

**“LEARNING TO SPEAK WEB 2.0”: TEACHER-LIBRARIANS
PLAYING WITH 21ST CENTURY TECHNOLOGIES**

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Introduction: This paper presents the initial findings of a study that looked at students’ experiences with and reactions to learning about Web 2.0 tools. The research questions guiding this study were: How effective is a graduate-level course in helping teachers and teacher-librarians learn about and integrate new Web 2.0 technologies? And, What are the knowledge, skills, and attributes that these teachers and teacher-librarians develop as a result of undertaking this inquiry?

Method: Participants were students enrolled in a graduate-level technology course offered through the Teacher-Librarianship by Distance Learning program at the University of Alberta. The major assignment for the course was an inquiry on Web 2.0 and students were required to write blog posts as they explored 10 new tools.

Results: The major source of data for this paper came from the first blog posts, which were analyzed and then categorized into four main themes: feelings, experiences, design of the blog, and challenges.

Conclusions: Although this paper only reports on the initial stages of the study, early analysis of all the data indicates that this course has been a great success in helping teachers and teacher-librarians learn about and integrate new Web 2.0 technologies into their personal and professional lives.

Teachers and teacher-librarians are no longer experts in schools. In the 21st century, our young students bring their experiences and skills with a variety of web-based technologies and video games to school (see for example, Richardson, 2006; Rosenfeld & Loertscher, 2007). For teachers and teacher-librarians to be effective educators in the 21st century, they need to be familiar and comfortable with new technologies. Today’s new technologies include Web 2.0 which are the new web-based tools that are readily available and used to communicate and collaborate with others. Blogs, wikis, photo and video sharing sites, and social networking (e.g. Facebook or MySpace) are all examples of Web 2.0 tools. As Solomon and Schrum (2007) state, “we can take advantage of the features that new tools offer and tap into students’ natural affinity for these tools in order to create learning experiences that expand their worldview and enhance what they learn” (p. 24).

As part of our graduate program in teacher-librarianship at the University of Alberta, we offer EDES 545, an information technology course that has focused, in the past, on

traditional technologies (Web 1.0) such as Webquests, powerpoint, and Internet searching. Over the last year, we also began to realize that many of our students are interested in the possibilities that new technologies, including Web 2.0 tools, present for schools but are often reluctant to push themselves to learn enough about them to effectively integrate them into their practice.

As instructors, we realized this was an opportunity to redesign the course to provide graduate students with the opportunity to explore these Web 2.0 tools as part of a course. This revised version of EDES 545 included an inquiry component that required students to create their own individual blogs. Students then explored a new Web 2.0 tool (e.g. wikis, podcasts, social networking sites, etc.) each week and blogged about their experiences with that tool in their personal or professional lives.

Drawing on the existing literature related to Web 2.0 and technology integration in schools, this study was designed to investigate two primary questions: first, How effective is a graduate-level course in helping teachers and teacher-librarians learn about and integrate new Web 2.0 technologies? Second, What are the knowledge, skills, and attributes that these teachers and teacher-librarians develop as a result of undertaking this inquiry?

Theoretical Framework

The theoretical framework that underlies this work comes from Kuhlthau's (1993) six-stage information search process model. The model incorporates "three realms of experience: the affective (feelings) the cognitive (thoughts) and the physical (actions) common to each stage" (Kuhlthau, 2007, para. 2). This information search process model is seminal because it is the first time the affective domain played a role in research about information seeking and retrieval.

The process approach proposes a holistic view of information seeking and suggests that inquirers' feelings, thoughts, and actions must work together at each stage of the process. Based on an initial study, and confirmed by subsequent research, Kuhlthau suggested that the 6 stages of the information seeking process are:

- initiation (when a person first becomes aware of a lack of knowledge or understanding and feelings of uncertainty and apprehension are common);
- selection (when a general area, topic, or problem is identified and initial uncertainty often gives way to a brief sense of optimism and a readiness to begin the search);
- exploration (when inconsistent, incompatible information is encountered and uncertainty, confusion, and doubt frequently increase and people find themselves "in the dip" of confidence),
- formulation (when a focused perspective is formed and uncertainty diminishes as confidence begins to increase);
- collection (when information pertinent to the focused perspective is gathered and uncertainty subsides as interest and involvement deepens);

- and presentation (when the search is completed with a new understanding enabling the person to explain his or her learning to others or in some way put the learning to use) (Kuhlthau, 2007, para. 5).

