THE USES AND VALUE OF INTERNET DISCUSSION GROUPS IN A POST SECONDARY ENVIRONMENT

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The Uses and Value of Internet Discussion Groups in a Post Secondary Environment

by

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Abstract

This thesis considers computer-mediated communications through a case study of a select group of Usenet newsgroups at Carleton University during the Fall of 1999 and the Winter of 2000. At the time that the data were collected for this thesis, Carleton University was the only post-secondary institution in Canada that utilised an Internet discussion group to support all undergraduate and graduate courses offered by the institution.

Some of the specific areas considered included a content analysis of these Internet discussion groups, the nature of utilisation of these groups, the differences in student usage of these groups based on a variety of instructional approaches, and student impressions of their own usage and the usage of their instructors of these Internet discussion groups.

At the conclusion of this thesis, the researcher was able to determine that there was little student participation in terms of posting messages to the newsgroups at Carleton University. However, the completed student surveys indicated that over half of the students in the class would access the newsgroup on a regular basis. The students who did not access the newsgroups indicated that lack of knowledge about the newsgroup or lack of technical skills were the two main reasons for their lack of usage. Most students felt that the newsgroups were or could be useful tools in their educational experience, if they were used more by instructors and teaching assistants.

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Chapter 1 - Introduction

Introduction to the Problem[1]

There are three different elements that make up the Internet -- e-mail, discussion groups, and the World Wide Web. There is a growing body of literature dealing with education and e-mail (e.g., 62 studies by 1997[2]) and with education and the World Wide Web. There has also been much written about education and discussion groups, but a great deal of this research has been conducted in isolation and has not built upon existing studies. The purpose of this thesis is to address this specific element of the role of Internet discussion groups, and to utilise existing research to build the basis for comparison on how Internet discussion groups can be utilised to affect the field of education.[3]

The three elements of the Internet are very different in how they operate and what they have to offer to the field of education. In defining each of these three elements, it is not difficult to distinguish the differences between each element and even less difficult to see what it could have to offer the field of education. The first of these elements is e-

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[1] This thesis uses *The Chicago Manual of Style* fourteen edition, with the exception of Internet sources which aren't included in the fourteenth edition. For Internet sources, this thesis uses the Modern Language Association web site <http://www.mla.org/main_stl-nf.htm#sources> (15 July 1999).

[2] Liquig Tao, Thomas Montgomery, and Michael Pickle, "Content Analysis in E-mail Research: A Methodological Review," in *Inquiries in Literacy: Theory and Practice* (Chicago, IL: National Reading Conference Inc., 1997), 474.

[3] See "Definition of Terms" in Appendix A.

mail. E-mail, or electronic mail, works in a very similar fashion to regular mail. It is an electronic form of personal communication. People are assigned different addresses and someone "delivers" the mail in much the same way as Canada Post. However, e-mail is slightly different in that this complete process takes place electronically. Instead of having a physical street or rural mailing address, the person has an electronic mailbox which is stored on the hard disk of a computer. Instead of the Canada Post letter-carrier delivering the mail, a series of Internet servers are used to electronically transmit this mail around the world until it arrives at its destination.

The second element of the Internet is the World Wide Web. Unlike e-mail, the World Wide Web is not a method of personal communication at all. One way to look at the World Wide Web is that it is more like a library. It is a library with many different publications, on a variety of topics, with most information available for public viewing. The World Wide Web is like an electronic library which stores all of its material (e.g., books, magazines, periodicals, encyclopaedias, videos, audio tapes, etc.) on computers. One of the main differences between the World Wide Web and a traditional library is that the World Wide Web contains both professional and personal publications. This means that almost anyone with access to the World Wide Web can publish material to it. Another main difference between the World Wide Web and a traditional library is that the World Wide Web is not physically in one location. The World Wide Web is a series of millions of computers, all around the world, which are all networked[4] together to form an electronic library. On the World Wide Web there is no such thing as the book being

"checked out." On the World Wide Web there is no delay between the time that something is published and the time that your library receives a copy. Information is posted instantaneously on the World Wide Web, meaning that the material that is available, provided that it is reliable, is the most up-to-date information available.

The final element of the Internet is discussion groups. Internet discussion groups, which can come in a variety of types, are similar to a bulletin board of ideas. Imagine a bulletin board where individuals are able to place cards which contain their ideas or thoughts on a particular issue or topic. The bulletin board is available to the public, so others can read and respond to items that have already been placed on the bulletin board, they can generate new issues or topics which they would like to discuss or see discussed. An Internet discussion group is basically an electronic version of the bulletin board. These Internet discussion groups can come in two forms, the asynchronous Internet discussion group or the synchronous real-time communication.

Asynchronous Internet Discussion Groups

As previously stated, in this thesis the researcher considered the educational uses and value of Internet discussion groups. However, there are many different types of Internet discussion groups that might be studied. One specific type of Internet discussion groups is the "listserver." The listserver is a device which operates using an individual's

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[4] See "Definition of Terms" in Appendix A.

e-mail. Essentially, a listserver is a programme that will forward any message that it receives to all the individuals who have subscribed their e-mail address to that listserver. It is analogous to an office environment where there were different sections of an organisation within the same office. If one individual sends out a memo from "Section A", all the other individuals in "Section A" would receive that memo. However, no one in "Section B" would receive this memo. This is similar to the way a listserver operates. Individuals decided whether or not they want to be a part of "listserver A" or "listserver B" and will then only receive the e-mails generated from that listserver. Remembering the concept of a public bulletin board, imagine that the bulletin board is publicly available in a room, but you have to be a member (i.e. subscribe) to gain entry into that room. However, this idea is more akin to the idea of personal mail delivered by Canada Post and less like the bulletin board, which is why most would still consider this a part of e-mail and not a type of Internet discussion group.

Another type of Internet discussion group is the web forum. There are as many different types of web forums as there are different companies to produce web forum software. Some of the more commons ones which are used in Canada are AltaVista/SiteScape, TopClass, Web Course in a Box, or WebCT.[5] These web forums use the same idea as all other Internet discussion groups (i.e., the bulletin board concept), except the discussion is presented in an icon-based environment. These icon-driven discussion groups are available as a part of the World Wide Web. However, there is a

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[5] Yitna Firdyiwek, "Courseware Tools: Where is the pedagogy?" *Educational Technology* 39, no. 1 (1998): 34.

reason why web forums are considered a type of Internet discussion group and not simply a part of the World Wide Web. Mainly, this is due to the fact that almost all aspects of the World Wide Web are one-way technologies and web forums are two-way technologies. A one-way technology is something that is designed to only allow output, such as a book. A book, like a World Wide Web site, is meant to provide information on a specific topic. However, a two-way technology allows both input and output, such as the bulletin board. The main difference between them is that a two-way technology allows for personal interaction between two or more different individuals. If the topics being discussed on the bulletin board are not the topics that particular individuals want discussed, they have the ability to input their own ideas and place their own note on that bulletin board.

A third type of Internet discussion group is Usenet. The Usenet newsgroup was one of the early forms of discussion groups available on the Internet. In operation, they are very similar to the web forums, except for one fact. Usenet operates in a non-icon-based environment or a text-only environment. Given the "user friendly," "computers for dummies" environment that is prevalent in our society in general, it is easy to understand why Usenet has been labelled the technology of the 1980s. Like many text-only environments (e.g., MS DOS, Lynx, or Unix) certain people would much rather have pictures and icons perform the functions for them, instead of actually having to know the specific command and type it in manually. In today's society, Usenet newsgroups are in some respects representative of the technology of the 1980s, with icon-based environments, such as web forums, being representative of the technology of the 1990s.

Real-time Communication

If Usenet is the technology of the 1980s and web forums the technology of the 1990s, then direct real-time communication is the technology of the next millennium. Direct real-time communication comes in many forms, such as Multiuser Object Orientated (MOO), Multiple User Dungeon (MUD), Internet Relay Chat (IRC), and I Seek You (ICQ).[6] In its essence, direct real-time communication is the same thing as a conference telephone call. The older versions (e.g., MOO, MUD, and IRC) were based on the idea that everyone else had to call them, similar to the party telephone lines which were popular in the early and mid-1990s. The newer versions (e.g., ICQ) are examples like the telephone conference call, where individuals are assigned their own personal number and other individuals have to attempt to contact that number, hoping that the individual is available to answer.

This section provided an overview of the main types of Internet discussion groups. In this thesis, the researcher considered the educational uses and value of Internet discussion groups. Attempts were made to consider two types of Internet discussion groups: "web forums" and "Usenet newsgroups." However, the researcher was only able to obtain data from Usenet newsgroups. The Usenet newsgroups that were considered by the researcher included some which were used by instructors, monitored by instructors

[6] See "Definition of Terms" in Appendix A for these four terms.

and guided by instructors, and others, that were not being directly used by instructors, and were neither monitored or guided by instructors.

