

MA MAJOR RESEARCH PAPER

Learning through Weblogs: Students' Perspective and Learning Evidences

Claude S. Gagné

Dr. Deborah Fels, supervisor
Dr. Wendy Cukier, second reader

The Major Research Paper is submitted in partial fulfilment of the requirements for the degree of
Master of Arts

Joint Graduate Programme in Communication and Culture

Ryerson University – York University

Toronto, Ontario

September 21, 2007

Table of Contents

Abstract.....	3
Chapter 1: Introduction.....	4
Chapter 2: Literature Review.....	5
Chapter 3: Method.....	15
3.1 Design and Scientific Rational.....	15
3.2 Research Objectives and Questions.....	16
3.3 Subjects.....	17
3.4 Data Collection and Instrumentation.....	17
3.5 Data Analysis.....	21
3.6 Reliability of Thematic Categories.....	21
Chapter 4: Results.....	24
4.1 Thematic Analysis and Blog Entries.....	33
Chapter 5: Discussion.....	35
5.1 Participants` experience.....	35
5.2 Blogging for the Course.....	36
5.3 Blog Content.....	39
5.4 Learning from Blogging.....	42
5.5 Evidence of Learning.....	45
Chapter 6: Limitations of Study.....	50
Chapter 7: Conclusion.....	50
References.....	52
Appendix 1: Students' questionnaire.....	55
Appendix 2: Ryerson University Ethic Review.....	60

Abstract

The study reported in this paper examines students' perception of the use of weblogs as learning tools; it also explores evidence of learning within blog postings. Two Ryerson University courses in Information Technology Management that require students to use weblogs are taken as examples. Twenty-two students from these two courses participated in an online survey concerning their blogging experience. The participants had very good computer knowledge—most of them had previous experience using blogs. Most of them thought that building and maintaining a blog was an easy task. However, the research shows that students' perception concerning the use of blogs as educational tools was neutral—students also perceived the impact of using blogs on their ability to learn the course material as neutral. The study shows a lack of clear communication between instructors and students, which could have had a negative impact on students' learning experience. Furthermore, the study indicates that most students perceived the content they posted in a somewhat negative way. A content analysis performed on 22 blogs demonstrates that the objectives of each course played a significant impact on the evidences of learning apparent in students' blogs. Students in group B demonstrated more evidences of learning than students in group A. Overall, the study shows that the use of blogs as learning tool in university classrooms is promising. Providing students with clear goals, objectives and expectations could help them to build and maintain their blogs in a way that could be more beneficial to their learning experience.

Chapter 1: Introduction

Launched in 1999, weblogs (or blogs) are rapidly increasing in popularity. In April 2007, Technorati tracked over 70 million weblogs (Sifry, 2007). There is no doubt that blogs are becoming an important part of our society: they are now a component of our social, educational, political and professional discourse (Wooley & Whittenburg, 2007). Blogs generally provide commentary or news concerning specific subjects such as politics, wars, fashion or food; others are used as online learning tools or as personal online diaries. While many make use of images, audio and video, most are text-based (Wikipedia, 2007). Even though research on the effects of weblogs is still limited, the available studies demonstrate that blogs could change the ways in which teaching and learning are done (Ganley, 2004).

The study reported in this paper examines students' perception of the use of weblogs as learning tools; it also explores evidence of learning within blog postings. Two Ryerson University courses in Information Technology Management that require students to use weblogs are used in this study. Twenty-two students from these two courses participated in an online survey concerning their blogging experience. The results of this survey are presented here. In addition, a thematic content analysis focusing on learning evidences in students' weblog postings is discussed.

The purpose of this study was to determine whether there is evidence of learning that occurs through blogging in courses and whether students' perception of educational blogs influences that learning. In addition, I attempt to evaluate whether weblogs are worthwhile learning tools in university courses.

Some limitations of the study are the small sample size, the number of blogs studied, and the focus on only one university department. The opportunity to compare additional educational blogs from courses in diverse department and different universities may have provided different results. This study will be useful to university instructors who are using blogs in similar ways and for ones who are interested in implementing blogs in their curriculums.

The second chapter of this paper presents a literature review that focuses on educational blogs. The third chapter displays the method used, including: research objectives, subjects, data collection and instruments, data analysis, and reliability of thematic categories. The following chapter presents the results—it shows the Chi-square analysis, crosstab analysis, and the thematic analysis of blog entries. Chapter five puts forward a discussion that explores participants' experience, blogging for the course, blog content, learning from blogging, and evidence of learning. The following section briefly displays the limitations of this study. The concluding chapter suggests additional areas of exploration.

Chapter 2: Literature Review

Weblogs are a very recent web phenomenon that has fuelled the increased use of web technology for social networking and personal information technologies. There are several definitions of weblog available. One of the pioneers of weblog research, Blood (2002), writes that a blog is a hypertext product where people can post/publish their thoughts and receive feedback in the form of links or memos from others in a collaborative space. The example below demonstrates a typical blog post (see Figure 1). The archive appears on the left side of the screen, and the date and title appear on top of each new post. Additional options, such as time, add a comment, read

comments, send a message, trackbacks, blog it and news, appear after the post. In this example, the blogger inputs a quote from a news source, and he inputs a link to the article. He then writes a comment about the article and invites other bloggers to join the conversation. Another blogger comments on the posting. This example is taken from MSN Spaces; other blog software provides a similar look and comparable options.

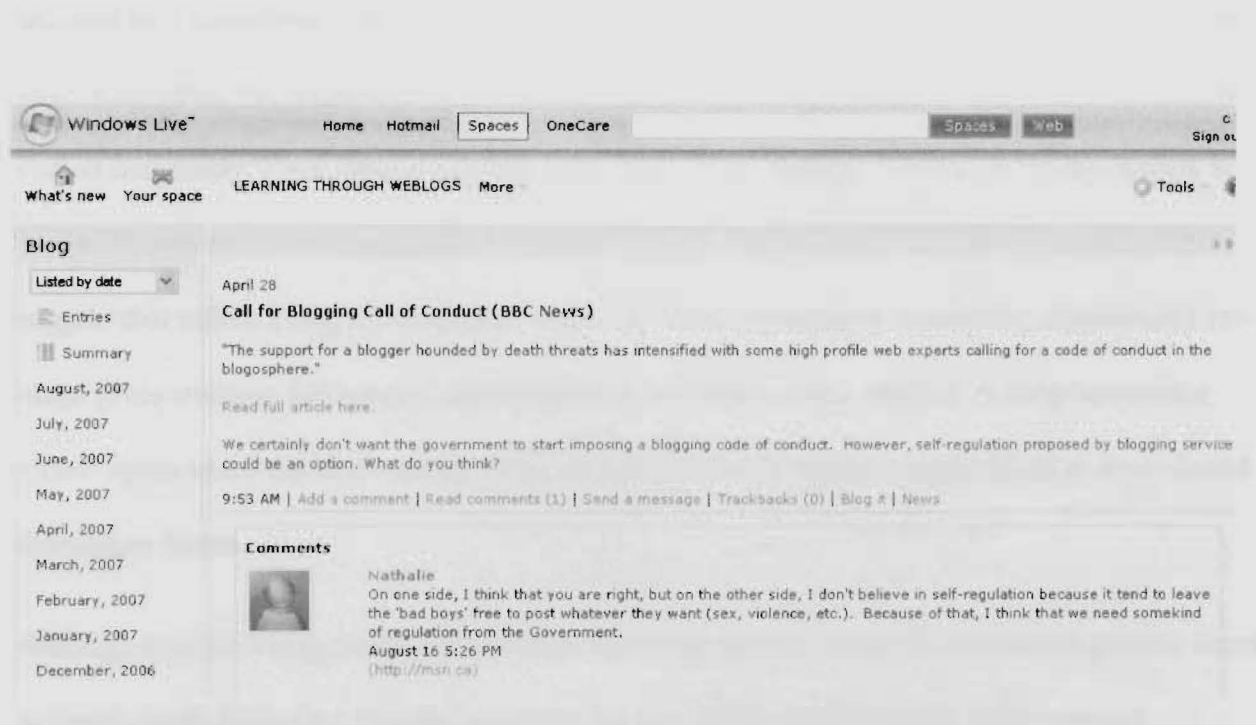


Figure 1: Blogging example (www.claudegagne.ca)

Other writers suggest that weblogs have evolved from simple, online personal diaries to a “disruptive technology” that has the potential to engage people in collaborative activity, knowledge sharing, reflection and debate (Brooks, Nichols, & Priebe, 2004; Hiler, 2002; Walker, 2005).

Blogs are often compared to discussion boards. While they have many aspects in common, they also have distinct differences. Blood (2002) explains that two of the main differences are the active use of hyperlinks and the frequency of content updates. Hyperlinks have a greater role in blogs because they are designed to reach outward into the Web, beyond the host's server, to bring different articles, news items, comments, pictures, videos and other items. Also, hyperlinks are used as a supporting tool for any claim or commentary that the blogger makes on his or her page. Regarding the frequency of content updates, Blood suggests that a blog is designed to be visited frequently. Thus, blog posts appear in reverse chronological order, allowing readers to easily identify the most recent posts made to the page. Furthermore, Ferdig & Trammell (2004) suggest that unlike a single discussion forum, to which all students contribute, individually run blogs gives students full control and ownership over their online content. A blog becomes a virtual space to try out new concepts that do not have to fit within a hierarchical or topic-based discussion forum.

Weblogs are also being compared to wikis. Wiki is a piece of server software that permits users to freely create and edit a website's content via any browser. Like blogs, wikis support hyperlinks and have a simple text syntax for creating new pages. However, Richardson (2004, 2006) suggests that one could argue that the online collaborative workspace in the form of "wiki" predated any developments in the blogosphere. Wikis have enjoyed varying degrees of success, partly due to variability in users' collective enthusiasm for creating content. Blogs have a level of participation not experienced by the earlier wiki initiative, and a greater sense of community and debate has developed as a consequence.

Because weblogs serve as a vehicle for individual reflection, Hall & Davison (2007) write that blogs can be regarded as the successor to the learning journal (or learning log). They write that learning logs give students a way to document, in a formal and methodical manner, their understanding and behaviour over a period of time. They can also capture information about a students' learning process. Thorpe (2004) suggests that, unlike weblogs, one of the advantages of learning logs is their private nature; they allow students self expression without fear of being scrutinized by others. However, Barclay (1996) writes that one of the disadvantages of learning journals is the sense of isolation reported by participants, which suggests that students working in groups or within an online collaborative community might have a more positive learning experience than students writing journals alone. While weblogs can be made private, they can also be made accessible to others, which may encourage peer learning and support (Hall & Davison, 2007).