A key finding in this initial study, and one that was confirmed in subsequent studies, has to do with the feelings experienced by the students in the study. According to Kuhlthau (1993), these students experienced a similar sequence of feelings:

students' feelings about themselves, the library, the task, and the topic evolved as their understanding of their topic deepened. The feelings that students described were predictable from Kelly's phases of construction. At the beginning of the search, evidence of uncertainty, confusion, and apprehension was isolated. Indications of increasing rather than decreasing uncertainty were noted as the search progressed. In the middle of the search evidence of a sense of clarity was documented as a focus was formed. With the focus, a sense of direction and confidence was common and that sense increased toward the end of the search.

(p. 38)

Kuhlthau's (2007) research highlighted that "a dip in confidence is commonly experienced once an individual has initiated a search and begins to encounter conflicting and inconsistent information. A person "in the dip" is increasingly uncertain and confused until a focus is formed to provide a path for seeking meaning and criteria for judging relevance" (para. 27).

Review of the Literature

A review of the literature on how teachers are learning to use Web 2.0 in their classrooms found very little research on the topic, although more has been written from a professional or practical perspective. Oliver (2007) reports on a redesign of a graduate-level technology integration course and some student feedback is included in this article. Wright and Wilson (2007) also discuss the design of a master technology teacher program. Neither of these articles are research but focus on the professional and practical issues related to this kind of course. A study by Groth, Dunlap, & Kidd (2007) looked at preservice teachers, university instructors, and technology education. In this study, the technology was integrated into a curriculum course, rather than as a stand-alone technology course. The researchers found that modelling, support, and practical applications of technology "in an atmosphere that fostered exploration and reduced the fear of failure" (p. 381) were instrumental in changing instructional practice. University instructors must strive toward exemplary technology integration in preservice classes in order to prepare educators to effectively integrate technology into their classrooms.

Research in the area of technology integration in schools and by teachers is vast. Studies have provided a list of factors that can affect the use of technology in schools. Levin and Wadmany (2008), found that "teachers' training courses, workshops, and support session monitoring should be coordinated and sustained over time to empower teachers and show them what they need to know and what they can achieve" (p. 259). The researchers also found that training by authorities is only one part of a

professional development plan. There is a need for formal training at early stages; however, at subsequent stages in their professional growth, they will require educational opportunities that facilitate collaboration with colleagues on authentic routine classroom issues as well as personal and self-inquiry accompanied by mentorship, sometimes in addition to, but mainly instead of, authoritative training. (p. 259)

Further research on professional development for technology integration highlights other factors including convenient access to computers, appropriate infrastructure, thoughtful planning for the use of technology and exposing teachers to using technology as a productivity tool (Hope, 1998; Smerdon et al., 2000). Leadership and a strong sense of school needs are also key to the successful integration of technology (Hardy, 1998). Sherry, Billig, Tavalin, and Gibson (2000) highlight the importance of guidance from specialist mentors and online resources while Zhao & Frank (2003) acknowledge the challenge of the changing nature of the technology itself. Challenges may also include teacher burnout, lack of time to learn and explore new technologies, and the way staff development is offered and supported in schools and school districts (Weikart & Marrapodi, 1999).

Method

The Teacher-Librarianship by Distance Learning (TLDL) program at the University of Alberta has been providing online educational opportunities for teachers and teacher-librarians for ten years. Students are given the opportunity to specifically explore technology in an educational context in EDES 545, Information Technologies for Learning. This is a required course for all students and provides them with the background and understandings needed to effectively integrate technology into their classrooms and libraries.