Statement of the Problem

Early experiences and perceptions of Internet discussion group usage by the researcher are discussed in the "Rationale of the Thesis" section. This reflection led him to form a series of basic questions that became the focus of this thesis. In its broadest scope, the focus of this thesis was the use of Internet discussion groups by students, teaching assistants and instructors at a post-secondary level. Specific questions resulting from this basic focus include the following areas:

1. How many students are using these Internet discussion groups? Are they being used by the majority of students in the class? Or are they being monopolised by a selected, small group of that class?
2. What are some of the characteristics of how individual students use these Internet discussion groups? How are students using these Internet discussion groups? Are they simply for academic purposes or are they used for non-academic purposes? Do these non-academic purposes assist in the learning process in some way?
   a) In an instructor-driven environment, do students simply interact with the instructor? Or do they also interact with each other? In a student-driven environment, are there still structured learning activities?
3. When do students use these Internet discussion groups? Is it during the day when they would normally attend class? Or is it outside of the traditional school day?
4. Does the use of Internet discussion groups affect a student's grade in the course? Do students who actively participate in an Internet discussion group perform higher than students who don't participate?
5. What do students think of these Internet discussion groups? Do they find them useful? Do they feel participation should be mandatory? How would they like to see instructor's use Internet discussion groups?
6. What are some of the ways in which Internet discussion groups are used for educational purposes? What are some 'best practice' models that instructors have developed?

Based on these questions, the researcher formed six different areas of Internet discussion groups for consideration in this thesis.

When considering the value of any tool designed to assist in the role of teaching, the first question must be how many students actually take advantage of and used this tool. If the number of students that used the tool is extremely low, regardless of how the tool is being used, one would have to question its value.

The second area of Internet discussion groups that was considered was a content analysis of what the newsgroups were actually being used for by instructors and students. Of the six areas being considered by the researcher, content analysis of Internet discussion groups had received more research than any other aspect of the study of Internet discussion groups. As a sub-test to this particular area, the researcher also considered if there was a difference between the content analysis of Internet discussion groups where the instructor was visibly present and those where the instructor was visibly absent.

The next area that was considered by the researcher was the time of day that students used these Internet discussion groups. Early research had indicated that Internet discussion groups allow for "round-the-clock dialogues"[7] and "that the electronic forum extended class discussion beyond the class period."[8] In fact, these indications had been held up as one of the primary benefits of Internet discussion groups. The researcher undertook a consideration of when students post messages to the Internet discussion groups that were monitored.

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[7] Robert J. Cavalier, "Course Processing and the Electronic AGORA: Redesigning the classroom," *EDUCOM Review* 27, no. 2 (1992): 34-35.

[8] Michael A.J. Collins, "The Use of E-mail and Electronic Bulletin Boards in College-Level Biology," *Journal of Computers in Mathematics and Science Teaching* 17, no. 1 (1998): 78.

The fourth area that the researcher considered was the issue of grades. As with any new teaching tool that is introduced into the classroom environment, one of the primary concerns is whether this will help students learn? This was the case with Internet discussion groups as well: can participation in an Internet discussion group be used to predict overall student performance a course? This consideration was based on research conducted by Barbour and Collins in their three year study of second year, non-major Biology courses at Memorial University of Newfoundland, which is discussed in greater detail in Chapter 2.

The next area that was considered in this thesis was student perceptions of Internet discussion groups. While student participation in the Internet discussion groups monitored by the researcher was not mandatory, the students undoubtedly had opinions on whether or not Internet discussion groups should be used as a part of their educational experience and exactly how these discussion groups should have been used. The final area that the researcher considered was examples of effective teaching. The researcher collected a list of different methods used by instructors that the researcher felt or that the students indicated were examples of effective teaching utilising Internet discussion groups.

Rationale of the Thesis[9]

According to Bull (1997), one of the authors of the "Internet Discussion Groups", there are two basic ways to use Usenet newsgroups in education:

> One is to view the articles as primary sources in a discussion of a topic, much like interviews or letters. In this model, the students would read the newsgroup much like a daily paper, perhaps without interacting at all. The other way is as a support mechanism for the class itself -- a local newsgroup is created for the class (assuming the school has a local Usenet server) -- and is available at all hours for extra class discussions, clarification of assignments, "office hours", etc..[10]

These methods of using the Internet discussion groups are not particularly creative, nor do they challenge students much beyond basic knowledge and lower-order reasoning. However, there are other methods which can be used, methods which serve to provide more challenge for students. For example, as a student at Carleton University the researcher witnessed one professor, who taught a course in Canadian constitutional politics, conduct an online First Ministers meeting. The professor created groups during class for each of the ten provinces, two territories, federal government and aboriginal groups. These groups formulated their positions offline, then posted them to the course's Usenet newsgroup. Once all the positions were available on the newsgroups, individual students and groups were encouraged to generate discussion and debate around their areas of common ground and their areas of difference. As the participation increased, there was

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[9] Michael K. Barbour, "Evaluating Online Discussion Forums: Usenet newsgroups and the classroom," *The Morning Watch* 26, no. 1-2 (1998): 8 pages. 02 February 1999 <http://www.ucs.mun.ca/educ/mwatch/nmwatch.htm>.

[10] Taken from an e-mail received by the researcher from Gina Bull on 27 July 1998.

posturing by groups, deal-making, individuals standing firm, everything that would have occurred had this activity been conducted during class-time. However, by moving the activity to a Usenet newsgroup the professor was able to extend the amount of time devoted to the activity and increase the number of students participating in the activity. Conducted offline, this activity might possibly have taken three to six classes. By conducting it online, the professor was able to use one class to explain the activity and get the ball rolling, and then allow weeks for the students to participate in this activity.

This approach is similar to one of the four components of the "Acadia Advantage." In the example used by the "Acadia Advantage," a piece of software called Microsoft (MS) NetMeeting is used by the Institute for Teaching and Technology to assist groups of students in constructing a model of learning. This project would see students orient themselves during class-time towards how they will approach the project and then use their laptops and the MS NetMeeting software to complete their construction of a model of learning.[11] Another component of the "Acadia Advantage" is the use of ACME electronic discussion groups to promote substantive discussion. This component worked much the same way as the above-mentioned scenario, where the professor posed questions for the students to respond to. The coding of the responses was based on a system created by Acadia University. Every two weeks, the responses contributed by the participating students were compiled by topic and e-mailed to each student.

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[11] Heather Hemming & Greg MacKinnon, "The Acadia Advantage: Using Computer Technology in Teacher Education" (a paper presented at the annual meeting of the Society for Information Technology in Teacher Education, Washington, DC., 1998), 7.

In addition to the perceived advantages of Internet discussion groups for enhancing learning, there are some inherent values that come from using these types of technologies. The first value, which was evident in the description of the online First Ministers meeting, is the contention that Internet discussion groups can allow for a dynamic, on-going discussion. In a classroom situation, an instructor might allow a discussion to be conducted in a particular lesson. However, if that instructor wanted that discussion to continue into the next lesson, the instructor would have to reinitiate the discussion, or else allow this line of inquiry to cease. However, as has been illustrated earlier, there is no time limit for an online discussion. Also, an online discussion which continues over a longer period of time allows students "think-time" before participating in the discussion. This technique of "think-time" is not always practical during an in-class discussion.

Another perceived value of Internet discussion groups is that they can create a sense of community. In many cases, especially at a post-secondary level, students do not have time to associate with one another outside of class-time and have even less opportunity during class-time. Even with the opportunity for interaction during class-time, students tend to gravitate towards others who share common characteristics as themselves. Internet discussion groups can give students who would not otherwise interact with one another a greater opportunity to "get to know" their colleagues, creating in effect a "cyberfamily." [12]

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[12] Harold Rheingold, Harold Rheingold's The Virtual Community Rheingold's Brainstorm's. 14 pages. 03 January 2002. <http://www.rheingold.com/vc/book/intro.html>.

A final perceived value that Internet discussion groups help to foster is the instructor's role as a facilitator. In most of the activities outlined above, once the instructor has begun the activity he/she can move aside and allow the students to interact with one another. It is through this interaction that students actively learn. In this model, the instructor acts as a facilitator to make sure that students are "heading in the right direction" and remain on-task or on-topic. In the activities that have been outlined, the pedagogy matches the technology that is being utilised. Not only is the instructor able to act as a facilitator, but he/she is able to provide a more substantial individual feedback, both in quality and quantity. During an in-class situation, it is not feasible for an instructor to wait for each and every student to make interjections into the discussion and to provide each student with individual feedback.

Many of these early perceptions were experienced first-hand by the researcher while he was an undergraduate student at Carleton University, a university which provides one of the most comprehensive uses of Internet discussion groups. These perceptions and the researcher's initial academic interests were further cultivated as a Bachelor of Education student. The personal experiences and brief literature review provided above, assisted the researcher in forming the basis for this thesis.

