, icons and moving images and YouTube is one way in which these tool can be incorporated into the curriculum instantaneously.

Credibility. This article is published in the *Computers in the Schools* journal. Papers submitted to this journal undergo review by an editorial review board of prominent specialists in the school and educational setting. Dr. Troy Jones is an Assistant Professor of curriculum and instruction at East Carolina University in Greenville, North Carolina Department of Curriculum and Instruction. He has a PhD from Virginia Polytechnic Institute and State University.

Dr. Kristen Cuthrell is an Assistant Professor at East Carolina University in Greenville, North Carolina Department of Curriculum and Instruction. She has a PhD from Wilmington College. She is a member of the review board for the Journal of Curriculum and Instruction.

Karppinen, P. (2005). Meaningful learning with digital and online videos: Theoretical perspectives. *AACE Journal*, 13(3), 233-250. Retrieved from <http://www.editlib.org/p/6021>.

Abstract. In this paper, theoretical perspectives for analyzing the pedagogical meaningfulness of using videos in teaching, studying and learning are presented and

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

discussed with a special focus on using digital and online video materials. The theoretical arguments were applied in the international JIBS – Joint Inserts Bank for Schools project (see < http://www.ebu.ch/departments/television/co_finance/jibs.php>). Out of existing theoretical literature six characteristics of meaningful learning were selected. According to these characteristics, meaningful learning is 1) active, 2) constructive and individual, 3) collaborative and conversational, 4) contextual, 5) guided, and 6) emotionally involving and motivating. In this paper, these characteristics are discussed with a special focus on learning with digital and online video materials. The characteristics provide insights into how digital and online videos can be used in a pedagogically meaningful way in teaching, studying and learning processes. It is evident that videos viewed either through television or computer can be seen as tools for learning. However, videos are just one component in the complexity of a classroom activity system. The learning outcomes depend largely on the way videos are used as part of the overall learning environment, e.g. how viewing or producing videos is integrated into other learning resources and tasks.

Summary. The author posits that the moving image has been used in education for a long time and that its benefits have been well researched. Although analogue video has been beneficial, it lacks interactivity and is considered a passive medium, online videos can be used as an interactive and integrated tool. Dr. Karppinen posits that simply presenting online videos does not lead to in-depth meaningful learning. She presents six characteristics that lead to meaningful learning: (a) active, (b) constructive, (c) collaborative and conversational, (d) contextual, (e) guided, and (f) emotionally involving

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

and motivating. She further ties these characteristics with using online videos in pedagogically meaningful ways.

Credibility. Dr. Päivi Karppinen works as a Post-doctoral Researcher at the University of Lapland's Centre for Media Pedagogy. She teaches media education and educational use of ICTs at the University of Lapland's Faculty of Education. She has a PhD in Education from the University of Lapland, Finland and a PhD in Social Psychology from the University of Eastern Finland. She worked as a Fulbright Scholar-in-Residence at the Finlandia University, Michigan during 2011-2012. She has numerous publications in refereed international scientific journals. This article is published in the *Association for the Advancement of Computing in Education Journal* (AACE). All articles published in this journal undergo a double-blind review process.

Lee, E. & Park, S.W. (2010). Promoting student generated content using Web 2.0

technologies. *Proceedings of Society for Information Technology & Teacher Education International Conference 2010*. 4055-4057, Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/34015>.

Abstract. Web 2.0 tools are commonly used in today's classrooms. The most popular Web 2.0 tools are YouTube, Podcast, wikis, and blogs. Teachers tend to use these tools because they think students find a lesson more interesting with them. While there are a variety of ways to use Web 2.0 tools in classrooms, they can be mainly divided into two categories: teacher-directed and student-directed ways. In the former case, a teacher usually decides contents of the tools which are simply presented to students. However, Web 2.0 tools can also be used by students to create their own work. Student generated content as commonly seen as in user generated content show many benefits of active

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

learning. In this presentation, we will discuss how Web 2.0 tools can be incorporated into a lesson for student-generated content.

Summary. Because Web 2.0 tools enable users to have an active role in creating content, students are now able to take ownership and independently personalize, construct and organize their knowledge. Furthermore, students take responsibility and ownership and research has indicated that learning is enhanced when students take charge of the decision making process. Additionally, content that is created by students and published on the Internet, garner a global audience and can be used by other students. Tasks that require students to work in groups help students practice collaborative skills that are valuable when entering an employment setting. When students learn to problem solve in a real world setting, they become better prepared at negotiating and finding optimal solutions to problems. The authors provide example on how student created YouTube videos can help enhance student learning.