The new version of the course was designed so that students wrote a series of blog entries reflecting on their learning and exploring how these technologies could be used in their practice. Permission was received from eleven students to use their blogs as data for this study. Throughout the term, these students' blogs were saved and printed for future analysis. At the end of the term the researchers then read all of the blog posts recursively, looking for common themes and trends that emerged within and across entries (Bogdan & Biklen, 1992; Miles & Huberman, 1998). The data are presented using representative quotes from the blogs to support the patterns and themes. We had a wealth of data from all of these blogs and for the purposes of this paper have chosen to narrow our focus and report findings only based on the first blog posting written by each participant. For these introductory posts students were asked to describe the process of setting up their blog and then comment on blogging and its implications for teaching and learning.

Findings

The data from the first blog posts that were used as the main source of data for this paper have been categorized into four main themes: feelings, experiences, design of the blog, and challenges which provide some insight into these questions.

Feelings

In these first posts, students expressed a wide range of emotions and feelings from being scared and intimidated to feeling empowered and having fun. On the one hand students expressed some trepidation about the assignment and the course in general. For example, one student stated that “I am excited to learn about how to use the various technologies out there, but wow, intimidating!” while another stated that “Yikes, was I scared getting this process started...I was very nervous when I first got this assignment but am now feeling more relaxed as I write my first posting.” Similarly, a student likened getting involved in Web 2.0 technologies to herding cats and went on to state that “diving into the information on technology has been a little like holding a water tumbler under the faucet but getting a Niagaran roar when the tap is turned on.”

On the other hand, students noted that the process of setting up their blogs was easier than they had expected. One student noted that, after setting up her blog, “all is well and I have survived. Houston, we have lift off.” Another student, who was at first worried about the assignment, stated that “to my surprise, and great relief, it took less than 5 minutes...I am excited to have a blog and explore Web 2.0 tools to the fullest.” Another student blogger stated that there was going to be “lots of fun and excitement in exploring these Web 2.0 tools and seeing how they fit in the schools and libraries.” Finally, students commented that in spite of their initial concerns about the course and the Web 2.0 inquiry assignment, “learning by doing is (still) pedagogically sound” and that it is “kind of empowering to get into this stuff.”

Experiences

Findings from the first blog posts of this inquiry assignment reveal another wide range of experiences that these students brought to the course. One student suggested that she is a “self-confessed Luddite” while many of the students also noted that they had never blogged themselves. Some students had read other people’s blogs and a few mentioned that they had previously commented on blogs. One student noted that she had “only read a few blogs, usually prompted by my friends who are teaching abroad and have found that blogging is a great way for them to let everyone know how they are doing without having to send out endless emails.” Another student indicated that she originally thought that blogs were “just online personal journals for others to comment on.” Further reading and reflection gave this student new insight into the purpose and potential for blogs. The student from the previous section, who initially responded so negatively to the idea of blogs and blogging wrote that “it just dawned on me that I regularly visit a parenting blog that I like to believe is a force for positive change!”

Many of the students in EDES 545 commented that support from family, friends, and colleagues was instrumental in making their initial experiences with this assignment more

positive. For example, “I chose my blog publisher on the recommendation of one of my daughters.” Another student, who had recently purchased a new computer for the express purpose of taking this course, noted that she “took it, in the box, to the home of my first born for my first lesson on how to use it. Who knew he had such highly developed teaching skills? He patiently and articulately led me through the aforementioned truckload of new stuff. He intuitively knew how to limit the amount of time we spent going over it all (e.g. we stopped before my head exploded).”

Finally, most of the student bloggers in this course commented on how easy it was to set up their blogs and that this ease of use was not only important, but also surprising. The ease of use of many of the Web 2.0 tools the students explored early in their inquiries (blog publishing tools, blog aggregators, and photo sharing sites) made their beginning experiences more positive than many of them had originally anticipated

Design of the Blog

Many students in the course commented on some of the design issues and choices they faced when originally setting up their blogs. These bloggers were aware of the fact that the design choices they made were important because their blogs were ultimately representing them. One student noted that he was “quite stricken by the impact of everyone’s visual choices. For me, the diversity provides much more of a connection to each of my classmates.” Another student compared these design choices to renovating her home but, she wrote, “since I can’t reno my house just yet, I might as well reno my personal cyber-space.” Design choices and the visual appearance of the individual blogs were important considerations for these novice bloggers. Students also commented that choosing a name for their blog was an equally difficult task. For example, one student wrote that choosing a name for her blog was the most stressful part of the early stages of this inquiry.