Significance of the Thesis

While the review of the literature, which will be discussed in greater detail in Chapter 2, revealed that many of the areas under consideration by the researcher have

received little attention, there are many reasons why research of this nature may be useful to those who are interested in using Internet discussion groups as a part of their teaching portfolio. According to Barbour (1998), there were seventeen of thirty-five Canadian universities that used some form of Internet discussion groups in some form or another to support courses offered at their institution.[13]

In Barbour's survey, it was discovered that many of these institutions only used Internet discussion groups in selective instances. There was only one university which used Internet discussion groups for every course offered by the institution and one other university which used them for all courses in some departments and some courses in other departments. As this survey occurred over three years ago, this usage may have increased, particularly with the growth of web-based discussion forums.

In the mid-1990s, it was stated in an article from the *Atlantic Monthly* that

> In 1922, Thomas Edison predicted that "the motion picture is destined to revolutionise our educational system and... in a few years it will supplant largely, if not entirely, the use of textbooks." Twenty-three years later, in 1945, William Levenson, the director of the Cleveland public schools' radio station, claimed that "the time may come when a portable radio receiver will be as common in the classroom as is the blackboard." Forty years after that the noted psychologist B.F. Skinner, referring to the first days of his "teaching machines," in the late 1950s and early 1960s, wrote, "I was soon saying that, with the help of teaching machines and programmed instruction, students could learn twice as much in the same time and with the same effort as in a standard classroom."[14]

While the motion picture, radio or teaching machine have not revolutionised the classroom as was originally anticipated, it appears that the Internet may very well accomplish this task. However, this revolution will not be achieved by increasing access to computers and the Internet alone, nor will computers ever replace teachers or teaching.

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[13] Supra. note 9.

[14] Todd Oppenheimer. "The Computer Delusion," *The Atlantic Monthly* 280, no. 1 (1997): 45.

This revolution has begun with the teachers who have started to use computers and the Internet as tools to assist in their teaching.[15]

While teachers at all levels of instruction have begun to use various aspects of the Internet, it appears that Internet discussion groups have been one of the last to be embraced. Instructors first began using e-mail to increase their level of accessibility to their students. It has since been used for numerous things; from creating relationships with experts in the field to simple communication between students without having to physically come together. Another aspect of the Internet that instructors can use on a fairly wide basis is the World Wide Web. Instructors can use the World Wide Web for everything from creating course sites to having course readings online to expecting students to use the World Wide Web for research.

While e-mail and the World Wide Web have found a number of educational uses and there is much literature reporting on these uses, there has been less use of and less written about Internet discussion groups compared to the research conducted on the educational uses of e-mail and the World Wide Web. There has been literature which has discussed content analysis of computer-mediated communications (e.g., both e-mail and Internet discussion groups), but little exclusively on Internet discussion groups. This thesis will add a comprehensive piece of research into the nature of Internet discussion groups.

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[15] Supra. note 9.

Limitations of the Thesis

There are a number of limiting factors that have affected the research conducted for this thesis. The greatest of these dealt with the process of obtaining permission to collect data sets. As will be discussed in greater detail in Chapter 3, the researcher approached faculty members at three different institutions in order to obtain permission to monitor their Internet discussion groups. The researcher was not able to obtain permission from any faculty members at one institution. At a second institution, two faculty members granted the researcher permission to approach the students in their courses, however, the researcher was not able to get 100% student participation in any of these courses.

This inability to obtain a 100% permission rate from students prevented the researcher from considering the fourth area (i.e., participation rate as an indicator of grades) outlined in the "Statement of the Problem" section of this chapter. In the researcher's proposal, as it was accepted by the Faculty of Education, the researcher stated that any consideration of the students' participation rate as an indicator of final grades would come from only two of the three institutions. The two institutions from which the researcher was unable to obtain permission to collect data sets were the same two institutions that would have been used by the researcher to consider in the fourth area.

While the researcher was able to obtain permission to monitor Internet discussion groups at the third institution, the nature of that permission and the method of monitoring also presented some limiting factors. The first of these factors related to the with an

initial message that the researcher was required to post to each Internet discussion group that was monitored, announcing the researcher's presence. The fact that the discussion group was being monitored was a limiting factor. The researcher made a decision prior to the beginning of his thesis that any messages posted to the Internet discussion groups as a follow-up to his initial message would not be included in the data sets that were being collected. This fact was stated in the initial message posted by the researcher.

However, there were a few individuals who did post follow-up messages to the researcher's initial post and others who replied directly, via e-mail, to the researcher.[16] The researcher replied, privately, to both those who posted follow-up messages and those who e-mailed him directly. Many of these messages provided suggestions to the researcher in order to collect a better data set or simply to discuss the nature of his research. However, there were a few negative reactions that were expressed in these correspondences. It is these negative reactions that provided a number of limiting factors.

As can be seen in the in the sixth message, the fact that the Internet discussion groups were being monitored may have been a contributing factor in students' decision whether or not to participate in the Internet discussion group. The researcher's initial "announcement" created an unnatural environment that would not have existed had the researcher be able to use a process of 'silent monitoring', which is discussed in further detail in Chapter 3. This concern was also raised by one instructor, in the seventh message, who stated that the lack of student participation was due to the fact that "students [did] not want to be under surveillance."

This instructor also expressed concern over the way in which the researcher obtained permission to monitor their Internet discussion forum. As will be outlined in Chapter 3, the researcher contacted the heads of various departments in order to obtain permission to monitor Internet discussion groups. This process also presented a number of limitations to the researcher. The first, as indicated by the seventh message, were instructors who were not willing participants of the researcher's thesis and were therefore uncooperative. The uncooperative nature of this instructor, and others, again prevented the researcher from gaining a true picture of how the Internet discussion group would have been used, as some changed their planned uses of the discussion group.

This method of obtaining permission from department heads presented other limiting factors. The fifth area that the researcher outlined was that of student perceptions of Internet discussion groups. As permission was obtained from department heads for the vast majority of discussion groups monitored, the researcher was not in a position to request that individual instructors administer a questionnaire in their classes.

As they are discussed above, the vast majority of the limiting factors relate the fact that the researcher was not able to monitor the Internet discussion groups in a natural setting. The other category under which the remaining limiting factors fall is that co-operation between the researcher and individual course instructors.

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[16] See Appendix B to view copies of the correspondence received.

Chapter 2 - Literature Review

Introduction

The use of computers in the education system is becoming more and more common, regardless of educational level. Some primary school teachers use computers to assist students with their spelling, reading and writing, while some secondary school teachers use computers to assist students in research. The proliferation of computers into the education system is a characteristic of the third millennium.

In 1996, the President of the United States, Bill Clinton, campaigned for "a bridge to be built to the twenty-first century... where computers are as much a part of the classroom as blackboards." However, the question has to be asked "Is this a good thing?" According to Oppenheimer (1997),

> New Jersey cut state aid to a number of school districts this past year and then spent $10 million on classroom computers. In Union City, California, a single school district is spending $27 million to buy new gear for a mere eleven schools. The Kittridge Elementary School, in Los Angeles, killed its music program last year to hire a technology co-ordinator; in Mansfield, Massachusetts, administrators dropped proposed teaching positions in art, music, and physical education, and then spent $333,000 on computers, in one Virginia school the art room was turned into a computer laboratory.[17]

It would appear obvious to the individuals in each of these organisations that it is a good thing, given the actions and investments into technology that are outlined.

However, according to Cuban (1993),

> Today, computers and telecommunications are a fact of life as basic as electricity. They have altered the daily work of large businesses and industry. Yet why is it that with all the talk of

[17] Supra. note 14, 46.

> school reform and information technologies over the last decade, computers are used far less on a daily basis in classrooms than in other organisations?.[18]

While educational authorities may be spending an excessive amount of resources on bringing computers to the classroom, it appears that the classroom has yet to openly adopt the computer beyond basic uses.

Over this past decade, however, the education system has been changing to adapt to the introduction of this technology. These changes have in many cases been driven by the students themselves. In the words of one teacher "Every single child will do more work for you and do better work with a computer. Just because it's on a monitor, kids pay more attention. There's this magic to the screen."[19] It is this student-driven nature that is discussed in the data collected for this thesis, as the vast majority of the Internet discussion groups that were monitored were also student-driven.

However, there is an underlying theme presented in all aspects of technology integration into the classroom or computer assisted instruction: the lack of research.

> Edward Miller, a former editor of the *Harvard Education Letter*, say. "Most knowledgeable people agree that most of the research isn't valid. It's so flawed it shouldn't even be called research. Essentially, it's just worthless." Once the faulty studies are weeded out, Miller says, the ones that remain "are inconclusive" -- that is, they show no significant change in either direction. Even Esther Dyson admits that studies are undependable. "I don't think those studies amount to much either way," she says. "In this area there is little proof."[20]

This is similar to the problem that is presented with the study of Internet discussion groups. According to Gresham (1994), "little research and reporting has appeared on the uses of computer mediated discussion groups or conferences in the academic

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[18] Larry Cuban, "Computers Meet Classroom: Classroom Wins," *Teachers College Record* 95, no. 2 (1993): 46.
[19] Supra. note 14, 50.
[20] Supra. note 14, 47.

community."[21] While there has been more research conducted in this area since 1994, much of this research has tended to focus on the advantages or disadvantages of using various forms of computer discussion or on content analysis of individual computer discussion groups.