Richardson (2006) explores different tools that have the potential to transform education. He presents six possible ways that teachers and students can use blogs in classrooms:

1. Class Portal

A weblog can be used as a class portal on which the course curriculum, syllabus, class rules, homework assignments, rubrics, handouts and presentations are published. The class portal is used as a course management tool that is much cheaper than most content management systems. Students can easily find information concerning the course. The class portal can be shared with peers teaching similar courses.

2. Online Filing Cabinet

"Online filing cabinet" refers to students' own weblogs. This type of blog is usually

connected to a main course weblog. In their own blog, students can post and archive their work and receive comments from other students and teachers. This has multiple advantages: students cannot misplace their work, and it keeps them organised and allows for greater opportunity for students' reflection, participation and collaboration. Having the ability to keep the same blog over a four-year undergraduate program allows students to revisit their work.

3. E-Portfolio

Students can use a blog as a way to collect their work and highlight what represents their best accomplishments. The blog portfolio can represent several courses over many years.

4. Collaborative Space

Weblogs have the potential to create collaborative spaces in which students and teachers can communicate, share ideas and build knowledge. The collaborative spaces can be publicly accessible if desired.

5. Knowledge Management and Articulation

The use of weblogs in schools does not necessary have to include students. Members of the teaching staff can communicate and use blogs to organise mutual meetings or projects. They can also use blogs to post documents and presentations. Blogs can be used as a way to manage and communicate knowledge.

6. School Website

Weblogs can be used as a building block for a school website. Such a site would easily allow regular site updates.

What Richardson presents are ways in which blogs, and other technologies, can be used in education. He suggests that they are effective collaborative learning tools that can also be used as individual reflective tools.

Other researchers have looked at how blogs are particularly useful for learning due to the potential inherent in their collaborative environment. Vygotsky (1978) explains that social interaction plays an important role in the development of cognition. His theory supports the collaborative constructivist model. According to this model, learning is achieved more effectively through interaction and cooperation with others than through individual work. Several studies have shown that collaborative learning results in better learning outcomes than individual-oriented learning (Du & Wagner, 2005; Ferdig & Tramell, 2004; Halavais, 2005) and blogs can be used as a collaborative learning tool.

Du & Wagner (2005) studied the impact of weblog use on individual learning in a university environment. Their research sought to determine whether keeping on-going (web-based) learning logs during a semester would result in a better overall student performance. Their results show that weblog performance is a significant predictor of learning outcomes. They write that weblogs, with collaborative features such as hyperlinks, web publishing and instant feedback, can be an effective medium for sustaining “conversation” among students. Students can easily post their thoughts, ideas, and opinions, and they can interact with other students right from the start of the exercise. The community aspect of weblogs can offer a more interesting learning

environment, as students learn from the ideas of others. Students have the opportunity to comment/respond and possibly write a log jointly as a group. Du & Wagner's research suggests that blogs create a medium for knowledge sharing and interaction as well as providing opportunities for diverse perspectives.

Ferdig & Tramell (2004) suggest that blogs comply with cognitive learning theory proposed by Vygotsky (1978) and are a useful medium for students to reflect and publish their thoughts and understanding. New ideas or knowledge unique to the individual student is created in the process of knowledge construction and meaning making.

Ferdig & Tramell then suggest that weblogs may facilitate active learning in the following ways:

1. Active knowledge construction. Maintaining weblogs requires students to build meaning and organize their thoughts in an active way. Students gain a better understanding through analysis and interpretation of information and knowledge. As an example, students could be asked to blog about their learning experience during specific projects related to the course material. They could be asked to analysis and interpret what they are learning in the classroom.

2. Incremental improvement. The active use of blogs promotes on-going learning as opposed to exam-focused learning. Weblogs allow students to build their own knowledge and understanding over time because they are required to make blog entries on a regular basis.

3. Self-directed learning. "Weblogging" exercises help students identify what they have learned and the areas in which they need to improve through self-reflection. Using blogs,

students can delve deeper into topics discussed in class and then talk to each other to share ideas and grow as learners during a time of day where they are normally working quietly and independently. Students can direct their own learning as the computer brings them in contact with information (and people) not available in print. As students communicate on the blog, they question and challenge each other's thinking—this could lead to deeper and more meaningful interaction than in traditional class settings.

Du & Wagner (2006) suggest that weblogs enhance the lasting effect of learning by increasing students' involvement in knowledge construction and sense-making, two of the main constructs of constructivist theories of learning. Individuals learn better when they are forced to discover concepts themselves rather than when they are told (Vygotsky, 1978). Accordingly, learning is best accomplished by engaging students in constructing knowledge through acquiring, generating, analyzing, manipulating, and structuring information (Du & Wagner, 2006). Having students actively create and maintain a weblog concerning aspects of their course objectives could allow students to create knowledge more freely than they would in a face-to-face environment. While using blogs, students generally have more time to think through problems and find solutions than they would in a traditional class setting. Also, weblogs support personalized learning processes and enhance learning by reinforcing collaboration and individual accountability.

Not only have researchers investigated the direct effect of blogs on learning, but they have also investigated the impact of blogs on other factors related to learning, such as motivation and interest in learning. Heafner (2004) investigated the use of technology in social studies as a means to motivate students by engaging them in the learning process. Taking the expectancy-

value model of motivation as a theoretical framework for studying secondary school students, she concludes that instructional tools, such as weblogs, can increase students' self-efficacy and improve students' self-worth. She finds that using new technologies that were user-friendly was an important motivational factor. Heafner suggests that students like being able to work with new technologies. Also, being able to use previously learned knowledge to build new knowledge makes students feel empowered.

Writing through weblogs provides a new way for students to develop their writing skills.

Looking at teachers' experiences using weblogs with students, Walker (2003) suggests that blogs give students a chance to experience writing in a public space, where their work can be seen by other students, thereby preparing students for a world in which communication is essential. In their study concerning weblog genres, Brooks, Nichols & Priebe (2004) suggest that, compared to traditional tools, technologies such as weblogs can motivate students to write more. While students are aware that others can read their blogs, they feel a degree of freedom that allows them to write more and experiment with different writing styles, which possibly develops their writing skills and confidence in learning (Priebe, 2004; Wang & Fang, 2006).

Furthermore, in a study surveying 45 students about their educational blogging experience and exploring the benefits of cooperative learning in weblogs, Wang & Fang (2006) found that students perceive weblogs as a tool to develop their social skills and teamwork efficiency. They also find that 93% of students are glad to use blogs as their new communication technology tool.

The available literature demonstrates additional advantages of using blogs that are not shown in this short paper. There are also limitations to weblogs that can be found in the literature.

In a general study exploring the potential of weblogs in higher education, Halavais (2005) suggests that the introduction of weblogs in a classroom could mean changes in the class infrastructure: instructors would likely need to allow time to train students, set up specific objectives and come up with an evaluation process. He suggests that asking students to maintain educational blogs without giving them specific objectives on how to use weblogs is likely to produce confusion and therefore cause the blogs to be seen as an unhelpful tool. He suggests implementing blogging in small steps.

The time it takes for instructors to learn how to use blogging software and train students appear to be obstacles teachers encounter when trying to integrate a class weblog or when trying to ensure that students maintain individual blogs (Halavais, 2005). When introducing new technology, such as weblogs, in the classroom, Weiler (2003) suggests that one solution is to put people in place to deal with that technology in order to allow teachers to focus on the content and the instruction. As an example, an assistant could deal with technical issues and help students create and maintain blogs. The assistant could also monitor students' blogs and interact online with students.

After students have been trained, Polling (2005) suggests that an instructor, or an assistant, help to build a sense of community within students' blogs. Ideally, a facilitator should check for new postings, give students responses to their inquiries and provide general feedback concerning whether or not students are meeting the course requirements. They should try to engage students in discussions that relate to the course objectives. The facilitator could also provide students with examples of educational blogs to emulate.

The literature concerning weblogs in education demonstrates that there are different types of blogs that can be used in a number of ways, depending on instructors' learning objectives. So far, the literature shows the benefits and the limitations of using blogs in a classroom. Most of the studies available present case studies of blogs as collaborative learning spaces. There is a lack of quantitative studies looking at students' perception of educational blogs. There also seems to be a lack of research concerning evidence of learning within reflective individual blogs. This study tried to explore these uncovered areas

Chapter 3: Method

3.1 Design and Scientific Rational

Weblogs employed in the classroom can be used in different ways. For example, they can be used as collaborative tools where students input their own content related to specific course material in a common weblog. They can also allow each individual student to reflect personally on course materials or other aspects of their life in a blog that can be read and responded to by the instructor and classmates but ultimately controlled by the individual student. The type of content that students input into their blogs may impact on how students perceive the value of educational blogs in their learning processes in the course. However, there are few studies that attempt to evaluate the perceived impact of blogs on the student learning process.

In order to gain some insight into students' perception of the usefulness of educational weblogs, a survey was conducted with students who were participating in two different university level courses, both of which used blogs for different purposes. Course A used blogs as a way of introducing the concept of blogging as an interactive web tool. Students in this course were asked to maintain a weblog with a minimum of one entry per week for the entire duration of the

course. Students were not given guidelines as to the quantity, quality or type of content, although a grade was assigned for the blog at the end of the course.

Students in course B were asked to maintain a weblog for one particular assignment. They were asked to maintain a daily weblog about their gaming experiences over a two week period of playing two different styles of games. Following the two-week period, students analyzed their own blog entries according to a specific model of pleasure and game play and submitted their analysis for grading. The researcher selected these two courses because they had different educational objectives and thus I could examine the concept of students' perceptions of blogs in two different settings. An online survey was designed to gather student perceptions of their blogging experience, and their opinion regarding its usefulness in learning for two different education objectives.

The content of the weblogs was examined for evidence of learning using Bloom's Taxonomy of Educational Objectives (Bloom, 1956). The results of the survey along with the analysis of the weblog content will provide some insight into the actual practices of student webloggers, and its contribution to their perceived and demonstrated learning processes.