Credibility. Eunbae Lee is a doctoral student in learning, design, and technology at the University of Georgia. She has a Master's degree in Education from the University of South Carolina.

Seung Won Park is a doctoral student in Learning, Design, and Technology at the University of Georgia. She has a Master's degree in Educational Psychology at Pennsylvania State University. This paper was part of the *Proceedings of Society for Information Technology & Teacher Education International Conference 2010* and is peer-reviewed.

Mullen, R., & Wedwick, L. (2008). Avoiding the digital abyss: Getting started in the classroom with YouTube, digital stories, and blogs. *Clearing House*, 82(2), 66-69. Retrieved from

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

<http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=35041971&site=ehost-live&scope=site>

Abstract. In this article, the authors discuss a rural middle school teacher's use of YouTube, digital stories, and blogs in a language arts curriculum. The authors also share the voices of middle school students as they learn through this technology in the classroom. Although a wide variety of technology integration exists in this middle school language arts classroom, the authors highlight the use of YouTube, digital stories, and blogs because they represent simple tools appropriate for any teacher's use and can easily be used together. The authors explain how to use these digital tools and provide examples of actual classroom practice.

Summary. The authors posit that having instant access to educational videos from video sharing websites such as YouTube, TeacherTube, SchoolTube, etc. can enhance a multitude of classroom lessons. Mullen and Wedwick provide the example of using online videos in a middle school English class to learn the meaning of the word *nostalgia*. The authors also declare that after watching videos that the students were inspired to create their own videos that were shared online. The authors point out that websites such as YouTube have been included on the list of banned websites in schools, and although there are inappropriate videos on YouTube, there are also valuable educational videos that can be used in the classroom. They posit that teachers, administrators, and students need to be trained on how to use these valuable tools.

Credibility. This article is published in *The Clearing House Journal* where all articles undergo anonymous double-blind peer review and editorial screening. Rebecca Mullen is a certified reading specialist with a Master in the Science of Education in Reading degree

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

from Illinois State University. She has broad classroom experience including teaching positions in preschool, kindergarten, second, and sixth through eighth grades, throughout Illinois, as well as in Eastbourne, England, Los Angeles, and San Francisco. Ms. Mullen was the recipient of the LaSalle, County (Illinois) Excellence in Education Award in 2008.

Dr. Linda Wedwick is the coordinator for the Master's in Reading program in the Department of Curriculum and Instruction at Illinois State University. She has PhD in Curriculum and Instruction from Illinois State University.

Revere, L., & Kovach, J. (2011). Online technologies for engaged learning a meaningful synthesis for educators. *Quarterly Review of Distance Education, 12*(2), 113-124.

Retrieved from

<http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=66173718&site=ehost-live&scope=site>

Abstract. Online education is well established in academia; however, the effectiveness of course design and student engagement remains uncertain. To deliver the highest quality online education, students should be engaged in learning exercises. Appropriately integrated technology can be used to foster student engagement, build a learner-centered environment, and make course content come alive. This article synthesizes information about well-established and relatively new technologies, such as discussion boards, chat sessions, blogs, Twitter, Skype, YouTube, and so on, to provide guidance for educators interested in integrating these tools within their online learning environment. Instructors who effectively incorporate technology as learning tools in their online courses can expect to achieve enhanced student engagement.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Summary. The Authors posit that engaged learning is more likely to happen when there is a student centered instructional environment. Although teachers are trying to use online learning management systems, they still use it in a teacher centric manner. The authors suggest that there is tremendous opportunity to design courses that engage students through the use of online technologies such as Twitter and YouTube. They cite research that shows decreased attrition and enhanced learner outcomes when appropriate technology is used in the learning process. The authors provide examples on how to implement YouTube, Twitter and other social media in meaningful ways that enhances student engagement.

Credibility. Dr. Lee Revere Lee Revere is the Program Director and Faculty Chair of Healthcare Administration at the University of Houston – Clear Lake. She has a PhD in Public Health, Health Policy and Management from the University of South Florida. Dr. Revere has focused much of her time on researching the application of quantitative methods to improve healthcare quality, processes and decision-making. Her secondary research interests include educational techniques and training aimed at the adult learner and assessment of learning. Her research has been published in a number of healthcare and business journals.