Computer Mediated Communication

There are many different ways to discuss the use of technology in education. In some cases, the term "technology integration" is enough to describe this process. However, there are many other terms which have been used to describe the same phenomenon; computer-assisted instruction, computer-based learning and computer-mediated communication to name a few. The fact that there are numerous ways to classify the use of technology in education causes difficulty in trying to conduct a review of the literature, simply because there is no specific field to investigate. However, when it comes to communications through a computer, the term computer-mediated communication is the term that is often used.

According to December (1997), computer-mediated communication (CMC) "is a process of human communication via computers, involving people situated in particular

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[21] John L. Gresham, Jr., "From Invisible College to Cyberspace College: Computer Conferencing and the Transformation of Informal Scholarly Communication Networks," *Interpersonal Computing and Technology* 2, no. 4 (1994): 14 pages. 19 April 1999 <http://www.helsinki.fi/science/optek/1994/n4/gresham.txt>.

contexts, engaging in processes to shape media for a variety of purposes."[22] Ferris (1997) provides a more comprehensive definition when he states

> the term computer-mediated communication refers to both task-related and interpersonal communication conducted by computer. This includes communication both to and through a personal or a mainframe computer, and is generally understood to include asynchronous communication via email or through the use of an electronic bulletin board; synchronous communication such as 'chatting' or through the use of group software; and information manipulation, retrieval and storage through computers and electronic databases.[23]

These two definitions allow for both the asynchronous methods of discussion (i.e., e-mail, Internet discussion groups, etc.) and the synchronous methods of discussion (i.e. MOOs, MUDs, IRC, ICQ, etc.).

However, according to Berge and Collins (1995), CMC includes three things

> conferencing, informatics and computer-assisted instruction (CAI). Computer conferencing provides e-mail, interactive messaging, and small and large group discussion. Informatics (repositories or maintainers of organised information) include library online public access catalogues, interactive access to remote databases, program/data archives sites (e.g., archives of files for pictures, sound, text, movies), campus-wide information systems, wide-area information systems, and information managers, such as Gopher and Veronica. In CAI, the computer is used to structure and manage both the presentation of information and the possible responses available to the human user.[24]

While the first two definitions excluded computer-assisted instruction as a part of CMC, the Berge and Collins model of CMC includes computer-assisted instruction. This broadens the field of CMC to include World Wide Web sites, online books, even educational software.

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[22] John December, "Notes on Defining of Computer-Mediated Communication," *CMC Magazine* (1997): 2 pages. 23 April 1999 <http://www.december.com/cmc/mag/1997/jan/december.html>.

[23] Pixy Ferris, "What is CMC? An Overview of Scholarly Definitions," *CMC Magazine* (1997): 2 pages. 23 April 1999. <http://www.december.com/cmc/mag/1997/jan/ferris.html>.

[24] Zane Berge and Mauri Collins, "Computer Mediated Communication and the Online Classroom: Overview and Perspective," *CMC Magazine* (1995): 7 pages. 23 April 1999 <http://www.december.com/cmc/mag/1995/feb/berge.html>. First published in "Overview and Perspective," in *Computer Mediated Communication and the Online Classroom* (Cresskill: Hampton Press, 1995).

This broadening of the term CMC creates even greater difficulty in conducting a review of the literature. CMC literature that is written about two-way technologies, such as e-mail and Internet discussion forums, are useful. However, CMC literature written about one-way technologies, such as World Wide Web sites, online books and educational software, are outside of the bounds of this thesis. It is for this reason that the researcher will exclude much of the literature that has been conducted on CMC in general and focus on the literature that deals specifically with communication using the computer.

Many of the advantages of CMC are also the same advantages that will appear later in the discussions of e-mail or various types of Internet discussion groups. Graham and Scarborough (1999) argue that CMC allows "users to participate at a time and at a pace convenient to them and appropriate to the application. Participants can respond immediately or they may elect to respond after taking time to reflect and compose a response thoughtfully."[25] This concept of "think time" was introduced in Chapter 1 and will also be discussed later in this chapter.

One consideration which isn't discussed in much of the literature is the disadvantages to CMC. Ebbelink (1999) presented some of the disadvantages of various types of CMC. Some of the disadvantages specific to e-mail, computer conferencing and newsgroups include the fact "that this asynchronous communication has no pressure to respond," "it can be difficult to reach consensus... because [of] lack of body language,

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[25] Mary Graham and Helen Scarborough, "Computer Mediated Communication and Collaborative Learning in an Undergraduate Distance Education Environment," *Australian Journal of Educational Technology* 15, no.1 (1999): 21 pages. 02 August 1999 <http://cleo.murdoch.edu.au/ajet/ajet15/graham.html>.

voice inflections and facial expressions," "it can lead to chaos and an overwhelming number of messages, it's time-consuming, only a small number of students dominate the interaction... and because of the costs it is not available to everyone."[26]

One of the topics introduced in Chapter 1 related to different teaching strategies using Internet discussion groups. The strategies provided in Chapter 1 were anecdotal references that were observed by the researcher as an undergraduate student. In her article, McComb (1993) presents a number of ways in which she has used CMC as a part of her courses.

> 1. Students submitted their group assignments to me. I inserted my comments in capital letters under the pertinent text in their work, asked them to resubmit until the work was "good enough" to continue, and send the assignments back.
>
> 2. Students or groups sent questions or concerns to me or to other students as private mail.
>
> 3. I sent instructions, questions, directions, guidance, etc. to groups or individuals as private mail.
>
> 4. Groups sent me weekly group process reports as private email. I responded to problem areas or issued praise in return email.
>
> 5. Students wrote and edited their assignments online using the text editor.
>
> 6. Some groups wrote their assignments on a word processor, uploaded them and sent them to me.
>
> 7. I posted class announcements on the bulletin board.
>
> 8. Students posted messages (although not too many) on the bulletin board.
>
> 9. I made course materials that would otherwise have been handouts available on the library disk.
>
> 10. Through Internet, students had access to other resources, such as Comserve discussion groups, as well as an outside grader for the final project.[27]

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[26] Ingrid Ebbelink, "Computer-Mediated Communication" (master's thesis, University of Twente, 1999) 9 pages. 19 April 1999 <http://huizen.dds.nl/~inki/>.

[27] Mary McComb, "Augmenting a Group Discussion Course with Computer-Mediated Communication in a Small College Setting," *Interpersonal Computering and Technology* 1, no. 3 (1993): 17 pages. 19 April 1999 <http://www.helsinki.fi/science/optek/1993/n3/mccomb.txt>.

These and other instructor-driven uses which will be explored later in this chapter and as an analysis of the data in Chapter 4.

The following two sections of the review of the literature restricts the focus to two of the most accessible forms of CMC: electronic mail and Internet discussion groups.

Electronic Mail (e-mail)

The field of research on electronic mail is much greater, largely because this was one of the first Internet technologies to be adopted by educators. However, there are many differences between the nature of e-mail and the nature of Internet discussion groups. For the most part, e-mail allows for one-to-one interaction such as interaction between instructor and student or student and instructor. The interaction between students that exists in Internet discussion groups is rarely observed in e-mail discussion because the audience of an e-mail is an individual.

In D'Souza (1992), for example, a project was established to allow the instructor to communicate with the students concerning class-related work by using e-mail. In a class of twenty-four students, all students reporting using the e-mail system and they used the system for the following reasons:

Table 1
Reasons for E-mail Use[28]

	Frequency	Percentage
Group-project related	306	51.0
Weekly assignment	240	40.0
Assignment clarification	24	4.0
Grade-related discussions	11	1.8
Office hour appointments	10	1.6
Class attendance (absence/tardy)	6	1.0
Other	3	0.5

While the e-mail project was created to facilitate instructor-student interaction, the largest amount of use of the e-mail was between student and student as they communicated with the individual members of their group on various class projects.

This quantitative data was re-enforced by the comments that were made by the students in completing a questionnaire at the end of the course.

> "I found E-mail to be very beneficial. It provided an opportunity for me to communicate with other students without having to physically meet and cram an already overcrowded schedule."
>
> "E-mail is great! I finally survived a group project without wanting to kill all of the group members."
>
> "E-mail made it possible for all members of my group to participate and equally share in the work as well as the grade."
>
> "With a full-time job, school, and family, I have always tried to dodge classes that require group projects as I am unable to adjust my schedule to attend group meetings. E-mail now makes it possible for me to take these classes."[29]

The data presented by D'Souza, along with these comments indicate how a student-driven initiative proved to be a valuable experience for the students and how it also changed the intended use of the e-mail system.