Challenges

The final broad theme from these introductory blog posts was challenges. Students commented on a number of challenges that they faced as new bloggers. These challenges can be further broken down into issues related to the technology, finding time and space to blog, and personal vs. professional applications.

First, students faced challenges related to the technology. Although many of the students expressed relief about how easy the blogs were to set up, they experienced some frustration or anxiety about the use of all of these new tools and, in some cases, which of the many choices to actually use. For example, one student noted that her immediate challenge was “figuring out how to get RSS feeds to work for me, and [then] deciding which ones to subscribe to!” Luckily, the same student discovered that RSS “is like having subscriptions to your favourite magazines—it delivers the latest edition to you.” Another student commented that “given all the different new Web 2.0 technologies I am learning about, keeping them organized is a priority.” Other students found themselves puzzled about the various options and services available to them as they set up their blogs,

which meant that in the early weeks of the inquiry they did not have the opportunity to get “to the educational possibilities that blog services open up to us.”

Feeling overwhelmed by the technology and the wide range of choices available to them (e.g. Blogger vs. Wordpress) also contributed to the information overload that some students alluded to in their initial posts. As one student wrote, the volume of information at first left her feeling “deluged with information and ‘running madly off in all directions.’” Similarly, other students remarked on the challenge of finding the space and place to blog. For example, one person wrote:

I spend my days, at present, in the middle of a busy library, surrounded by stimulating, boisterous adolescents. There is a **lot** of noise and most days, **lots** of learning. Learning to think, compose, and produce coherent prose in the midst of chaos is a life skill required for 21st century living.

Finding time and space on a regular basis for writing blog posts was a challenge for busy teachers, especially when they are not maintaining a blog as part of a course assignment. As one student noted, blogs are an easy way for teachers to stay connected to parents and their students and because blogs are easily maintained and updated without knowing html code or having exceptional technical skills, teachers might be able to embrace this new tool. This student continued by stating: “We all know (OR SHOULD, DARN IT!) that teachers are very busy folks who really don’t need more put on their plates. Blogging might be the tool to help them stay better connected to communities without asking too much more of their time.”

A final challenge faced by students in this course was separating the personal and professional applications of Web 2.0 tools, particularly blogs and blogging. Issues related to privacy were raised by a number of people, especially when considering how to use blogging in the classroom. One student noted that “I like that Blogger is free, easy to use and has some level of privacy so I can eventually use it as a class blog.”

Discussion

The findings reported on this paper represent only a small part of this study. The first blog postings written by students in EDES 545 highlighted some of the feelings, experiences, design questions, and challenges facing these students in the early stages of their inquiry on Web 2.0 tools.

Many of the feelings expressed by students in their introductory posts reflect the initiation and selection stages described in Kuhlthau’s (1993; 2007) information search process. She writes that the earliest stage of an inquiry, the initiation stage, is when “a person first becomes aware of a lack of knowledge or understanding and feelings of uncertainty and apprehension are common” (Kuhlthau, 2007, para. 5). The second phase of an inquiry, the selection stage, is when a person’s “initial uncertainty often gives way to a brief sense of optimism and a readiness to begin the search” (Kuhlthau, 2007, para. 5). These two stages of inquiry are highlighted throughout the students’ introductory blog posts. Some students wrote about their fear and the intimidation they felt as they began this inquiry, while one person expressed her outright “hatred” for blogs and blogging. Many of these same students, as they worked through the initial stages of the

assignment, came to be more open to the assignment and expressed optimism about both the technology and the assignment. Students also expressed their relief at the ease with which they were able to set up their blogs and some even described blogging as fun or exciting. The range of emotions written about in the initial blog postings by students in EDES 545 are reflective of Kuhlthau's information search process model and emphasize the importance of considering the affective domain in all stages of an inquiry.