Dr. Jamison V. Kovach is an Assistant Professor, University of Houston, Texas and works in the Department of Information & Logistics Technology, College of Technology. He has a PhD in Industrial Engineering from Clemson University, South Carolina. He is the Editorial board member for: *International Journal Experimental Design and Process Optimisation*, *International Journal of Quality Engineering and Technology*, and *International Journal of Six Sigma and Competitive Advantage*.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

This article is published in the *Quarterly Review of Distance Education journal* published by the Association for Educational Communication and Technology. The articles that are published in this journal are refereed.

Conclusion

This bibliography presents and summarizes 32 peer-reviewed references pertaining to the use of selected Web 2.0 technologies in the high school curriculum. As noted in these references, Web 2.0 tools enable learners to collaborate and interact with others (Bower, Hedberg, Kuswara, 2010; Niles, 2011) and enable educators to design a curriculum that is more student centered and interactive (Bower, et al., 2010). Technology has become the mediator of collaboration and the use of Web 2.0 tools in the curriculum can promote diversity, personalize learning pathways and take advantage of societal contexts (Bower, et al., 2010).

While the advantages and challenges to incorporating Web 2.0 technologies in the curriculum can be found in the literature, the purpose of this bibliography is also to examine the innovative ways in which a subset of Web 2.0 technologies are being incorporated to facilitate the unique learning styles of the Millennial generation. The goal of this study is to identify literature that answers four key research questions: (a) What are the unique characteristics of the Millennial students' learning style? (b) How are high schools using social networking websites in the curriculum to enhance engagement and promote learning? (c) How are high schools using video sharing websites in the curriculum to enhance engagement and promote learning? (d) What are the challenges in implementing Web 2.0 into the high school curriculum?

The following conclusions are reached through the process of interpreting the results of coding 32 selected references, using conceptual analysis (Busch et al., 2005). Ideas are framed for classroom teachers and principals of public high schools in the United States and presented according to four themes defined for this study; each theme is directly related to one of the research questions.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Unique Characteristics of the Millennial Students' Learning Style

The Millennial generation uses Web 2.0 technologies on a daily basis and is eager to use these technologies more in school. However, because educators have been slow to realize that the learning styles of this generation differ from previous generations, they have been slow to incorporate these tools into the curriculum (Barnes, Maranteo, & Ferris, 2007). For example, according to Maguth and Yamaguchi (2012) “teachers and students’ use of technology in the social studies for civic education has been lackluster at best” (p. 3276). However, the fact that the White House has turned to social media to open the lines of communication and be more transparent to the public is an indication that social media is effective in reaching people and has become an integral part of peoples’ lives . Maguth and Yamaguchi (2012) assert that most future citizens are not learning how to use these tools in their social studies classes and that they must become more familiar with the tools so that they can contribute to their community and the world.

The value of Web 2.0 as part of the curriculum is not based on the tools but on how these tools are used to promote better learning outcomes (Duffy, 2008). Web 2.0 tools such as YouTube enable students to create networks of active communities where everyone can voice their opinion and be heard and equally participate in shared knowledge and content discovery. Dimensions of human experience such as opinions, values, and spiritual beliefs are embodied in Web 2.0 technology, which makes it more enticing for a generation that values community engagement and opinion (Cochrane, 2010; Greenhow, Robelia, Huges, 2009).

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

This study presents five unique learning style characteristics of Millennial students, including (a) beliefs and feelings, (b) active learning, (c) attention span, (d) multitasking, and (e) information literacy. Each characteristic is described in more detail below.

Beliefs and feelings. Millennial students believe that their opinions are important and need to be heard, and they believe in equality. These beliefs may not fit well within the authoritarian hierarchical structures of the classrooms of the past (Barnes, Maranteo, & Ferris, 2007). They are highly sensitive to criticism and shy away from voicing their opinions if they are uncertain of answers; as a result they prefer to work in teams and excel at collaborative, social learning from their peers (Bower et al., 2010; Dede, 2005; Roehling et al., 2011).

Active learning. Millennial students are active learners who want to learn through interaction, collaboration and active participation (Bower, Hedberg, & Kuswara, 2010; Roehling et al., 2011). What educators must bear in mind when formulating a curriculum for Millennials is that the Millennial student will not only expect to know what to do, but will also want to learn why it is being done (Niles, 2011).

Attention span. Although Millennial students are active learners, they have short attention spans, they want their information fast, yet they lack critical thinking skills and introspection and are quick to change channels if the material is not stimulating (Dede, 2005; Niles, 2011; Vie, 2008). Millennial students have a low tolerance for boredom; they want to learn what is important to them at the moment and want learning to be interactive, informative and most of all entertaining (Barnes, Maranteo, & Ferris, 2007; Roehling et al., 2011).