Rheingold (1993) provides what may be an explanation for these types of student-

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[28] Patricia Veasey D'Souza, "E-mail's Role in the Learning Process: A Case Study," *Journal of Research on Computing in Education* 25, no. 2 (1992): 260.
[29] Ibid., 258.

driven initiatives. Rheingold puts forward the idea that "people are likely to do what people always do with a new communication technology: use it in ways never intended or foreseen by its inventors..."[30] This statement would explain the fact that many of these e-mail projects are initially created to increase the level of interaction between instructors and students, but the end result becomes that it serves to increase the level of interaction between students and other students even more than the instructor-student interaction.

This concept of student-driven initiative was not seen in Hedges and Mania-Farnell (1998-99). In this study, 62 students were provided e-mail accounts for the purpose "to increase student-instructor interaction. This happened."[31] However, Hedges and Mania-Farnell did not find the same level of student-student interaction, as they noted that "in this course the majority of groups met in person, primarily because most did not have access to computers at home."[32]

D'Souza (1992) also highlights one of the concerns raised earlier by Miller in Oppenheimer (1997), the fact that many of the conclusions made in this type of research are questionable. According to D'Souza, "the majority agreed that E-mail has a positive effect on the learning process." However, this statement isn't based upon the results between a control class and an experimental class, but on the students' responses to two questionnaire statements. When asked, on a scale of 1 to 5 with 1 being "Strongly

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[30] Harold Rheingold, "A Slice of Life in my Virtual Community," in *Global Networks* (Cambridge: The MIT Press, 1993), 57-80, quoted in John Piirto, "University Student Attitudes Towards E-Mail as Opposed to Written Documents," *Computers in the Schools* 14, no. 3/4 (1998): 31.
[31] Kathryn Hedges and Barbara Mania-Farnell, "Using E-mail to Improve Communication in the Introductory Science Classroom," *Journal of College Science Teaching* 28, no. 3 (1998-99): 199.
[32] Ibid., 200.

Disagree" and 5 being "Strongly Agree," students responded to the following two statements

	Average Score
The use of E-mail helps the student to learn more.	4.5
The use of E-mail helps provide a better learning experience.	4.5[33]

Other than the students' own impressions, there is no data provided to indicate that the use of e-mail "had a positive effect on the learning experience." The data that is provided by D'Souza does support the statement that students felt that e-mail had an positive experience on their own learning experience, however.

There are others that have stated that the use of e-mail is beneficial to the students' own impression of their learning experience. In a project between two grade five classes, one in Newfoundland and one in Nova Scotia, Cooper (1992) found that students "self-esteem was enhanced while communication skills improved," largely due to the fact that "poor handwriting became irrelevant."[34] This example provides a K-12 example of how e-mail also allows students to experience a positive learning experience.

It should be noted that there were some conclusions drawn by D'Souza (1992) that were supported by the data including the statements that the "students seemed to enjoy using e-mail," that it provided "an opportunity for the instructor to offer more personalised attention to students in meeting specific learning needs," that it promoted "students' ability to express themselves more freely to the instructor," and that it

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[33] Supra. note 28, 261.
[34] Loretta Cooper, "Electronic Mail Options Exciting for Students," *Prism* 1, no. 2 (1992): 28.

encouraged "team projects by removing the time and distance barriers inherent in these activities."[35]

Some of these conclusions were also reported by Sansonov (1998), who was involved in a project at Central Texas College which saw six former students of Russian and a Russian instructor create an initiative to allow the students to maintain their Russian proficiency after the completion of their course. Similar to D'Souza (1992), Samsonov found that "as students' individual needs were identified, the experimenter provided more individualised assignments."[36]

Hedges and Mania-Farnell (1998-99) also reported a number of beneficial conclusions. Two of the benefits that emerged from the structured e-mail assignment were "the packet material reinforced classroom lectures and allowed the students to see the relevance of classroom information in relation to 'the real world'" and "a number of students related the material to personal experiences and initiated a discussion with the instructor to obtain answers to questions of importance to them."[37]

Two other benefits that Hedges and Mania Farnell discussed were that "in comparison to paper answers, we found that e-mail responses were much shorter and to the point" and that "the main benefit for the students was that they were allowed time and given direction to develop their answers."[38] This second item alludes to the concepts of "think time," introduced in Chapter 1. "Think time" is where students have the ability to

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[35] Supra. note 28, 262.
[36] Pavel Samsonov, "Teaching English-Russian and Russian-English Translation through E-mail," *IALL Journal of Language Learning Technologies* 30, no.3 (1998): 40.
[37] Supra. note 31, 199-200.
[38] Supra. note 31, 200.

consider their contribution to a discussion, even do additional research into an issue, before actually making that contribution. In the class of a "live" in-class discussion, students are generally not afforded the required "think time" to develop comprehensive responses.

Finally, D'Souza (1992) suggested that

> Some of the applications and uses of E-mail include: (a) replying to queries and requests from students regarding course content; (b) providing advice and guidance; (c) helping students to solve problems in understanding the subject matter of a course; (d) serving as a medium of transmission for sending in homework and returning test papers, scores, and comments; and (e) encouraging team projects and setting up self-help groups.[39]

Many of these uses could also be utilised by instructors using Internet discussion forums. The only real difference between e-mail and an Internet discussion group is that in the case of e-mail, the uses are generally between one student and the instructor or one student and another student, whereas in the case of the Internet discussion group the uses are publicly available for all students to see.

However, these applications and uses can only become a real part of the students' learning experience if students are in fact using e-mail. According to Piirto (1998), 90% of students from the College of Engineering and the College of Arts and Sciences at the University of Colorado has been using e-mail for one year or more. Piirto also found that more than two thirds of students who used e-mail checked it more than five times each week.[40] This level of usage indicates that within this university, should instructors decide

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[39] Supra. note 28, 263.
[40] John Piirto, "University Student Attitudes Towards E-Mail as Opposed to Written Documents," *Computers in the Schools* 14, no. 3/4 (1998): 27.

to make use of e-mail, or other forms of computer-mediated communication, the vast majority of students make use of it and make use of it often.

The body of research into electronic mail is like that of many other disciplines that consider the use of the Internet and related technologies, still in its infancy. Samsonov (1998) provides evidence of this fact when he states

> Electronic mail delivery of assignments proved effective in this short pilot study. Further and more detailed research is planned for the future. E-mail-based Russian-English translation practice certainly proved effective and popular with students, although there is clearly much more -- both practically and theoretically -- to be done to more fully understand CMC as a tool in the teaching of modern languages.[41]

While Samsonov's statement was directed towards the use of e-mail in the teaching of modern languages, the theme of more needing to be done to fully understand the use of various forms of computer-mediated communications as a tool in teaching is a common theme in the review of this literature.

Internet Discussion Groups

Bull, Bull and Sigmon (1999), state that "a conventional class [discussion] favours students who are prepared to speak, so other students may be left out. Electronic discussion groups allow a class to continue its discussion between meetings. In contrast to electronic mail, discussion groups, including newsgroups, allow 'threaded' conversations."[42] As has been outlined in Chapter 1, there are a number of different types

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[41] Supra. note 36, 42.

[42] Glen Bull, Gina Bull, and Tim Sigmon., "Collaborative Education," *Leading and Learning with Technology* 26, no. 5 (1999): 51.

of Internet discussion groups. In this section, three different types of Internet discussion groups are considered: web-based conferences; text-based conferences (e.g., Usenet newsgroups); and synchronous real-time communications (e.g., Multiuser Object Orientation).

Web-based Conferencing

Web-based conferencing is becoming more common on the post-secondary campuses, particularly as students who have grown up in an "icon-based environment" begin their studies at these institutions. There is a generation of post-secondary students for whom their entire computer experience has been in a windows-based or icon-based environment. These students may not have the technical knowledge and, in many cases, the desire to use Internet discussion groups that are hosted in DOS-based, Lynx-based or other text-based environments.

One of the many types of web-based conferences is included in the TopClass e-learning software. Foley and Schuck (1998) reported on a project that involved a Mathematics Education class which used the web-based conference in TopClass, where groups of students were to post a response to a statement provided by the instructor and later post a reply to at least one of the other groups' responses. Foley and Schuck found that 71 of the 88 students who completed a questionnaire at the end of the course enjoyed the participation in the web-based conference. Three of the most common themes or sources of enjoyment expressed by the students were "opportunity for group

collaboration," "novel way of learning / opportunity to use the Internet," and "access to others' responses / seeing other views."[43]

Expanding on these ideas, some of the students involved in this project commented that

> By reading all the responses it also reinforced and repeated information and opinions over several sittings and finally, it certainly made you think about the topic and the "exquisiteness" of the human mind.
>
> Went in and read the Response 2 contributions - these were of a much higher standard than Response 1. Again it had pretty much all been said, but it has been a learning experience. Because we were all reading each others' work, it had many people to perform better - be more self-conscious than normal.[44]

These student comments and the themes listed above are similar to the findings discussed in the previous section of this chapter.

Instead of simply considering the advantages or disadvantages of using web-based conferences, Poole (2000) also considers when students use web-based conferences. The following table was compiled from a class of 14 graduate students pursuing their studies in educational technology.