3.2 Research Objectives and Questions

The purpose of this research was to explore the value/usefulness of weblogs as a learning tool in post-secondary education by examining student perceptions and following the development of actual blog entries. An initial study was carried out using an online survey with a total of 22 university students from two different courses (courses A and B) in Information Technology Management at Ryerson University. The researcher also conducted a content analysis of the actual 22 blogs maintained by students from these two courses. Using two research methods

allowed the researcher to have a variety of data sources—quantitative and qualitative—and generate more thorough comparisons.

The researcher had four research questions:

Main Questions: 1) How do university students perceive the use of educational weblogs in their courses? 2) What is the impact of using blogs on students learning experience?

Sub-questions: 1) What sorts of evidence of learning are demonstrated in students' blog entries? 2) How are educational blogs useful or non-useful tools for educators?

3.3 Subjects

Twenty-two students from the two courses participated in the online survey. In one class, 13 out of 18 students participated in an online survey and allowed their blogs to be included in the content analysis. In the second class, nine out of 19 agreed to participate in the online survey, while thirteen students from that group allowed their blogs to be included in the content analysis. Twelve out of 22 students were male (55%) and 11 were female. Ninety-one percent of students were in their third or fourth year of undergraduate studies in the School of Information Technology Management at Ryerson University. Nineteen out of 22 were between 18 and 24 years of age; and three out of 22 were between 25 and 31 years of age.

3.4 Data Collection and Instruments

Data regarding the students' use and perception of educational weblogs was collected through an online questionnaire consisting of 28 questions (see Appendix 1 for an example of the survey instrument). The first three questions collected demographic data on age, gender, and year of

study. The next set of five questions asked for students' computer expertise, their computer activities, how they used the web and their experience with blogging and blogging tools.

There were eight questions that related to the students' blogging experience in their class (called "blogging for the course"):

1. The first question was open-ended and asked why blogging was used in their course.
2. The next set of 7 questions asked technical questions such as the frequency of blogging entries and responses, and training. Concerning the question about the number of times per week that students spent entering content for their blogs, ratings ranged from "Never," which was scored a value of one, to "More than 10 times," which was assigned a value of four on a four-point scale. For the question regarding the number of hours per week that students spent on their blogs, ratings ranged from "Less than one hour," which was scored a value of one, to "More than six hours," which was assigned a value of five on a five-point Likert scale. In the questions about how often students received comments from their instructors or from their peers, rating ranged from "Very often," which was scored a value of one, to "Never," which was assigned a value of five on a five-point Likert scale. When asked about how the idea of blogging for the course was explained to them, ratings ranged from "The idea was not explained," which was scored a value of one, to "Very clear idea explained," which was assigned a value of five on a five-point Likert scale. When asked about the level of difficulty in completing their weblogs, ratings ranged from "Very difficult," which was scored a value of one, to "Very easy," which was assigned a value of five on a five-point Likert scale. Finally, when asked to rate

blogging tools, ratings ranged from “Extremely poor,” which was scored a value of one, to “Excellent,” which was assigned a value of five on a five-point Likert scale.

3. The next set of three questions focused on students’ learning experiences through their blogging tasks. Participants were asked to rate their learning experience as well as the impact of blogging on their learning process. These questions were rated on a five-point Likert scale ranging from “Very negative,” which was scored a value of one, to “Very positive,” which was assigned a value of five. An open-ended question asked participants to explain what they thought they had learned through blogging.

Six questions were used to collect data about blog content. Concerning the question about how students rated the content they entered in their blogs, ratings ranged from “Extremely poor,” which was scored a value of one, to “Excellent,” which was assigned a value of five on a five-point Likert scale. Participants were asked to give the percentage of written content on their blog that related to the course objectives and the percentage of written content that related to life outside the course. These questions were rated on a five-point Likert scale ranging from “100%,” which was scored a value of one, to “0%,” which was assigned a value of five. Students were then asked to whom their blog content was directed. They could select one or more items from a list that included: No one in particular, Classmates, The instructor, Your friends/family members and Yourself. The next question asked how concerned students were about how others could perceive their blogs posts; ratings ranged from “Very concerned,” which was scored a value of one, to “Not concerned at all,” which was assigned a value of five on a five-point Likert scale. The last question concerning blog content asked if students had restrictions (personal and/or

academic) on what they posted; ratings ranged from “To a great extent,” which was scored a value of one, to “Not at all,” which was assigned a value of five on a five-point Likert scale.

The last question asked students how often they would blog in a course if the process was not worth any marks. The frequency of blogging was rated on a scale ranging from “Never,” which was scored a value of one, to “Very frequently,” which was assigned a value of five on a five-point Likert scale.

Finally, students were asked to enter their course number and a confidential tracking number.

Student blogs for both courses were also collected and analysed for evidence of learning. The categories selected (see Table 1) were derived from Bloom’s Taxonomy of Educational Objectives (Bloom, 1956). This taxonomy is focused on three types of learning factors: cognitive, affective and psychomotor (Bloom, 1956). The focus of the blog content analysis in this study is on the six factors under Bloom’s cognitive category: knowledge, comprehension, application, analysis, synthesis and evaluation. The use of Bloom’s Taxonomy seemed appropriate as this is a common assessment technique used in determining whether learning has occurred. For example, while exploring evidence of learning in blogs, Wooley & Whittenburg (2006) used Bloom’s Taxonomy to construct their coding scheme. Two categories additional to Bloom’s—“unrelated to course – personal” and “unrelated to course – educational”—were used in my study to code comments that were not related to cognitive learning factors but still provided some insight into how blogs are being used in educational settings. For example, a student could have shown evidence of learning from a blog that details a trip during study week, but this information is unrelated to the course and was coded as “unrelated to course – personal.”

Ethics approval for the study, including permission to obtain and analyze individual student blogs, was provided through the Ryerson Ethics Board (see Appendix 2 for the approval documentation).

3.5 Data Analysis

The questionnaire data was analyzed using CHI-square (χ^2) and crosstab analysis to determine significant relationships and differences between students in the two courses and between specific questions related to learning. A thematic analysis consisting of eight learning categories was applied to student blogs to analyze the learning process.

3.6 Reliability of Thematic Categories

Two independent reviewers evaluated 12 randomly selected paragraphs from the two courses using the categories defined in Table 1. The results were analyzed using an ICC statistic to determine the reliability of the category definitions. The single measures ICC between the two raters for all categories is 0.640. The remaining coding was thus performed by only one individual.

Table 1. Learning Categories

Cognitive Skill	Description	Key Words / Concepts	Example
Knowledge	Exhibit memory of previously-learned materials by recalling facts, terms, basic concepts and answers.	Defines, describes, differentiates, enumerates, identifies, knows, lists, matches, names, outlines, recalls, recognizes, relates, reproduces, states.	<p>“In the lab we learned about X software”</p> <p>“The game is structured in 3 sections, the first section is for beginners, etc.”</p> <p>“[...] there were 3 windows indicating which directions players could take...”</p>
Comprehension	Demonstrative understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.	Comprehends, compares, distinguishes, estimates, explains, gives examples, identifies, interprets, organizes, recognizes, reviews, summarizes, translates.	<p>“The software will allow me to produce graphics easily for my web project because...”</p> <p>“This game reminds me of another game called X because...”</p> <p>“Because players have access to a new door, they are able to move ahead and escape the monster”</p>
Application	Using new knowledge. Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	Applies, changes, computes, constructs, demonstrates, discovers, employs, illustrates, manipulates, modifies, produces, relates, shows, solves, uses.	<p>“We learned QUASK today. I am now using it to build an online questionnaire.”</p> <p>“I discovered that players can select the red flowers to receive extra points...I am SO happy I discovered that feature...my score is going WAY up.”</p>

Analysis	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations (analysis of elements, relationships, and organization).	Analyzes, breaks down, classifies, compares, contrasts, differentiates, distinguishes, examines, identifies, illustrates, interprets, outlines, questions, relates, scrutinize, selects, separates.	“The game X has an easy landing page compared to game Y. Players receive info to help them in the different stages. But the info given is kinda useless and confusing. I think they want to make the game easy to understand but it’s not useful.”
Synthesis	Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	Categorizes, combines, compiles, creates, develops, devises, designs, explains, generates, imagines, incorporates, modifies, organizes, plans, produces, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.	“This game was build for single players to compete, but I think it should be for multi-players, this way, players could get help from each other, learn tricks and have more fun.”
Evaluation	Present and defend opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria.	Appraises, assesses, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, judges, justifies, rates, relates, recommends, summarizes, supports.	<p>“This game sucks, it would be better if...”</p> <p>“I really don’t like playing this game because...”</p> <p>“I thought I would like this game, but...”</p> <p>“The graphics are great, they make you feel like you are there with them”</p>

Comments	Description	Key Words / Concepts	Examples
Unrelated to course - personal	Personal information, comments, opinions, stories, relating to student's personal life (aspects not related to the course).	Writing about diet, diner, feeling, food, girlfriend, jobs, news, politics, resume, sleeping time, being sick, sports, technical issues, travel, weather, etc.	<ul style="list-style-type: none"> - Student refers to news, politics, sports; -Rants about any given subjects not related to courses; -Refers to weather; -Refers to friends, love ones; -Going out for diner/movie; -The time they go to sleep; -Posting videos, etc.
Technical	Comments or information relating to student's courses and university-related activities.	Assignment, complaining, course, exam, feeling, lab, proposal, schedule, semester, test, university, etc.	<ul style="list-style-type: none"> -Student refers to assignments (lab, presentation, proposal, exam, lecture, meeting, etc); - Refers to other courses; - Reflects on university life; - Reflects on their program - Shares feelings about course; - posting of videos, images.

Chapter 4: Results

Fifty percent of the students rated themselves as computer experts, and the other half rated themselves as being intermediate-level computer users. Internet search and working with databases were the top two most important computer activities performed by this cohort of students. Programming and gaming were the bottom two activities performed by the respondents. The top five uses of the Internet that students consider most important were: 1) reading/writing

emails (95%); 2) chatting (73%); 3) downloading music (59%); 4) searching for information (59%); and 5) sharing files (54%).

Eleven of 17 students (65%) who answered the open-ended question concerning their blogging experience stated having prior experience with personal and/or educational blogs. The top four blogging tools that students had experience with were 1) text-based (100%); 2) tools that allowed images (73%); 3) tools that allowed video (27%) and 4) tools that allowed audio (23%).