Multitasking. Millennial students tend to multitask very well and gather information from multiple mediums simultaneously, while performing schoolwork (Barnes, Maranteo, & Ferris, 2007; Dede, 2005; Niles, 2011; Roehling et al., 2011). Furthermore, according to Dede

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

(2005) the typical Millennial student texts, sends e-mail, browses the Web and dialogues with six friends via instant message, while doing homework. Although this style of learning is different from previous generation it does not mean that learning is not occurring; instead it is occurring in a different style than before (Nikirk, 2012).

Information literacy. Millennial students are comfortable with the use of Web 2.0 technological tools, however they often lack information literacy skills concerning how to use the technology for deep learning. Although the Millennial generation is more apt at using even more technology than previous generations, they need instructions that will provide them insight into using technology appropriately to conduct research and effectively use these tools in literacy practices (Vie, 2008). While the information that the Millennial student has access to is vast, they need to learn how to discriminate; not all information found on the web is reliable or appropriate for use in education (Niles, 2011). Educators need to guide students and help them use technology effectively so that they obtain the maximum benefit from technology.

Web 2.0 Technology and Teaching

As noted by Casey and Evens (2011), today's teachers can choose to integrate sophisticated technology as part of the curriculum; therefore they need to make decisions on what new technologies to select, when to use them, and how they will be used. These new demands may leave teachers conflicted because they differ from traditional teacher-centric teaching models and require drastic changes to the pedagogy (Casey & Evens, 2011). Nonetheless, teachers have begun to adapt traditional teaching practices with technology to engage Millennial students and exploit the use of the Internet in ways that encourage learning and critical thinking skills (Dede, 2005).

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

When Web 2.0 tools are incorporated into the curriculum, students must utilize an array of higher-order thinking skills such as remembering, understanding, applying analyzing evaluating and creating. Although digital technology may not immediately conjure images of a medium that promotes higher order thinking, if the student is cognitively engaged, the level of thinking is enhanced as well (Bower, et al., 2010). For example, through use of collaborative multimedia (such as video creation and editing), students become collaborating authors, which facilitates group work and the sharing of procedural knowledge (Bower, et al., 2010; Duffy, 2008).

One of the highlights of incorporating Web 2.0 in the classroom is that it has shifted the method of teaching from instructivist pedagogical paradigm to a social constructivist pedagogical paradigm, where students are active participants and creators of their own curriculum (Cochrane, 2010). The Millennial generation absorbs information through a combination of images, videos and text, which can come from multiple sources simultaneously; because they demand information instantaneously, the ability to access it on demand from tools such as YouTube and TeacherTube is invaluable in the classroom (Duffy, 2008). The fact that these tools enable active participation, gives students the opportunity to work collectively and communicate with their friends while being actively engaged in the classroom, which promotes interactive and collaborative learning.

Incorporating Video Sharing Websites into the Curriculum

According to Carter and Arroyo (2011) “more that 91 percent of the Web’s global consumer traffic will be video by 2014” (p. 293); this statistic indicates the popularity of video sharing websites such as YouTube and TeacherTube. While teachers should take advantage of the popularity of Web 2.0 technologies to enhance the curriculum, the use of video in the

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

curriculum is effective depending on how it is used as part of the overall learning experience with regard to viewing and producing content (Karppinen, 2005). Before the use of YouTube videos, the teacher must make sure the learning tasks will combine with the viewing of the video, especially because video and motion pictures tell a story that is emotionally involving (Karppinen, 2005). Revere and Kovach (2011) advise teachers to focus on short, focused lectures with videos which are then followed by engaging activities that allow for reflection. Karppinen (2005) posits that this perspective is pivotal because students learn best when they take an active role in their own education. Furthermore, Revere and Kovach (2011) assert that research indicates that traditional, instructor led pedagogy is being refuted and that student led learning has shown to be the most beneficial form of learning for students.

Karppinen (2005) notes benefits from the use of video in the curriculum include (a) students' enhanced motivation and engagement with the subject matter; (b) students' ability to reflect on themselves and their behavior, (c) the opportunity for students to learn at their pace, and add their own views and ideas, and (d) the opportunity for students to interact with learners across the globe, creating their own multimedia network (Karppinen, 2005). In addition, watching user created videos inspires students to create their own videos that are uploaded to these websites and in turn elicit comments from other students around the world.