Table 2
Number of Student Posts to Bulletin Board by Day of the Week[45]

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Number of posts	159	113	91	112	159	128	263

This table illustrates that the majority of messages posted to the web-based bulletin board were posted on the weekend (i.e., there were more message posted on Friday, Saturday

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[43] Gerry Foley and Sandy Schuck, "Web-based Conferencing: Pedagogical Asset or Constraint?" *Australian Journal of Educational Technology* 14, no. 2 (1998): 14 pages. 02 August 1999 <http://cleo.murdoch.edu.au/ajet/ajet14/foley.html>.

[44] Ibid.

[45] Dawn M. Poole, "Student Participation in a Discussion-Oriented Online Course: A Case Study," *Journal of Research on Computing in Education* 33, no. 2 (2000): 165.

and Sunday, than were posted on Monday through Thursday). The table also illustrates that more messages were posted on Saturday, than any other single day of the week.

In addition to considering the frequency of student usage on a daily basis, Poole also collected data on the time of day that students made use of the bulletin board. This data was presented in Table 3.

Table 3
Time of Day in Which Student Posts Were Made to the Bulletin Board[46]

	0-4am	4-8am	8am-noon	noon-4pm	4-8pm	8pm-midnight
Number of posts	29	18	127	208	346	297

Poole found that approximately one third of all messages were posted during the traditional class hours (i.e., 8:00am to noon and noon to 4:00pm -- times when post-secondary institutions traditionally schedule their classes). Another one third of messages were posted during non-traditional class hours (i.e., 4:00 to 8:00pm -- times when post-secondary institutions presently schedule classes, but have not done so traditionally). Finally, approximately a third of all messages were posted during times when post-secondary institutions do not schedule classes at all (8:00pm to midnight, 0 to 4:00am and 4:00 to 8:00am).

It is interesting to note an unexpected negative aspect of the graduate students' involvement in this web-base conference, as raised by one of the student comments made in a questionnaire that was completed at the end of the course.

> As I was sitting waiting for the famous Tuesday night class to begin, I was struck by the fact that many of us who engaged in some rather serious discourse online were just sitting and chatting about rather innocuous topics when we came face to face. Now granted. the class had not begun, and we were not in a formal seminar, but it seemed rather ironic, or interesting, that when we did get in a setting where we could read each others faces, and hear

[46] Ibid.

> sarcasm, etc. (all the things that we said were missing from posted messages) that not much was happening on an intellectual level.[47]

As will be discussed in Chapter 4, this lack of interpersonal, face-to-face communication is one of the many reasons given by students who chose not to make use of the Internet discussion group associated with their course.

Another study which considered more than just the advantages and disadvantages of Internet discussion groups was Wideman (1996). In this study, students in an undergraduate economics course were given a series of problems which they were to solve and post their solutions to a web-based conference so that other students could read and respond to their solutions. There were eight different problems assigned to students. The web-based conference that was used was a piece of software called "FirstClass."

Unlike Poole (1996), who considered the day of the week or the time of day, Wideman (1996) considered the students' participation rate over the eight questions.

> Participation rates over the eight weeks of the conference were tabulated on the basis of the student's submissions of answers to questions they had been assigned for the week by the [teaching assistant] TA. Forty five per cent of the students assigned to forums either submitted all answers over the eight weeks or failed to submit only one of the requested eight; 14% missed two or three answers; 9% missed four or five; 10% six of seven; and 22% did not submit any answers. While the number not significantly participating may seem rather high, it must be kept in mind that the course had a 28% dropout rate, and that dropouts nearly always occur in the first half of the term. Nonetheless, even if we assume that the dropout group accounts for all the non-participants and about half of the minimal participants, we are still left with about 15% of the students who completed the course having participation rates of 50% or less, despite the 10% mark weighting for participation.[48]

This observation that a significant portion of the class failed to complete half of the questions, even though there were marks assigned to the activity.

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[47] Ibid., 172.

[48] Herbert H. Wideman, *Using Computer Conferencing as a Medium for Pedagogical Innovation: Two Case Studies* (North York: The Centre for the Study of Computers in Education, York University, 1996), 8.

While Poole (2000) reported some patterns in student usage of the bulletin board, Wideman (1996) stated

> For those students who were only partially involved in the conference, the patterns of participation over time showed no regular pattern. If non-participation had occurred primarily as a result of student frustration with the experience, we might expect to see initially high levels of involvement drop away over the course of the term. This was clearly not the case, however; [in] fact, it was more common for students not to be involved in the first few weeks and then begin to participate, or to be involved initially, take a few weeks "off," and then return to the conference later in the term. Questionnaire responses shed some light on this; several students experienced an initial delay in getting into the conference system either because of hardware or connectivity problems or due to a delay in receiving the FirstClass software and training. Others indicated that the press of other work (mid-terms, papers) prevented them from "keeping up" with the assigned work at times. A few students noted that the inconvenience of accessing the conferences via the university computer labs due to location or line-ups sometimes prevented timely responses.[49]

These observations aren't limited to web-based conferencing, as the stress of other work (e.g., mid-terms and papers) can be a determining factor for a post-secondary student in the completion of any type of work.

In addition to posting a message, students are also able to use an Internet discussion group by simply reading the messages without making a contribution of their own. This reading without posting is known as "lurking." Wideman also considers the level of lurking that occurred in the web-based conference:

> There was a significant variance in the number of student answers that were viewed each week. Ten percent of the respondents viewed less than two; 26%, two to four; 37%, five to seven; 14%, eight to ten; and 10%, more than ten.[50]

This level participation is in addition to the contributions made by students through the posting of their own messages. The above figures indicate that only three percent of students reported not reading any messages posted by other students.

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[49] Ibid., 8-9.
[50] Ibid., 10

Usenet Newsgroups

According to Bull *et al* (1997)

> Newsgroups differ from [e-mail] mailing lists in several important respects, however. A subscription to an Internet mailing list brings postings that are placed directly in a subscriber's electronic mailbox. Active mailing lists can generate dozens or even hundreds of messages per day...
>
> In contrast, newsgroups reside on a central news server, and their messages are viewed with a separate "newsreader." The messages are organised by topic, which allows the viewer to designate an entire conversational strand (known as a "thread") as already read if it is not relevant.[51]

This convenience was initially seen as an advantage of Usenet newsgroups, at least until the "new brand" of computer users started to become the majority of computer user. However, Bull *et al* present some benefits of newsgroups over web-based conferences. "Web-based browsers lack many of their features. For example, most Web-based discussion groups do not provide an easy way to mark, hide, or delete previously read postings or to mark an entire topic thread as "read" with a single keystroke."[52]

These were many of the same advantages and disadvantages for Usenet newsgroups outlined by Pelton and Pelton (1998)

> The top four reasons [they] liked mailing lists were: (a) all mail was sent directly to their e-mail addresses (37%), (b) they received updated information on a topic of interest to them (35%), (c) they could communicate with people all over the world who have similar interests (32%), and (d) information is easily accessible (11%). On the downside, the most frequently cited dislike of mailing lists was that they were too active; 90%... stated they were receiving too much mail.

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[51] Glen Bull *et al*, "Internet Discussion Groups," *Learning and Leading With Technology* 25, no.3 (1997): 13.
[52] Ibid., 15.

> Reactions to Usenet groups were similar to those for mailing lists. Benefits identified by students included: (1) reading only what they wanted and when they wanted (35%), (2) communicating with others with similar interests (32%), (3) saving disk space on the server (25%), (4) hearing a variety of opinions (19%), and (5) easy access to specific topics of interest.
>
> Students felt the following were drawbacks of newsgroups: (1) you aren't informed of new messages (17%), (2) you need to sort through many messages to find items of interest (16%), (3) old messages of value may be removed (13%), and (4) the discussion is often biased or personally offensive (13%).[53]

In Barbour (1998), the author found that seventeen of twenty-two universities across Canada made some use of Usenet newsgroups. The policies of various universities towards Usenet newsgroups varied greatly.

> For the most part, universities felt that if professors requested that a Usenet newsgroup be created for their particular course the university would have one created for them. One of the problems that many of these webmasters voiced with this method was that once the newsgroups was created it was never removed and after a year or two could end up totally unused. However, the most common theme that emerged in these [responses] was the belief that Usenet newsgroups were "a good tool for the 80s!" but that for the next millennium universities need to move towards world-wide web discussion forums (such as Web-CT, AltaVista Web Forum or Caucus web-conferencing software).[54]

In addition to this information, Barbour found that Carleton University was the only university in Canada that responded to using a Usenet newsgroup for all undergraduate and graduate courses offered by the university.

According to Rick Mallett, webmaster at Carleton University, the use of Usenet newsgroups was more a convenient choice than a pedagogical choice:

> We felt that an electronic forum for course discussion was useful and straightforward to implement. We didn't care exactly how the newsgroups would be used but assumed that faculty would use the newsgroup to distribute assignments and course notes and that students would use the newsgroup to ask each other (and TA's) questions. In many cases the faculty were oblivious to the existence of the newsgroup (despite our efforts to inform them) and the newsgroup was used exclusively by the students for course related discussion. In other cases the course instructor actively participated in the discussion and attempted to answer a many questions as possible. We've been meaning to look at web forums but haven't had the time.