A χ^2 -square analysis between response categories for all survey questions showed some interesting and surprising results. There was a significant difference between response categories at the $p < 0.05$ level for most questions regarding “blogging for the course.” Table 2 shows the χ^2 -square results and the means and standard deviation (SD) for each attribute that showed significance.

Twenty of 22 students (91%) reported inputting content into their blogs 1 to 5 times a week as required by the course, and two of 22 students (9%) entered content 6 to 10 times a week. Fifteen of 22 (68%) spent less than one hour per week entering content into their blog; four of 22 (18%) spent between one and two hours per week entering content and three of 22 students (13%) spent between five and six hours entering content. Twenty-two of 22 (100%) reported never or rarely receiving comments from their instructors concerning their blogs, and 20 of 20 (100%) reported rarely or never receiving comments from their peers concerning aspects of their blogs. Twenty of 22 students (91%) rated the level of difficulty in completing the course requirement for their blog as easy or very easy on a five-point Likert scale ranging from “very difficult” to “very easy,” and two of 22 students (9%) rated the level of difficulty as neutral or difficult. Eighteen of 22 (82%)

rated the quality of blogging tools for supporting their blogging tasks as average or above average on a five-point Likert scale ranging from “extremely poor” to “excellent.”

Table 2: χ^2 , degrees of freedom (df), mean and standard deviation for “blogging for the course” related questions.

<i>Attributes</i>	χ^2	<i>df</i>	<i>Mean</i>	<i>SD</i>
Time they spent on blog weekly	51.4	3	2.0	0.2
Hours they spent on blog weekly	34.8	4	1.4	0.5
Comments from instructors	40.2	4	4.6	0.4
Comments from students	32.0	4	4.4	0.5
Level of difficulty	25.7	4	4.1	0.7
Quality of blogging tools	21.1	4	3.2	0.7

There was also a significant difference between response categories for the question in which students rated their learning experience through weblogs [$\chi^2 (4, 22) = 29.3, p < 0.05; m = 3.3$ and $SD = 0.7$]. Fourteen of 22 students (64%) rated their learning experience using blogs as neutral; seven of 22 (32%) rated their learning experience as somewhat positive or very positive and one of 22 (4%) rated his or her learning experience as somewhat negative on a five-point Likert scale ranging from “very negative” to “very positive.”

The question regarding the impact of blogging on the course material showed a significant difference [$\chi^2 (4, 22) = 22.0, p < 0.05; m = 3.0$ and $SD = 0.9$]. Thirteen of 22 students (59%) rated the impact of using blogs on learning the course material as neutral; four of 22 (18%) rated the impact as somewhat negative or very negative and five of 22 (23%) rated the impact as

somewhat positive of very positive on a 5-point Likert scale ranging from “very negative” to “very positive.”

There was a significant difference between response categories for the question in which students rated the quality of the content they input on their blogs [$\chi^2(4, 22) = 33.9, p < 0.05; m = 2.7$ and $SD = 0.7$]. Nineteen of 22 students (86%) rated the content they input on their blogs as average or below average; two of 22 (9%) rated the content they input as extremely poor and one of 22 (4%) rated the content entered as above average on a five-point Likert scale ranging from “extremely poor” to “excellent.”

A significant difference was found between response categories for the question in which students rated their level of concern about how others would perceive their blogs [$\chi^2(4, 22) = 14.8, p < 0.05; m = 3.9$ and $SD = 1.2$]. Sixteen of 22 participants (73%) responded that they were not concerned at all or not really concerned about how others would perceive their posts; one of 22 (4%) reported being neutral and five of 22 (23%) reported being very concerned about how others would perceive their posts on a five-point Likert scale ranging from “very concerned” to “not concerned at all.”

There was also a significant χ^2 result between response categories for the question asking students to rate the level of restrictions (personal and/or academic) they had on what they posted [$\chi^2(4, 22) = 21.1, p < 0.05; m = 3.2$ and $SD = 1.1$]. Thirteen of 22 students (59%) reported having very little or no personal and/or academic restrictions; nine of 22 (41%) reported having some restrictions or a great extent of restrictions on a five-point Likert scale ranging from “to a great extent” to “not at all.”

The last question in the questionnaire asked how often students would blog if the exercise for class was not worth any marks. The χ^2 results between response categories for that question showed a significant difference [$\chi^2 (4, 22) = 11.6, p < 0.05; m = 2.0$ and $SD = 1.1$]. Sixteen of 22 students (73%) reported that they would never or infrequently blog in a course if blogging was not worth any marks; four of 22 (18%) said that they would blog sometimes and two of 22 (9%) reported that they would either frequently or very frequently blog on a five-point Likert scale ranging from “To a great extent” to “Not at all.” No other significant differences were found between the actual frequencies of answers and the expected even distribution of them.

Crosstab analyses were carried out on all of the student data to examine correlations among the demographic variables, including course group, and the various blogging factors and student attitudes, as well as to examine correlations between the various blogging factors and student attitudes. In total, there were 13 correlations found; four of them are considered to be the most important to this study and are presented here.

There were three significant crosstab Pearson correlations between the course group (A or B) and factors in “blogging for the course.” To reiterate, students in course A were given little direction regarding the purpose of their blog; it was free form and for the entire duration of the course. In course B, students were required to blog for a specific purpose and for a short, two-week period of time; they then analysed those blog entries using a theoretical model. The three significant crosstab Pearson correlations were the following:

1. Students' course group and the number of hours they spent on their blogs [$\chi^2 (2, 22) = 5.7, p < 0.05$]. Eleven of 13 (86%) students in course A reported spending less than one

hour per week on their blogs, and five of nine (55%) students in course B reported spending between one and four hours per week on their blogs.

2. Students' course group and how often they received comments from their instructor [$\chi^2 (1, 22) = 3.9, p < 0.05$]. Eleven of 13 (84%) students in course A reported never receiving comments from their instructor, and five of nine (55%) students in course B reported rarely receiving comments from their instructor.

3. Students' course group and how the idea of using a blog in the course was explained to them [$\chi^2 (4, 22) = 9.3, p < 0.05$]. Eight of 13 (61%) students in course A reported that the idea of blogging was either not explained or vaguely explained to them, and six of nine (66%) students in course B responded that the idea of blogging was either somewhat clearly explained or very clearly explained to them.

There was a significant crosstab Pearson correlation found between how the idea of blogging was explained and how often students would blog if a course blog was not worth any marks [$\chi^2 (16, 22) = 26.3, p < 0.05$]. Nine of 22 (41%) students responded that when the idea of blogging was either not explained or vaguely explained, they would never or infrequently blog in the course if blogging was not worth any marks. Four of 22 students (18%) students responded that when the idea of blogging was either somewhat clearly explained or very clearly explained, they would infrequently or sometimes blog in the course if blogging was not worth any marks.

There was a significant crosstab Pearson correlation between how often students would blog if blogging was not worth any marks and the level of difficulty of maintaining a blog [$\chi^2 (12, 22) = 27.2, p < 0.05$]. Ten of 12 students (83%) who responded that the level of difficulty in completing the blog was easy also responded that they would never or infrequently blog if blogging was not

worth any marks. Six of eight (75%) students who perceived the level of difficulty in completing the blog as very easy also indicated that they would either infrequently or sometimes blog if blogging was not worth any marks.

There was a significant crosstab result indicating that students' gender could be a contributing element in the number of comments students receive from peers [$\chi^2 (1, 20) = 4.8$ $p < 0.05$]. Here, males seem to be more likely to receive comments from peers than females. Nine of 11 (82%) males reported rarely receiving comments from peers and six of nine (67%) females reported never receiving comments from peers.

Under the "learning from blogging" attributes, there was a significant crosstab Pearson correlation between the impact of using a blog on students' perception of their learning experience and the impact of blogging on how well they learned the course material [$\chi^2 (12, 22) = 23.5$ $p < 0.05$]. Nine of 14 (64%) students who rated their learning experience as neutral also rated the impact of blogs on learning the course material as neutral; Five out of five (100%) students who rated their learning experience as somewhat positive also rated the blogs' impact on learning the course material as either neutral (three out of five) or somewhat positive (two out of five). It is also important to note that surprisingly, 14 of 22 (64%) students rated their learning experience as neutral, and 13 of 22 (59%) students rated the impact of blogging on learning the course material as neutral (see Figure 2).

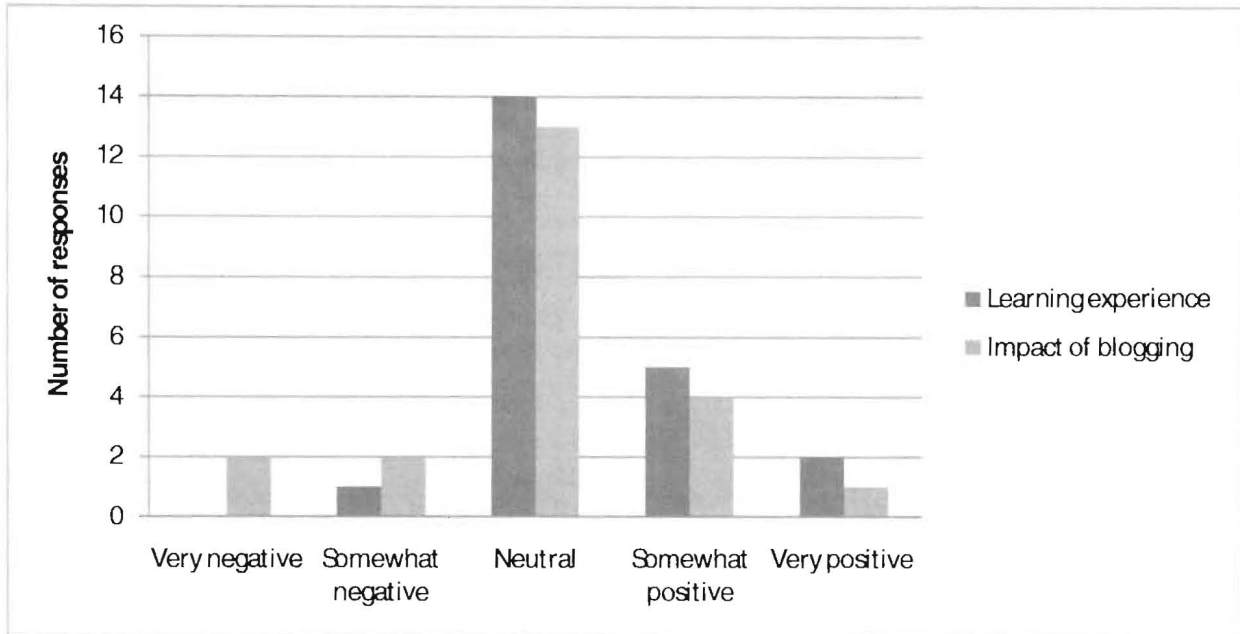


Figure 2. Students rating of their learning experience and the impact of blogging on learning the course material.