The comment section that is available on websites such as YouTube imposes character limitations. Because of these limits, the comments have to be precise, which forces students to use proper language skills when commenting on videos (Mullen & Wedwick, 2008).

YouTube and TeacherTube provide an easy-to-use interface where teachers can post their own instructional videos for students' access (Mullen & Wedwick, 2008).

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

While Millennial students may not have the ability to visit places and experience culture and language first hand, the use of YouTube video in the language curriculum affords them the opportunity to explore other cultures and witness dynamic interactions among native speakers of the language, thereby transcending geographical boundaries (Jones & Cuthrell, 2011).

Mullen and Wedwick (2008) posit that the use of YouTube in the classroom provides limitless opportunities and educators must make ample use of these opportunities. For example, when students were having difficulty understanding the meaning for the word *nostalgia* in a writing class, the teacher played a clip from the students' childhood to evoke a sense of nostalgia, whereby helping the students to clearly grasp the meaning of the word. Another example is by using video as a model for classroom activities or discussion in a social studies classroom; historical video clips that pertain to the civil rights movement could be used as a starting point for classroom discussion (Jones & Cuthrell, 2011). Table 1 offers a brief summary of social studies content areas and the types of videos available in YouTube that a teacher can incorporate into the social studies curriculum.

Table 1

Social Studies content areas and associated YouTube video title examples (From Jones and Cuthrell, 2011, p. 80)

Content Area	Video Titles
Culture	<p>A number of videos celebrate various cultures in the United States and around the world. Examples include:</p> <ul style="list-style-type: none"> • KuluMele African Dance • Arabic Dance • Native American music • Italian heritage cooking shows • Cinco De Mayo • Chanukah

WEB 2.0 TOOLS FOR TEACHING MILLENIALS

	<ul style="list-style-type: none"> • Kwanza
Time, continuity, and change	<p>Historical videos bring history alive for students. Examples include:</p> <ul style="list-style-type: none"> • The Lost Colony of Roanoke • The Civil Rights Movement • Interviews with Rosa Parks • Numerous videos about the Civil War • Original newsreels about the Titanic sinking • Footage from the first Moon landing
People, places, and environment	<p>There are a number of videos about the present-day environment and its inhabitants. Children can also learn how to preserve the environment from videos. Examples include:</p> <ul style="list-style-type: none"> • Virtual tours of national parks like the Grand Canyon and the Colorado Rocky Mountains. • Schools as far away as Afghanistan or Malawi • Children in various parts of the world • The three R's: Reduce, Reuse, Recycle • Native People and their environment
Individual development and identity	<p>As children grow and develop, teachers can use online videos to teach them about individual development and identity.</p> <p>Examples of such videos include:</p> <ul style="list-style-type: none"> • Being a good citizen in school • Making new friends • Growing up • What life will be like as an adult
Power, authority, and governance/civic ideals	<p>Teachers can use video clips to teach about prominent groups, the government, or various institutions throughout world history. Examples of such videos include:</p> <ul style="list-style-type: none"> • The American presidents • Margaret Sanger addressing the Ku Klux Klan • The Boy Scouts of America • The U.S. Congress and the Supreme Court • Schoolhouse Rock: The Vote (American Broadcasting

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Incorporating Social Networking Websites into the Curriculum

Prior research has shown that learning environments should be designed to provide an “interoperable, seamless and collaborative platform which connect and engage students’ learning processes” (Khaddage & Bray, 2011, p.3792). Khaddage and Bray (2011) further posit that in order for effective learning to occur within a social networking environment, “three components should be considered: (a) collaboration, (b) learning content, and (c) learning services” (p. 3792). The use of social networking sites such as Facebook and Ning in the curriculum bring about collaboration, increased learning content and learning services because students can create topics and study notes to share and communicate with other, which generate group discussions, brainstorming and effective collaboration (Khaddage & Bray, 2011).

Student empowerment and new literacy practices. Incorporating social networking tools has shown to empower students and therefore should be incorporated into the curriculum (Casey & Evens, 2011). According to Lewis (2011), “students have the opportunity to connect more deeply with content through the use of 21st century skills” (p.287). For example, to introduce new literacy practices through pedagogy, instead of writing a five page essay, the students were assigned to create MySpace profiles for fictional charters in a literature class, where the students used multiple mediums such as images, videos, and text to complete the literature analysis assignment (Lewis, 2011). By bringing Millennial students out of customary literacy practices and introducing new pedagogy, teachers are able to enhance students’ literacy development and extend their engagement in literacy analysis (Lewis, 2011). Additionally, Khaddage and Bray (2011) assert that what is important in the use of social networking sites such as Facebook in the curriculum is that the apps and technologies that are available in these sites meet the educators’ and course component requirements.