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[53] Leslee Francis Pelton and Timothy W. Pelton, "Using WWW, Usenets, and E-mail to Manage a Mathematics Pre-Service Technology Course," *Computers in the Schools* 14, no. 3/4 (1998): 87.
[54] Supra. note 9.

> Usenet newsgroups are well supported and easy to maintain and there are numerous available newsreaders etc. etc. etc.[55]

At present, the university that has the most comprehensive policy towards Usenet newsgroups has even considered the use of web-based conferences.

Interestingly, in Pelton and Pelton (1998), a survey of education students at Brigham Young University in Utah to determine their perceptions of importance and confidence in using various computer skills found that at the end of their course students perceived the importance of Usenet newsgroups almost as high as the importance of being able to use a web browser. In this survey, students were asked to rate various computer skills or applications on a scale of 1 to 5, with 5 indicating a positive attitude. Table 4 provides a summary of their findings.

Table 4
Students' Perceptions of Importance of and Confidence in Using Computers Related Skills and Technologies[56]

	Pre-Survey			Post-Survey	
	Importance	Confidence	% Unfamiliar	Importance	Confidence
E-mail	3.03	2.12	20.0%	4.24	4.36
Listservers	0.31	0.18	91.67%	3.24	3.31
Usenet	0.76	0.47	80.0%	3.22	3.78
WWW browsers	0.66	0.50	81.67%	4.18	3.76

This table illustrates that while the vast majority of students did not have experience with (i.e., were not familiar with the use of) listservers, Usenet newsgroups, and WWW browsers (including web-based conferencing) at the beginning of the course, by the end of the course these students felt that the importance of these applications and their own level of confidence in using these applications had increased dramatically.

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[55] Supra. note 9.
[56] Supra. note 53, 85.

While the students were able to see both the positive and negative aspects of the Usenet newsgroup, the instructor's reaction, as reported by Pelton and Pelton (1998), was much different.

> The least effective part of the course appeared to be the Usenet group. As the instructor was focusing most of her attention on locating resources and updating the Web pages, she did not frequently participate in the newsgroup. Some students were not sure whether their comments were being read, and participated only from an obligation to do so, not because of any real interest in the discussions. Other students commented on the time it took to read 63 responses to a particular reading and the amount of repetition of comments in many cases.[57]

Zack (1995) encountered a different difficulty in the use of a newsgroup with a management information system graduate course at Northeastern University. He found that "students in the first few classes given the assignment tended to direct all conference messages to me, resulting in a star pattern of communication with myself at the centre. This tended to restrict the usefulness and intent of the conference."[58]

Pelton and Pelton (1998) recommended that for a newsgroup to be effective "a Usenet group should be maintained for discussion of topics of common interest, with greater dialogue and interaction. The teacher must also be an active participant in the discussions for the newsgroup to be valuable and to assure students that their comments are being read."[59]

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[57] Supra. note 53, 89.
[58] Michael Zack, "Using Electronic Messaging to Improve the Quality of Instruction," *Journal of Education for Business* 70, no. 4 (1995): 203.
[59] Supra. note 53, 89-90.

Multiuser Object Orientation (MOO)

Unlike e-mail, web-based conferencing and Usenet newsgroups, Multiuser Object Orientation allows for synchronous computer communication. Synchronous communication provides individuals to engage in real-time discussion either through text, audio or video. According to Langham (1994), "a MOO can be thought of as a text-based virtual reality environment." He continues to describe the MOO as using

> written descriptions to create a virtual environment somewhat analogous to the kind of virtual world produced in the imagination when we read novels... MOOs create their virtual reality out of textual descriptions similar to those used in novels to create in the reader's mind the world in which the characters interact. The big difference between the MOO experience and the experience of printed text is that the characters in a MOO are controlled by real people who interact with each other and their textual environment in "real time."[60]

This allows the instructor and individual students to create their own personal reality within the same MOO.

There are a number of benefits associated with the use of MOOs in the post-secondary system. One of the more extensive experiments that has occurred with the use of MOOs has taken place at the Ontario Institute for Studies in Education (OISE) at the University of Toronto. Davie, Abeygunawardena, Davidson and Nolan (1998), they state the main benefit

> is the fact that anything that can be described textually can be created. Students and teachers can develop and extend the database in anyway they want according to their own educational goals, and their level of interaction can vary accordingly from guest, to player, builder, programmer and administrator.

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[60] Don Langham, "The Common Place MOO: Orality and Literacy in Virtual Reality," *CMC Magazine* 1, no. 3 (1994): 7 pages. 23 April 1999 <http://www.december.com/cmc/mag/1994/jul/moo.html>.

They continue the list of benefits to include the fact that "everyone is a teacher; everyone has control over the learning space; administrators are present within the MOO and can be contacted easily and quickly; [and] users control their own space, and may make them public forums or quite retreats."[61]

However, there were also some negative features in another experiment conducted at OISE. Davie and Nolan (1999) reported that the biggest challenge was that "it took us some time to understand just what a radical shift in perception working in the MOO was for some students. If we moved too quickly, anxiety was increased and a sense of powerlessness set it. If we moved too slowly, a sense of frustration was too prevalent."[62] While these comments were made specifically regarding the use of MOOs, they may be applicable to many aspects of technology usage.

Content Analysis

In the field of computer-mediated communication, one of the main difficulties in content analysis of Internet discussion groups is the lack of consistency. This statement will be illustrated by the review of the literature provided in this section. The need for academics to "re-invent the wheel" each time a content analysis of an Internet discussion

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[61] Lynn Davie, Hema Abeygunawardena, Kathryn Davidson, & Jason Nolan "Universities, Communities, and Site Building: Exploring Three Online Learning Systems Virtual University, WebCSILE & MOOkit," (a paper presented at the annual meeting of the Educational Computing Organisation of Ontario, Toronto, ON., 1998) 10 pages. 22 August 2001 <http://fcis.oise.utoronto.ca/~ldavie/papers/ECOO98.html>.

[62] Lynn Davie and Jason Nolan, Doing Learning: Building Constructionist Skills for Educators or Theatre of Metaphor: Skills Constructioning for Building Educators The Ontario Institute for Studies in Education, University of Toronto. 10 pages. 21 August 2001. <http://fcis.oise.utoronto.ca/~ldavie/papers/doing.html>.

group is undertaken, has resulted in numerous studies, all of which use a different set of criteria for content analysis, or more specifically different categories for each individual study. While the differences that exist in the variables of one study and the variables of another study may create a necessity for the content categories to be modified slightly, there is little recognition by researchers in this area of previous work other than their own. This almost total neglect of the work of other content analysis researchers has provided a body of research where one study does not build upon the next and there is little that connects a content analysis conducted in the early 1990s to one that is conducted in the late 1990s.

This lack of consistency was recognised by Tao *et al* (1997). In their presentation to The National Reading Conference, Tao *et al* considered 62 different content analysis studies of electronic mail and found that "many of those who cited literature did not bother to explain the categories of content analysis in their studies, and some did not cite examples to justify their categories."[63] In their recommendations for future content analysis research, they recommended

> (a) If a previous model has been adopted, relevant literature should be fully presented to justify one's choice of categories; (b) if the purpose of the research is to inductively come up with some better understanding of the content being analysed (whether the purpose is to understand the phenomenon or to produce a model), thick description of the categories (including the researcher's theoretical perspectives) with example should be provided; (c) the validity of a study may also be increased by employing multiple measures of the same constructs being studied such as interviews or questionnaires.[64]

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[63] Supra. note 2, 478.
[64] Supra. note 2, 480.

Accepting these recommendations, the categories selected by the researcher for the content analysis contained in this thesis[65] have made use of an on-going study conducted by Collins (1995, 1998, 1999, 2000) and Collins and Barbour (2001a, 2001b).

While there has been a lack of consistency in the body of research that has been conducted on content analysis of Internet discussion groups, there are some common themes that should be discussed in this section. In 1988, Kahn and Brookshire (1991) utilised a text-based Internet discussion group with junior and senior level students in a Social Psychology course. During the thirteen-week semester, there were 145 student postings to the discussion group.

> Students' postings were placed in categories, followed by the number of postings found in each: (a) comments and questions about course structure and mechanics (e.g., "Should our hypothesis be as brief as possible or should we go into more details?") – 16, (b) errors and mistakes (typically blanks screens) – 17, (c) announcements – 2, (d) comments about the class content (often comments about lectures of exams) – 9, (e) expressive comments (e.g., "I'm glad the semester is finally just about over") – 13, (f) computer comments (ease or difficulty in using the VAX) – 8, and (g) responses to instructor (answers to questions posted by the instructor) – 80.[66]

This data indicated that in this instructor-driven Internet discussion group, approximately three out of every four messages was course content-related (i.e., fell into categories (a), (c), (d), or (g)).