There was a significant correlation between students' computer expertise and the impact of blogs on learning the material [$\chi^2(4, 22) = 9.6, p < 0.05$]. Ten of 11 (91%) students who reported being intermediate computer users also responded that the impact of blogs on learning the course material was either neutral (eight out of 11) or somewhat negative (two out of 11). Nine of 11 (82%) students who reported being expert computer users also reported that the impact of blogging on their absorption of the course material was either neutral (five out of 11) or positive (four out of 11).

A significant Pearson correlation was found between how students rated the impact of blogging on the degree to which they learned the course material and how they rated the quality of content they entered [$\chi^2(12, 22) = 28.4, p < 0.05$]. Eleven of 15 (73%) students who rated the impact of blogs on how well they learned the course material as neutral (10 out of 15) or somewhat positive (one of 15) rated the quality of content they entered as average; five of five (100%)

students who rated the impact of blogs on how well they learned the course material as either somewhat positive or very positive rated the quality of the content they input as average or above average.

There was a significant correlation between how students rated their learning experience and whether they had personal and/or academic restrictions on what they posted [$\chi^2 (9, 22) = 25.9$ $p < 0.05$]. Thirteen of 14 (93%) students who rated their learning experience as neutral reported that they had some (seven out of 14) or very few (six out of 14) restrictions; six out of seven (86%) students who rated their learning experience as somewhat positive or very positive reported that they had very little or no restrictions at all.

There was a significant correlation between the quantity of students' content which related to the course objectives and the level of restriction placed on the type of blog content to be used in the course [$\chi^2 (9, 22) = 22.3$ $p < 0.05$]. Seven out of 12 (58%) students who responded that either 25% or 50% of the content they entered related to the course perceived that they had some restrictions; while eight out of 10 (80%) students who responded that either 75% or 100% of the content they posted related to the course objectives perceived that they had very little or no restrictions at all.

Finally, there were two significant crosstabs related to students' degree of concern about how others would perceive their posts. The first was a significant crosstab between students' degree of concern about how others would perceive their posts and gender [$\chi^2 (3, 22) = 9.8$ $p < 0.05$]. Ten out of 12 (83%) males reported that they had very little or no concern about how others would perceive their posts, and seven out of 10 (70%) females reported that they were somewhat concerned about how other would perceive their posts.

The second significant crosstab occurred between students' degree of concern about how others would perceive their posts and the year of study [$\chi^2(6, 22) = 14.5$ $p < 0.05$]. Nine out of 10 (90%) students in third year reported that they were not really concerned or were not concerned at all about how others would perceive their posts, and four out of 10 (40%) students in fourth year reported that they were somewhat concerned about how others would perceive their postings. The rest of the fourth-year students (60%) reported that they were not really concerned or were not concerned at all about how others would perceive their posts.

4.1 Thematic Analysis of Blog Entries

The content analysis was performed on 25 student blogs in the two courses studied although only 22 of those students chose to respond to the survey. In course A, 12 of 18 (66.6%) students granted permission to access and analyse their blogs, and in course B, 13 out of 19 (68.4%) students granted permission.

As explained in Section 3.1 of this thesis, the objectives of courses A and B were different. The blog entries collected clearly demonstrate these differences. In course A, there were a total of 116 posts with a total of 220 paragraphs contained in those posts. Course B also had a total of 116 postings, but with 249 paragraphs contained in those posts. The similarity of these numbers is interesting considering how different the two courses were in the duration of their blogging periods (course A required students to blog for 13 weeks while course B required students to blog for two weeks of a 13 week course). The word count in course A was 18 713; it was 25 014 in course B.

Table 5 and Figure 3 show, for each course, the number of blog entries which related to each thematic category.

Table 5. Number of blog entries related to each category for course A and B.

	Course A	Course B
Knowledge	20	90
Comprehension	26	106
Application	10	23
Analysis	5	20
Synthesis	1	7
Evaluation	44	167
Personal-related	95	30
Education related	147	113
Total	348	556

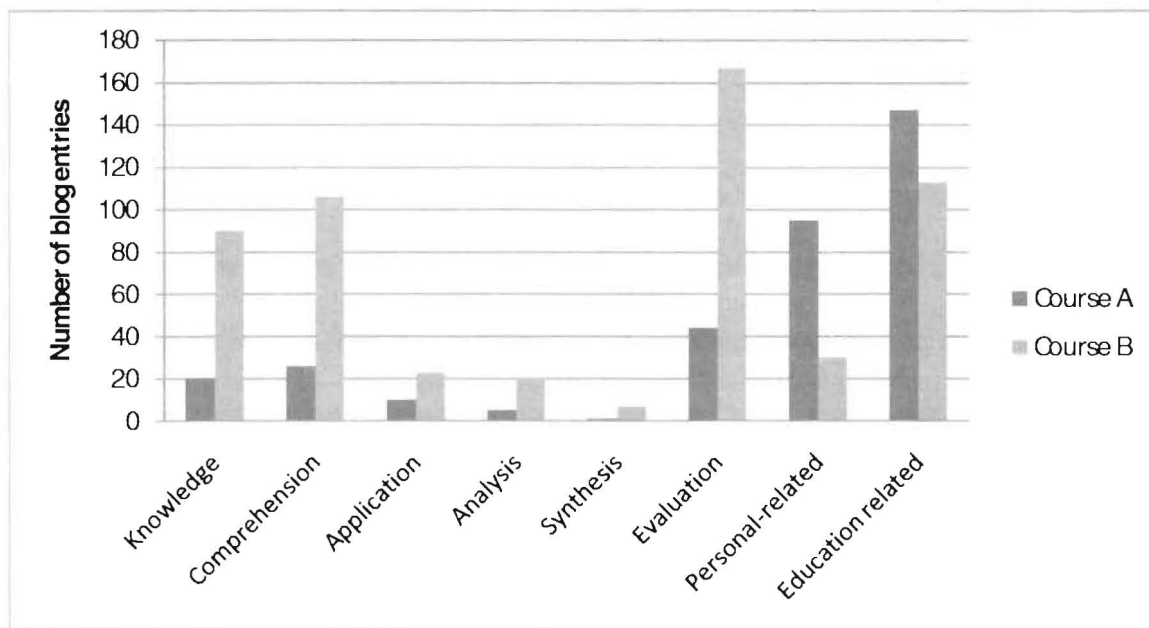


Figure 3. Comparison of number of blog entries in each thematic category for course A and B.

Chapter 5: Discussion

5.1 Participants' Experience

Participants in this study were students in Information Technology Management. As expected, the survey demonstrates that these students had very good computer knowledge: they considered themselves to be either expert or intermediate computer users. Students' computer activities showed evidence of their expertise and interest in online technologies. The online questionnaire indicated that most students had previous experience using blogs, either as bloggers or as blog readers. They thought the task of blogging was fairly straightforward, and they were able to perform it with ease. Twenty of 22 students (91%) reported that completing the blog for the course was easy or very easy. Overall, students rated blogging tools positively: 18 out of 22 students (82%) rated the tools as being average or above average. The fact that most students were familiar with blogging probably affected their learning experience, and their interest in technologies likely influenced their perception of blogging. While most students would not blog in a course if the task of blogging was not worth any marks—16 out of 22 students (73%) reported that they would never or infrequently blog if blogging was not worth any marks—the crosstab analysis showed that the easier the task of blogging is perceived to be, the more likely students would blog even without marks. Blogging software such as MSN Spaces and Blogger are becoming more user friendly; therefore, students in other fields may also be likely to perceive the task of building and maintaining a blog as easy and be willing to use blogs in courses without being marked for them.

5.2 Blogging for the Course

The open-ended question revealed that the main reasons for blogging in the courses fit into four different categories: 1) to log experience (academic and personal); 2) to express ideas, 3) for instructors to keep track of students, 4) for students to keep track of their class projects/activities. Only two students out of 22 (9%) did not know why blogging was used in their course. It would seem that the diversity of reasons provided was related to the amount of detail provided by instructors in the blogging instructions. Interestingly, 10 out of 22 students (45%) reported that the purpose of using a blog in the course was vaguely explained to them or not explained to them, while 23% did not recall whether the idea was explained. Seven out of 22 participants (32%) said that they were given a somewhat clear idea or very clear idea of the purpose of blogging.

As the crosstab analysis indicates, in group A, little explanation was provided as to the purpose of maintaining a blog; it was an intentional omission, as students were asked to explore the use of blogging as one type of interactive tool. However, in this course they were not asked to reflect on the advantages and disadvantages of blogging as an interactive tool within the blog itself; they were only provided with a grade for whether they participated in the blogging task. This potentially caused them to be confused as to the blog's purpose in the course and miss the learning opportunities as a result. In group B, there was a specific purpose to the blog, and students in this course were less confused about the blog's purpose in their course.

The crosstab analysis also shows that students (in both courses) who reported having received a somewhat clear or very clear explanation of why blogging was used were more likely to blog in

a course even if blogging would not be worth any marks. Explaining to students the purpose of maintaining blogs is clearly important: it can have an impact on students' own interest in using blogs in the future.

Considering the different educational objectives of both courses and the length of time students were supposed to maintain their blogs, it was not surprising to see that students in course B spent more time per week on their blogs than students in course A. The results also demonstrate that, as expected, most students (in both courses) entered content into their blogs one to five times a week. Due to students' busy schedules, it would have been surprising had many students blogged more than 5 times a week.