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

The use of Web 2.0 tools such as Facebook in the curriculum is important because it provides a way for students to become literate in new digital practices so that they can participate at a global level. For example, Maguth and Yamaguchi (2012) cite instances where teachers have begun to use social networks to teach students about global issues such as the 2011 earthquake in Japan. Here the students learned about the devastation and they were also given tools that would help them advocate for those in need. Social networking tools such as Facebook promote active learning, formal and informal thinking and encourage students to think and participate in group activities, whereby learning from peers, and also learning to advocate for certain causes and become global citizens. By incorporating social media into the lives of students in the classroom, teachers also incorporate the new literacies that are becoming part of students' out-of-school lives (Casey & Evans, 2011).

Collaboration. Social networks are emerging as an important tool in today's schools (Casey & Evans, 2011). High school students are interacting in such networks with or without their teachers' consent and knowledge, through study groups organized using Facebook. The use of social networks in the curriculum encourages students to participate, think, contribute, and become active in their learning (Casey & Evans, 2011).

Group tasks facilitate student engagement and corporation between peers, and effectively designed group projects can help developed relationship and expand their knowledge base (Revere & Kovach, 2011). For example, using a social network such as a Ning in the classroom allows the teacher not only to incorporate multimedia and multimodal texts but also to share these quickly and easily, providing a collaborative learning environment where students can communicate at any time. Casey and Evans (2011) posit that using social networking in the

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

classroom naturally give way for students to form groups that they use to discuss class projects and also to give and receive constructive feedback on their class projects from their peers.

These knowledge-building communities give students the opportunity to exploit each other's skills as well as support each other while being role models. Additionally, the use of social networking sites in the curriculum has shown to increase self-esteem, engagement and collaboration (Karppinen, 2005). Furthermore, social networking sites such as Facebook and Ning have shown to encourage sharing personal stresses which support social and cognitive engagement (Revere & Kovach, 2011). Other features of social networking sites such as status updates, links and pictures can also facilitate connection and engagement and teachers can encourage students to actively participate, by actively participating themselves.

Challenges Faced in Schools when Incorporating Web 2.0 Tools into the Curriculum

This study identifies five key challenges to the incorporation of Web 2.0 technology in the high school curriculum, including (a) availability, (b) appropriateness, (c) trust, (d) security, and (e) legal. Each challenge is described in more detail below.

Availability. Most teachers know that it is not uncommon for computers to stop working and for students to have to double up and share equipment in school computer labs (Mullen & Wedwick, 2008). Content might not be available when teachers want to use it in class, since videos are being constantly added and deleted from websites. To mitigate this challenge a teacher could use free online tools such as those found on Zamzar.com to convert content from YouTube and save it on to a local hard drive for later classroom viewing (Jones & Cuthrell, 2011).

WEB 2.0 TOOLS FOR TEACHING MILLENNIALS

Appropriateness. Many school administrators have resorted to blocking access to video sharing websites such as YouTube because of some questionable content available on the site. Mullen and Wedwick (2008) admit that there are highly inappropriate videos, but state that there are many valuable videos that can enhance the learning experience.

Trust. Teachers have expressed the concern that social media is easily accessible to students, even when they are not supervised by adults; this situation requires a certain level of trust that must be first established before teachers are comfortable with letting students use these technologies (Casey & Evans, 2011).

Security. The security risks that come along with social media concern many educators, especially when sites such as Facebook are accessed via mobile devices, privacy can be invaded and data can be shared unintentionally. Khaddage and Bray (2011) assert that it is the teacher's duty to facilitate the learning process and encourage students to choose how they access, store, and share information. One way to address security concerns is to make sure that school policies are developed and implemented so that students can safely use these technologies to enhance their education (Khaddage & Bray, 2011).

Legal. The ease of cutting and pasting electronic content has given greater visibility to the questions and definitions of plagiarism and copyright violations. There are numerous instances where content has been taken down by the owners of social networking sites such as MySpace and Facebook because the content violated copyright laws (Jones & Cuthrell, 2011). To avoid lawsuits, schools have resorted to banning access to these sites making them unavailable to students and teachers during school hours (Vie, 2008). Instead of unilaterally

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denying access, teachers and administrators can initiate community discourse on intellectual property issues that would help students become better citizens in a globally connected world.

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