As students expressed these range of emotions, they also recognized the importance of having some kind support system in place to guide them through these new experiences. In particular, students who wrote about their lack of technical experience or confidence also emphasized how important it was to have someone to call on when they were feeling unsure or anxious about the inquiry. Many participants acknowledged the important role their own children played in this process. For example, one student's decision to use a blogging program was based on her daughter's recommendation, while another student asked her son for help with setting up her new computer. Based on these students' experiences, it appears that teachers, teacher-librarians, and others who are new to Web 2.0 technologies need the assistance and support of more experienced computer users who are able to scaffold this learning in a non-threatening and low-stress way. Teachers and teacher-librarians might find this support with their own children, with colleagues, or perhaps even with students in their schools who would, in many cases, be happy to help their teachers navigate through some of these new technologies. These findings support the work of Levin and Wadmany (2008) and the study of preservice teachers done by Groth, Dunlap and Kidd (2007).

Even without a formal support system in place to help them learn and use Web 2.0 tools, the students in this course also discovered that with limited experiences or lack of perceived skill, the tools they initially explored (e.g. blogs and blog aggregators) were easy to set up and use. For many students in the course, being 'forced' to explore these tools was a push that many of them needed and might not have taken otherwise. Even early in the course students in EDES 545 were able to see the personal and professional applications of these Web 2.0 tools, a finding that mirrors the work of Smerdon et al.(2000).

By experiencing blogs and blogging first hand and seeing how easy they are to create and use, these teachers and teacher-librarians were then able to see the potential uses for this technology in their own schools, classrooms, and libraries. From the first weeks of the course, we saw the students become empowered and eager to explore more Web 2.0 tools. Being a part of the edublogosphere was particularly empowering as students began receiving comments, questions, and feedback not only from their peers in the course, but also from leaders in educational technology world. For example, one student received a comment on her blog from Will Richardson, author of *Blogs, Wikis, Podcasts and Other Powerful Web Tools for Classrooms*, after writing a post about reading the book. As we had hoped, students found success in this early assignment and this motivated and engaged them to continue their explorations of other Web 2.0 tools.

Implications and Conclusions

To be a truly new school, it has to model new ways of teaching and learning, and of using new tools. It has to have at its core an interest in helping its students to be successful in the 21st century—in work and in play, and in all other aspects of living in a world that promises only change as the norm (Solomon & Schrum, 2007, p. 3).

This quote does not only apply to children in schools, it also applies to their teachers and teacher-librarians. Based on the analysis of the initial blog postings of students in EDES 545, we found that it is important to

- help teachers and teacher-librarians work and play to be successful in a web 2.0 world.
- structure the course so that students are required to explore a variety of Web 2.0 tools.
- design the course so that there is early success. Blogging was a good place to start because the teachers and teacher-librarians could immediately see personal and professional opportunities and applications.
- have a strong understanding of Kuhlthau's Information Search Process so that you can support and validate students' emotions and concerns.
- honour the 'other' experts in students' lives (e.g. their own children, students in their own schools, friends, etc.) and encourage them to seek out other experts when they need support.
- acknowledge that no one can be a Web 2.0 expert because technology is changing so quickly.
- develop a learning community where students feel comfortable taking risks and being critical of the technology.
- have another instructor to work with on redesigning a course of this nature.

This paper presents the initial findings of a study that looked at students' experiences with and reactions to learning about Web 2.0 tools. Although this paper only reports on the initial stages of the study, early analysis of all the data indicates that the redesign of this course has been a great success. Positive feedback from students in their final blog postings and excellent course evaluations confirm this.

We hope that this paper will contribute to an ongoing discussion about developing quality graduate-level courses that engage and motivate students to want to learn more new technologies. We are hopeful that the findings from the rest of this study will also add to the body of research on professional development, integration of technology into schools, and teacher and teacher-librarian education. Based on the findings from this study we are making further changes to the course and will follow another group of students in the Fall of 2008.

Children and young adults have already discovered the power of Web 2.0 and are using the social nature of these tools to interact and collaborate with one another. The new version of EDES 545 was exciting and engaging for these graduate-level students for many of the same reasons. Their sense of success and achievement was surprising and exciting for both the students and the instructors. How exciting it was to see "digital immigrants" working so hard and enthusiastically to learn the language spoken by digital natives. As one of our students wrote, "I am looking forward to the day when I can say that I speak English, French, and Web 2.0."

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