In most blog tools, bloggers can allow others to contribute comments to their blogs. Students were asked to ensure that this feature was turned on for their blogs so that classmates and instructors could make comments if desired. However, comments entered on students' blogs by instructors and peers were rare. Fifteen of 22 students (68%) never received comments from their instructor, and seven out of 22 (32%) rarely received comments. Similarly, 12 out of 20 (60%) rarely received comments from their peers, while eight of 20 (40%) never received comments from peers. Interestingly, the crosstab analysis shows that males seemed to be more likely than females to receive comments from peers. Students' networks of friends within the classrooms or different online communication habits of female and male students could be a factor influencing this result.

One student commented that he would have liked to have more feedback from the instructor: "I think blogging is about sharing personal experiences with others, but... without feedback it kind of discouraging people from posting." This expectation is surprising given that, on public blogs,

there is no expectation for comments from viewers. It appears that the students had different expectations regarding feedback on their course blogs, perhaps because they were being graded or perhaps because that is a common expectation and practice in educational settings. Future research could explore this interesting aspect.

The fact that students in group B reported received more instructor comments on their blogs than students from group A (rarely compared to never) was probably due to the different objectives for maintaining a blog in each course and the instructors' different teaching styles. The results show that students in both courses rarely or never received comments from their peers on their blogs; this was also expected since the weblogs were not meant to be a collaborative tool, but rather, were to be used more as online learning diaries. In addition, there was no external motivation such as providing a grade for making contributions to peer blogs. Finally, perhaps a set of students in one class does not produce a natural online social community, such as those found on common blog sites such as YouTube or MySpace, as the only common ground among individuals is the class itself. Students may then not be socially compelled to seek each other out or make contributions to others blogs. Instructors interested in creating a more collaborative online space could ask students to comment on each other's blogs but students may still need to be externally motivated to carry out this task. Future research is also required to determine how students can be motivated to participate in the development of each other's blogs and whether the concept of an online social network that can be constructed over one course is viable with and without external rewards.

5.3 Blog Content

As foreseen, students in group A posted more personal comments than students in group B. Surprisingly, however, group A showed more education-related comments than group B. In group A, 95 entries were personal and 147 were education-related. In group B, 30 entries were personal and 113 were related to education. This is probably due to the fact that students from group A could post comments without restrictions and were intrinsically compelled, or perhaps obliged, to write postings related to the course or their educational experience.

In group A, there are four common types of student blog content:

- 1- Student introduces himself and his blog;
- 2- Student writes about the course: presentations, tests, planning, commenting;
- 3- Student writes about university life in general: reading week, midterms, things to do, etc.;
- 4- Student makes personal comments about daily life or topics such as news, politics, sports, restaurants, or travel.

In group B, there are four different types of student blog content:

- 1- Student introduces the games he will play;
- 2- Student explains what the games are about;
- 3- Student comments on games—positively, negatively, process, etc;
- 4- Student posts personal comments.

The different categories in the two groups are linked to the specific objectives of each course.

A surprising result is how most students perceived the content they posted on their blogs: 19 out of 22 students (86%) rated the content they input as average or below average. As the blogging expectations for each group were minimal, one would have expected more students to have a positive perception of their content. As the example below demonstrates, many students (mostly from group B) posted content that is thoughtful:

[...]I also mentioned that part of the objective of the game, besides surviving 72 hours of game time, is to solve the various "cases" that are handed to you throughout the game. This adds a little bit of confusion to the game because it is an open environment game in many respects, but at the same time you are expected to take it upon yourself to solve the various cases. This is both a strength and downfall of this game in my opinion. It's cool because it give yours character a sense of responsibility, as well as mirroring how it would be in real life if you were in that situation. But at the same time, the lack of control from the computer means that you may find yourself wandering aimlessly from time to time, which I did.

Students' perceptions of their blog posts could probably be altered by giving them more specific objectives, as well as by giving them comments concerning their blogs. If students clearly knew that someone was reading their blogs and that someone cared about the posted content, then students would be more likely to be proud of the content they wrote.

Many students (mostly from group A) interpreted the no-rule policy as an opportunity to express themselves and maintain a highly personal blog, which often looked like a personal and private journal. Students wrote about sports, politics, restaurants, travel experience, technical issues, their state of mind, the weather, and many other topics. Not surprisingly, a large number of students (73%) were not concerned about how others perceived their blog content. Furthermore, most students (59%) reported having very little or no personal/academic restrictions on the content they posted. These results are highlighted by the following five examples:

I decided to play [the online game] for a sort hour before I went to go chill with my girlfriend, long story short... instead of showering, I played the Half-Life... she didn't notice.

It's week 3 of school. But my mind is still wandering in the holiday time. Looking at the pictures I took during Christmas, I saw lights, people moving, happiness and maybe sadness. Memory is memory. People can't live without memory. People can't live only within memory.

[...] group work in online courses is a stupid idea, for a few reasons. First, you don't know the people in your 'class'. You are basically just posting 'need a group!' in the forums and hope that someone replies - not very effective. You don't know how these people work, how well they work, or even what their personality is. This causes a problem. I recently had a problem like

that with a group member who, although her intentions were good, made me want to bash my head into a wall repeatedly. Without getting into details, I will just say that She basically took control of the group and misinterpreted the assignment.[...] Second, some people don't understand 'online', and insist on one (or several) in-person meetings. There is no need. There are so many online collaboration tools, such as Instant messages, web cams and e-mail, as well as the phone (conference calling is a beautiful thing). There is no need for the meeting and yet for some reason some people can't live without them [...] these unnecessary group meetings just get under my skin.

I am looking forward to Saturday and the first signs of the return of racing, with the 24 hours of Daytona on Speed, it's not quite NASCAR or F1 but it's better than nothing, so I will have that on the TV while I try to complete my assignments. Well that's all for now.

I hate CNN, they just fear monger. I did see a good piece on CBC NewsWorld about Mr. Dion and his ideas for the environment and global warming and how they could be good for the Canadian economy in the green-energy sector and his vision impresses me and I hope that we can give him the push the liberals need to win the next election...

Interestingly, the crosstab results indicated that the more likely students were to have posted content related to the course objectives, the less likely they were to have had restrictions. The fact that students had to keep their content within the course objectives was not perceived as a restriction. The result also suggests that the more students posted content related to subjects outside of the course, the more likely they were to have had restrictions. When participants were free to post the content they wanted, they apparently set their own restrictions. This suggests that instructors do not need to provide many restrictions, as students are likely to create their own restrictions in accordance with the blogs' objectives.

Crosstab results suggest that students with very little or no restrictions tended to have a more positive learning experience. Furthermore, crosstab analysis also demonstrates that participants who were more positive about the quality of the content were more likely to have a more positive view of the impact of blogs on learning. The web was designed to allow freedom of expression;

weblogs are part of that trend. Not worrying about how others would perceive their blogs and having fewer restrictions on what they posted online allowed students to express themselves freely and even perhaps allowed them to go further in the learning process than if they had more concerns and restrictions. The content analysis shows that students are generally good as setting up their own rules and restrictions; instructors' interventions do not seem necessary. However, instructors could work at creating a positive learning experience by setting up clear content objectives and providing feedback on students' blogs.

It is important to note that crosstab results suggest that females and students in fourth year tended to be more concerned about how others would perceive their blogs. The content analysis does not provide any further evidence to suggest why this is the case. However, it may be related to a general level of concern regarding personal safety and access to personal information expressed through a personal blogs with which women are concerned. In addition, the age factor may be related to the fact that fourth year students have one more year of work and life experience, particularly in the education system and may be more aware of the consequences of inappropriate words. Further studies could be performed exploring gender and age in relation to levels of student concern regarding the type of information that they include in a blog and who is reading it.

5.4 Learning from Blogging

Surprisingly, 14 of 22 students (64%) rated their learning experience as neutral and 13 of 22 (59%) rated the impact of blogging on their ability to learn the course material as neutral (see Figure 2, section 4.2). This suggests that using blogs in education does not create a strong impact

on either students' perceptions of their learning experience or on their perceived impact of blogging on their understanding of the course material. The fact that most students had previous experience with blogging could have influenced their perception of how well they learned. Also, the students in these two courses are used to working with the latest educational tools and technologies; thus, the "new" factor that blogs provide to students in other fields may not have been there to motivate them. In addition, students may not necessarily relate their learning experiences with one particular technology, resource or exercise regardless of the actual impact on them. Finally, their opinion about the course and the course material, in general, may be reflected in these results.

However, the open-ended question which asked students about their learning experience using blogs does shed some light on why some people did not experience much learning. It seems that if blogging is tied to a course objective or specific assignment that uses the information contained in the blog, students realise learning benefits. If blogging is used as the assignment itself (e.g., for a participation assignment that requires no analysis), then it is less useful in the learning process. In group A, seven of 13 respondents (54%) wrote that they had learned nothing from blogging. Based on the answers given by students, no one in that course seemed to have learned anything worthwhile from blogging. Many students wrote that blogging was just another assignment or that it was a tool that was used in the course much like e-mail is used as suggested by the following student examples:

I really do not think I've come out of the course learning anything due to blogging. I guess it is something our generation takes for granted? We use the internet every day to chat. All blogging is, is static one sided chat in which anyone can view it. It does not seem like much in the end.

Blogging didn't teach me anything about the course, it was just another part of the assignment that needed to be done. Had neither a +/- learning outcome.

Nevertheless, respondents in group B were more positive about the learning outcomes. Here are some quotations that reflect their point of view:

Blogging can be used to facilitate learning and communication amongst peers if used in the current context. I feel that there should be more encouragement in courses to use blogging for learning.

[Blogging] is a great way to log thoughts in real time and not have to forget things when writing a paper about it two weeks later.

[Blogging] it is a good tool for expressing thoughts that you might not otherwise express in class or to others.

I learned more about the thought process I go through when I play video games. I got a better understanding of what makes me like or dislike something compared to what I used to know about myself.

Crosstab analysis indicates that participants who had a more positive learning experience using blogs tended to be more positive when rating the impact of blogging on their learning of the course material. Crosstab results also show that students who had more computer knowledge seemed to be more likely to report that blogs had a positive impact on learning. While these two correlations seem somewhat obvious, they suggest that instructors must work at creating a positive learning experience. Further research is required to understand how and what that means in the context of using blogging because on one hand it seems that students need clear goals and a extrinsic motivators such as grades, assignments or tests specifically related to their blog. On the other hand, they respond positively to having fewer restrictions placed on the type, quantity, frequency of content they produce and content expectations.

5.5 Evidence of learning

Students in group B seem to have demonstrated more evidence of learning (categorized according the Bloom taxonomy of learning) than students in group A. Blog entries by students in group A displayed evidence of learning mostly in the categories of knowledge (20 comments out of 348 total or 6%), comprehension (7%), application (3%) and evaluation (13%). They showed low evidence of learning in analysis (1%) and synthesis (only 1 comment). Participants in group B demonstrated stronger evidence of learning in knowledge (90 comments out of 556 or 16%), comprehension (19%) and evaluation (30%). They showed some evidence in the categories of application (23 comments out of 556 or 4%), analysis (4%) and synthesis (1%) (See Table 5, section 4). The objectives of each course likely played an important role in this result.

Many students from group A took advantage of their opportunity to use blogs in order to write about activities related to the course: they often shared positive and negative comments about their educational experience. Some evidence of learning was demonstrated through cognitive skills such as knowledge, comprehension and evaluation. Other cognitive skills from Bloom's coding scheme were rarely observed. Here are three examples to illustrate:

I found the lab using Quask quite interesting. It is a form creation program that has a visual basic feel to it, but not as powerful. Though, creating a quick survey about what your user thinks is a neat way to get users to visit your site and adds some interactivity to it. Too bad that the forms have to be uploaded to a specific server. I could use these forms generated in this program for other website and work related purposes... oh well, we'll see what else course A has in store for me.

In Week 4 we were asked to create a McDonald's kiosk using paper and other miscellaneous writing tools. I think our group did a fairly good job creating a kiosk that was user-friendly. However, when creating something like this with pen and paper it seems foreign for users to intuitively interact with the kiosk like they would with real technology. For instance, if users were presented with a screen with say 5 buttons each labelled with a food item from the menu they would automatically know to click a button to continue. This simple step is less

obvious when interacting with a pen and paper interface.

In this lecture we learned that each person intuitively perceives information differently. Each diagram that was shown on the screen could have been interpreted in different ways depending on how the user cognitively interpreted the information on the screen. The best example was the stove and its dials. The depending on the positioning of the dials would denote which burner would turn on. However if it isn't properly labelled or positioned the user has no idea which burner would turn on. This was an interesting lecture and I am sure this is something that I have to keep in mind when designing my flash forms.

Students in group A wrote about their university experience. They shared positive and negative educational experiences. Some postings seemed to be longer versions of students' school agendas, and other postings provided a deeper and more philosophical view of education. While some postings showed elements from comprehension and evaluation, most posts in group A demonstrated the use of no or few cognitive skills from the coding scheme. To illustrate, here are four examples:

First off, I have two midterms this week. One on Tuesday and one on Wednesday. I have an assignment for one class due Saturday. After that I have a web site demonstration to do the next week and then the week after I have an essay due! I've barely started on anything!

Week 3 is already coming soon and I'm just barely getting into the groove of school. My pseudo new year's resolution is to keep up with the readings for all my classes so when midterms and final exams come up, I won't have to read 6 or 7 chapters in 2 days. We'll see how that goes.

I'm disappointed that the university cannot provide their multimedia students access to the multimedia labs for classes or at least laptop friendly classrooms. Considering this is the NEW business building, there should be no excuse for the lack of accessibility.

Classes so far aren't too abysmal. ITM courses are typical IT - hiding behind laptops. MHR courses are typical HR courses - dealing with people. The boredom that comes out of these business courses really makes me question the necessity of higher learning. Then, I go to my psychology of gender course and I am refreshed once more. You'd think that after that rant, I'd consider studying something more entertaining to me, like psychology or music. If I were to do that, I wouldn't fall under the majority of the population that goes to work and hates their job. Wouldn't want that, would we? I'd say the sarcasm roots from the bitterness I have towards

school. I keep telling myself, "After this semester, just one more year." Maybe by the end of the term, that line won't suffice anymore. We'll just have to wait and see.

Students from group B explained what the games they were playing were about. Some gave lengthy explanations; others were brief. They gave background information and wrote about game play. Evidence of learning in this category were mostly in the knowledge and comprehension categories. Here are two illustrative examples:

RF online, which basically stands for Rising Force Online is a MMORPG that talks about the conflict between 3 civilization on a distance planet call Nova. The game is very race vs. race based, meaning that there is a lot of player vs. player action throughout the game.

The objective of this level was to capture a road that was the critical in capturing a port city. Meanwhile there was a whole German fortress guarding the road. Also, this is the first level where we can use tanks!

Participants from group B commented on and evaluated different aspects of games, including appearances, graphics, colours, controls and how the games were played. Students' comments could be favourable or unfavourable. Evidence of learning was mostly found in knowledge, comprehension, application, analysis and evaluation. Here is one example that demonstrates these cognitive skills:

Today my main focus was to unlock some new features of the game, so I played all kinds of modes with a number of people. I have managed to unlock about 5 reward cards and they are awesome! I have unlocked a few new body kits, some new rims, spoilers and hoods. This is such a great feature guys, I mean it really gets you playing this game! I have stopped joining random races now, as I'm playing for points! So what I do is create my own server under the custom race mode, and select all my options from there, and wait for players to join my server. This is the best way to be in control of the actual game, otherwise you will have to make quick decisions about which car you have selected.

Students in group B often shared their frustrations. They were frustrated when they were unable to do what they wanted or when they faced too many challenges. As the following example demonstrates, students were frustrated when a game took too long to complete or when they were not improving. Here, evidence of learning was mostly found in the category of evaluation.

I hate this Game!!!! I haven't gotten any better!!!! I've read strategy guides, I've practiced and every time i get smoked!!! I never want to play this game again!!! Maybe I'm just in a bad mood. But I'm not enjoying this and I can't stop thinking about being in a bad mood while I'm playing this game!!!

While evaluating the games, many students from group B shared their feelings about the game and about their game playing. Some provided comparisons and gave advice on how to handle the game. As the four examples below demonstrate, evidence of learning was found in the category of evaluation and sometimes in analysis and synthesis:

As of RF online, it's not impressing me much. There is really no storyline in the game and the things you do are very repetitive. I haven't still tried the PvP functions of the game yet because I am still too low level for it. But then I don't find the motivation to do I am constantly killed by higher level opposition players.[...] Another flaw is that the tanks AI are pretty dumb, never quite do what you want them to.

Like many other MMORPG out there, the beginning of RF online focuses on gaining levels. . Killing creatures randomly and collecting loot from them when they die to hand in to the quest giver. Very typical but the graphics are not bad I got to say, better than World of Warcraft. Game play wise, there are not much spells and special moves so far so it gets boring after a while.

I tried a new type of race today, the "Speed trap" race. It's pretty cool as you not only have to place first in that map, but you must also be the fastest to pass through those speed traps in order to have the highest score. This race totally depends on nitrous, and it should be totally used with caution. You don't want to waste your nitrous while you are miles away from the speed trap, as its best to use it a couple of feet away, so that you pass through it with the highest speed possible.

I guess what they are doing is trying to make you feel you are in the war yourself, which I think it's pretty nicely done. However, its too intense. The sounds of constant bombardment of bomb shells and machine guns makes you want to throw up. So usually I have to take a rest every half an hour or so. This is when I switch to RF online

Many students in group B shared their challenges and told the reader how they found solutions.

The three examples below show that evidence of learning was more often found in the categories of comprehension, application and sometimes analysis:

I figured out some things today, for instance you can actually control, if you collision detection or not in the game, which I thought is pretty cool. The second thing I found out, is that I should build my cars into three levels. Every time, a new game starts, the car level changes leaving to chose any car I have at the same level. It might not be the best or fastest, and I have to setup my garage, with 3 levels of cars, each tuned up to its maximum potential, this way, whatever level of car is chosen for the race, I get to pick the strongest and fastest right away so that I am up and ready for the challenge

Today was pretty frustrating again. I'm still learning to play the game. I know the rules, but the strategy is unclear to me. It seems that I get murdered by those who have more experience than me. I don't know how they're so good. I'm starting to get a better handle on using the different blocks to either hurt my opponents or help me, but I find myself struggling to get lines instead of focusing on how to hurt my opponents. The times that I do win usually seems that my opponent has made a mistake instead of me doing something properly.

[...]I ended up spending most of the hour searching for how to get past this part, I did multiple subtask that around the island but this didn't lead to anything but more work it had absolutely no pay off. I figured that if I had done these it would have given me a bit of a indication about what I needed to complete the level, however I was wrong, at this point I got extremely frustrated and ended up turning of the game.

In summary, it is clear that students in group B demonstrated more evidence of learning than students in group A according to Bloom's categories of learning. Having a clearer purpose to maintaining a blog seems to have had an impact on students' learning outcomes. It was not surprising to see more evidence of learning in group B; however, such a clear difference between the two courses was unexpected. The results demonstrate that blogs are potentially useful educational tools in helping students in their process of learning.

Chapter 6: Limitations of study

The number of students who participated in the online questionnaire was relatively small—only 22 students. Future research with additional students and involving courses from different subjects taken from various universities would provide more robust results.

The number of blogs explored in the content analysis section was also relatively small: only 25 students gave the researcher the permission to look at their blogs. Exploring the content of more blogs in different situations would likely provide additional insights into learning evidence in weblogs.

The study was conducted during one semester only. It would be necessary to explore blogs in education during a longer period of time. Following a number of students' blogging experience during their whole university experience would provide access to how students integrate blogging into the normal routine of education and a better understanding of how blogging has an impact on different types of course and different purposes for blogs.

Lastly, instructors' comments and feedbacks concerning the use of blogs in their courses were not taken into consideration. Future studies could explore this important aspect.

Chapter 7: Conclusion

Taking as examples two courses in Information Technology Management at Ryerson University, this study explored students' perceptions of educational weblogs and evidence of student learning within blog posts. While these research findings could apply to a variety of blog uses,

such as business or secondary school teaching, the findings would probably be more useful for university instructors planning on making similar use of blogs within their courses.

The main study area looked at students' perception of educational blogs. The research shows that students' perception concerning the use of blogs as educational tools was neutral. The second main question explored the impact of using blogs on students' learning experience. The study demonstrates that students perceive the impact of using blogs on their ability to learn the course material as neutral. Having instructors more involved in the blogging process could possibly alter students' perception in a positive way.

The other area of study looked at the sorts of evidence of learning demonstrated in blogs' entries and at the usefulness of using blogs. The content analysis shows that the objectives of each course played a significant impact on the evidences of learning apparent in students' blogs. Students in group B demonstrated more evidences of learning than students in group A. The results suggest that blogs can be useful educational tools that can help students in their learning process.

In addition, the results of the study suggests that providing students with clearer goals, objectives and expectations could possibly help them to build and maintain their blogs in a way that could be beneficial to their learning experience. The research also suggests that implementing more collaborative aspects of individual blogs could be beneficial to students. Based on the online survey results, it seems that students would have appreciated receiving more comments from instructors and other students.

The use of blogs as learning tools in university classrooms appears to be promising, particularly when students are asked to maintain blogs for particular assignments. Additional research could be carried out looking at instructors' perception of educational weblogs in relation to students' perception. Other research on the different ways that male and female students learn through using blogs could also provide useful data.

References

- Barclay, J. (1996). Assessing the benefit of learning blogs. *Education and Training*, 38(2), 30-38.
- Blood, R. (2002). *The weblog handbook: Practical advice on creating and maintaining your blog*. Cambridge, MA: Perseus Publishing.
- Bloom, B. S. (1956). *Taxonomy of Educational Objectives: The Classification of Educational Goals*. New York: David McKay Company Inc.
- Brooks, K., Nichols, C., & Priebe, S. (2004). *Remediation, genre, and motivation: Key concepts for teaching with weblogs*. Retrieved July 17, 2007 from http://blog.lib.umn.edu/blogosphere/remediation_genre.html
- Du, S. H., & Wagner, C. (2005). *Learning with Weblogs: An empirical investigation*. Proceedings of the 38th Hawaii International Conference on System Science. Retrieved July 17, 2007, from <http://csdl2.computer.org/comp/proceedings/hicss/2005/2268/01/22680007b.pdf>
- Du, S. H., & Wagner, C. (2006). Weblog success: Exploring the role of technology. *International Journal of Human – Computer Studies*, 64(9).
- Ferdig, E., & Trammell D.K. (2004). Content delivery in the blogosphere. *The Journal*. Retrieved July 17, 2006, from <http://www.thejournal.com/articles/16626>
- Ganley, B. (2004). Blogging as a dynamic, transformative medium in an American liberal arts classroom. Retrieved July 17, 2007, from <http://mt.middlebury.edu/middblogs/ganley/bgblogging/Blogging%20as%20a%20Dynamic.doc>

- Halavais, C.A. (2005). Weblogs and collaborative web publishing as learning spaces. In J. Weiss, J. Nolan, J. Hunsinger, and P. Trifonas (Eds), *International Handbook of Virtual Learning Environment. Series: Springer International Handbooks of Education, 14*.
- Hall, H. & Davison, B. (2007). Social software as support in hybrid learning environments: The value of the blog as a tool for reflective learning and peer support. *Library and Information Science Research*, 9(2), 163-187.
- Heafner, T. (2004). Using technology to motivate students to learn social studies. *Contemporary Issues in Technology and Teacher Education*, 4(1).
<http://www.citejournal.org/vol4/iss1/socialstudies/article1.cfm>
- Hiler, J. (2002). Blogs as disruptive tech: How weblogs are flying under the radar of the content management giants. Retrieved July 17, 2007, from
<http://www.webcrimson.com/ourstories/blogsdisruptivetech.htm>
- Polling, C. (2005). Blog on: Building communication and collaboration among staff and students. *Learning & Leading with Technology*, 32(6).
- Richardson, W. (2004). Blogging and RSS — The "what's it?" and "how to" of powerful new web tools for educators. *MultiMedia & Internet @ Schools*. Retrieved July 17, 2007, from
<http://www.infotoday.com/MMSchools/jan04/richardson.shtml>
- Richardson, W. (2006). *Blogs, wikis, podcasts and other powerful web tools for classrooms*. California: Corwin Press.
- Sifry, D. (April 2007). The State of Technorati. Retrieved July 28, 2007, from
<http://www.sifry.com/alerts/archives/000492.html>
- Thorpe, K. (2004). Reflective learning journals: From concept to practice. *Reflective Practice*, 5(1), 327-343.
- Vygotsky, L.V. (1978). *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.
- Walker, J. (2005). Weblogs: Learning in Public. *On the Horizon*. Volume. 13, No.2. Retrieved July 17, 2007, from <http://jilltxt.net/txt/Weblogs-learninginpublic.pdf>
- Wang, J., & Fang, Y. (2006). *Benefits of cooperative learning in weblog networks*. Online submission on the ERIC database. Retrieved July 17, 2007, from
http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/1b/c4/82.pdf
- Weiler, G. (2003). Using weblogs in the classroom. *English Journal*, 92(5).

Wikipedia. (2007). Blog. Retrieved September 23, 2007, from
<http://en.wikipedia.org/wiki/Weblog>

Wooley, B. W. & Whittenburg, K. (2007). *Evidence of Learning in Blogs*. Unpublished report.
San Diego State University. Retrieved June 12, 2007, from
http://www.kathleeninmotion.com/Documents_for_project_table/Final%20Report%20Evidence%20of%20Learning%20in%20Blogs.doc

Appendix 1

Learning through Weblogs: Student Questionnaire

1. Age

- ☐ 18-24
- ☐ 25-31
- ☐ 32-38
- ☐ 39-45
- ☐ 45+

2. Gender

- ☐ Male
- ☐ Female

3. Year of study

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ Other (Please specify)

4. How would you rate your computer expertise where a computer expert is a person who programs computers and a novice user is someone who has just started using computer applications such as MS Word. Please select one.

Novice user		Intermediate user		Expert user
-------------	--	-------------------	--	-------------

5. Rank each of the following computer activities in terms of level of importance. (1 being the most important and 7 the least important). Use each number only once.

___ Databases (where you store/retrieve information)

___ Games

___ Multimedia (audio/video)

___ Office Productivity (MSWord, Excel, etc)

___Programming

___Internet search

___Other (please specify)_____

6. Put a checkmark beside the 5 uses of the web that are the most important to you.

- ☐ Buy / sell
- ☐ Chat
- ☐ Create content
- ☐ Download music
- ☐ Download videos
- ☐ Play games
- ☐ Read/write emails (hotmail, MS Outlook, etc,...)
- ☐ Share files (music, images, etc,...)
- ☐ Search for information
- ☐ Surf the Net
- ☐ Other (please specify)_____

7. In a few sentences, or in point form, describe the experience you have had with blogging prior to this course (the purpose(s), the outcome, etc). If you have had no experience, go to next page.

8. Put a checkmark beside the types of blogging tool(s) with which you have experience.

- ☐ Text
- ☐ Images
- ☐ Audio
- ☐ Video
- ☐ Other (please specify)_____

(blogging for the course)

9. Why is blogging used in your course? Outline how blogs are used (purpose, for how long, etc.). Please explain in a few sentences or point form.

10. On average, how many times a week have you input content into your course blog during the time when blogging in the course was required? (e.g., If it was for the whole course then consider your response over the full 13 weeks)

- ☐ Never
- ☐ 1-5 times a week
- ☐ 6-10 times a week
- ☐ more than 10 times a week

11. On average, how many hours a week have you spent on your course blog during the time when blogging in the course was required? (e.g., If it was for the whole course then consider your response over the full 13 weeks)

- ☐ Less than 1 hour
- ☐ 1-2 hours
- ☐ 3-4 hours
- ☐ 5-6 hours
- ☐ More than 6 hours

12. How often do you receive comments from your instructor concerning aspects of your blog (where "Very often" would be once per week and "Rarely" would be once per semester)?

Very often	Often	Occasionally	Rarely	Never
------------	-------	--------------	--------	-------

13. How often do you receive comments from other students concerning aspects of your blog, where "Very often" would be once per week and "Rarely" would be once per semester?

Very often	Often	Occasionally	Rarely	Never
------------	-------	--------------	--------	-------

14. How was the idea of using a blog for this course explained to you at the beginning of the semester?

The idea was not explained	The idea was vaguely explained	Don't remember	Somehow clear idea explained	Very clear idea explained
----------------------------	--------------------------------	----------------	------------------------------	---------------------------

15. Rate the level of difficulty in completing the course requirements for your weblog.

Very difficult	Difficult	Neutral	Easy	Very easy
----------------	-----------	---------	------	-----------

16. How would you rate the blogging tools (such as video, audio, images, interactive options, etc.) available through the blog service you have chosen?

Extremely poor	Below average	Average	Above average	Excellent
----------------	---------------	---------	---------------	-----------

(Learning from blogging)

17. Rate your learning experience using a blog in this course.

Very negative	Somewhat negative	Neutral	Somewhat positive	Very positive
---------------	-------------------	---------	-------------------	---------------

18. Rate the impact that your blog has had on how well you learned the course material.

Very negative	Somewhat negative	Neutral	Somewhat positive	Very positive
---------------	-------------------	---------	-------------------	---------------

19. What do you think you have learned through blogging for this course? (Please write sentences or use point form)

(Blog content)

20. Rate the content you input in the blog.

Extremely poor	Below average	Average	Above average	Excellent
----------------	---------------	---------	---------------	-----------

21. About how much of the content in your blog relates to the course objectives?

100%	75%	50%	25%	0%
------	-----	-----	-----	----

22. About how much content in your blog relates to aspects outside of the course?

100%	75%	50%	25%	0%
------	-----	-----	-----	----

23. To whom is your blog content directed? (Please select as many as necessary)

- ☐ No one in particular
- ☐ Classmates
- ☐ The instructor
- ☐ Your friends/family members
- ☐ Yourself
- ☐ Other (please specify) _____

24. Are you concerned about how others perceive your blog posts?

Very concerned	Somewhat concerned	Neutral	Somewhat not concerned	Not concerned at all
----------------	--------------------	---------	------------------------	----------------------

25. Do you have restrictions (personal and/or academic) on what you post?

To a great extent	Somewhat	Neutral	Very little	Not at all
-------------------	----------	---------	-------------	------------

26. If a course blog was not worth any marks, how often would you blog in a course?

Never	Infrequently	Sometimes	Frequently	Very frequently
-------	--------------	-----------	------------	-----------------

27. Please enter the number I gave you _____

28. Your course

- ☐ ITM 720
 - ☐ ITM 530
-