The inconsistency in this body of research is outlined by a study conducted one year later by Cavalier (1992). In his study of a philosophy course, Cavalier described four categories for comments that appeared in the discussion group. These categories were

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[65] These categories, and the rationale for their selection, are discussed in Chapter 3.
[66] Arnold Kahn & Robert G. Brookshire, "Using a Computer Bulletin Board in a Social Psychology Course," *Teaching of Psychology* 18, no. 4 (1991): 246-247.

"(1) request for clarification/amplification of material covered, (2) 'original' thoughts in the sense of personal narratives that reveal individual perspectives, (3) sensitive explorations of personal feelings revolving around the topics covered, and (4) themes emerging from internal debates."[67] While Cavalier did not provide data on how many messages or what percentage of messages each category represented, as was seen in Kahn and Brookshire (1991), all of these categories represent messages that were course content-related.

Similar to Cavalier (1992), Collins (1995) did not provide exact data on the number of messages or the percentage of messages that fell into each of the content categories. In an analysis of a one semester, second year Biology course for non-major students, the categories Collins discussed included "administrative information, system-related inquiries, requests for clarification of classroom material, discussion of issues, and information on non-course material."[68] Again, with the exception of the final category, it would appear that the majority of messages were of a course content-related nature.

As a follow-up to that study, Collins (1998) reported on the results from the same Biology class over a two year period (i.e., the class was taught two times, once in 1994, which was used in Collins (1995), and again in 1995). In this study, Collins (1998) provided the actual data from both years. This data is presented in Table 5.

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[67] Supra. note 7, 35.
[68] Michael Collins, "Using Electronic Bulletin Boards with College Biology Classes," *The American Biology Teacher* 57, no. 3 (1995): 189.

Table 5
Comparison of Student Use of an Internet Discussion Group[69]

	Amount and percentage of use			
Category	1994		1995	
Course content questions	14	25.5%	6	3.8%
Course-related inquiries	11	20.0%	6	3.8%
Discussion topics	10	18.2%	110	68.8%
Comments	10	18.2%	1	0.6%
System-related	5	9.1%	17	10.6%
Assignment topics	3	5.4%	17	10.6%
Other	2	3.6%	3	1.9%
Totals	55		160	

As is illustrated by Table 5, Collins found that very little of student usage fell into the "Other" category or was not course content-related.

From the period 1997 to 2000, Collins (2000a, 2000b), Collins and Barbour (2001a, 2001b) and Barbour and Collins (2001a, 2001b) have expanded on the initial studies of Collins (1995, 1998). The current study considered students' use of electronic mail, messages sent to an electronic listserver, and posts to a web-based discussion forum in two different second-year, non-major, Biology courses over a three year or nine semester period. This study considered many aspects of electronic messaging, including a content analysis. This analysis was presented in Barbour and Collins (2001b) and is represented in Table 6.

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[69] Supra. note 8, 83.

Table 6
Content Analysis[70]

Type of electronic messaging	Discussion	Assignments	Tests/ Exams	System Related	Course Content	Administrative	Other
Electronic mail		179	308	52	62	188	92
Listserver		4	2			4	6
Web forum	24	5	55	2	30	13	40
Total	24 *(2%)*	188 *(18%)*	365 *(34%)*	54 *(5%)*	92 *(9%)*	205 *(19%)*	138 *(13%)*

When considering the students' use of only the web forum, Table 6 indicates a higher level of non-course content related message than in the previous studies. There may be a number of reasons for this increase, such as an increase in the students' acceptance of this type of communication, an increase in the students' level of comfort with this type of communication, or an increase in the students' sense of familiarness with instructors in this type of communication. However, to make a determination on which of these or other possible reasons account for this increase would require additional study of this phenomenon.

Another study that has been on-going during the same period has been research by the Faculty of Education at Acadia University on the use of their ACME software as a part of the "Acadia Advantage." The "Acadia Advantage" refers to a campus-wide laptop project undertaken at Acadia University with the support of IBM. First reported by Hemming and MacKinnon (1998), and later by MacKinnon and Hemming (1998), Hemming and MacKinnon (1999), Aylward and MacKinnon (1999), MacKinnon and Aylward (1999), MacKinnon and Aylward (2000), and MacKinnon (2000), researchers in

[70] Michael K. Barbour & Michael Collins (2001b), "Online Writing as a Form of Electronic Communication in Second Year Biology Courses" (a paper presented at *Bits and Bytes: An Online Symposium on Technology and Education*, <http://www.stemnet.nf.ca:8900/PUBLIC/bitsandbytes/> October 2001), 6.

the Faculty of Education at Acadia University have made use of the following content categories "acknowledgement of opinions (evidence of participation), question (thoughtful query), compare (similarity, analogy), contrast (distinction, discriminate), evaluation (judgement, value), idea to example (deduction, analogy), example to idea (induction, conclusion), clarification or elaboration (reiterating a point, building on a point), cause and effect (inference, consequence), and off-topic/faulty reasoning (entry inappropriate)."[71] As evidenced by the selection of categories, in this instructor-driven environment it is assumed that the vast majority of student contributions were course content-related.

One of the main themes apparent in much of the research conducted on content analysis of Internet discussion groups is the fact that there is a high percentage of students who utilise this method of communication for course content-related purposes. If students are using Internet discussion groups as a means to assist them in their understanding of course content, the next step would be to determine whether or not the use of Internet discussion groups has any effect on a student's final grades in a particular course.

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[71] Supra. note 11.

Grades and Internet Discussion Groups

One question that is of interest to researchers in the field of computer-mediated communications has been whether or not the students' participation in e-mail or an Internet discussion group contributes to that students' performance in a course. This is one area of CMC research that has not been undertaken by many researchers and those who have undertaken studies in this area, have not provided conclusive evidence to any relationship.

Research in this field began in the late 1980s when Slovacek (1989) utilised electronic mail as a means of communication between students and their instructor in graduate-level computer classes within a School of Education. Slovacek found that "there appeared to [be] a positive correlation between students' use of EMAIL to augment normal in-class communication with their instructors and final course grades."[72] More specifically, Slovacek stated "that each EMAIL message initiated by the students was associated with a 1.781 point increase in final course grade on average."[73] This initial research provided a fairly specific connection between students' use of electronic mail and the students' final course grade. More recent research has been less definitive.

More recently, Collins and Barbour (2001b) presented results from a three year consideration of student's use of electronic mail and of a web forum and its connection to students' final course grade. The data presented by Collins and Barbour (2001b) is shown

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[72] Simeon P. Slovacek, "Electronic Mail Use and Grades," (a paper presented at the annual meeting of the Western Educational Computing Conference, Palo Alto, CA, 1989), 114.
[73] Ibid., 113.

in Table 7.

Table 7
Frequency of use of electronic messaging and final letter grade[74]

	Course grade				
Level of use	A	B	C	D	F
Very frequent	3	1	0	0	0
Frequent	3	3	0	0	1
Infrequent	23	19	6	2	3
None	13	6	5	1	2
Totals	42	29	11	3	6

As summarised by Collins and Barbour,

> there is a relationship between the use of electronic messaging and final course grades with students achieving 'A' and 'B' letter grades being more likely to be users, and also very frequent of frequent users, while students achieving 'C's, 'D's, and 'F's are more likely not to use electronic messaging at all, and if they do, are likely to be infrequent users.[75]

This relationship appeared to be even stronger when students' use of electronic mail was removed and only students' web forum use was considered. This is illustrated by Collins and Barbour in Table 8.

Table 8
Frequency of use of the web forum and final letter grade[76]

	Course grade				
Level of use	A	B	C	D	F
Very frequent	2	0	0	0	0
Frequent	1	2	0	0	0
Infrequent	18	10	4	1	2
None	21	17	7	2	4
Totals	42	29	11	3	6

As is indicated by this table, every single "very frequent" user received an 'A', while every single "frequent" user received an 'A' or a 'B.' At the same time, 13 of the 20 students

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[74] Collins, Michael & Michael Barbour (2001b), "Some Observations on Student Use of Electronic Communications." (a paper presented at the annual meeting of the Scuola Superiore G. Reiss Romoli (SSGRR), L'Aquila, Italy, 2001), 7.
[75] Ibid., 8-9.
[76] Ibid., 7.

who received a 'C', 'D' or 'F' were not users of the web forum and the remaining seven were "infrequent" users.

One of the reasons for the difference in the strength of the relationship between electronic mail and students' final grade and web forum use and the students' final grade may be the relationship of electronic mail itself. Piirto (1998) found that approximately half of the students that he surveyed responded "never" or "not often" when asked if they proofread and/or edited their electronic mail. This was compared to 90% of students who responded that they proofread and /or edited their written documents "every time" or "most of the time."[77] According to Piirto, the level of care that university students place into their composing of an electronic mail message was very low.

Barbour and Collins (2001a) have speculated similar reasons for the stronger relationship between the web forum use than the electronic mail by stating that electronic mail messages are often short non-content messages that are 'private' and intended only for the instructor, while messages on a web forum are 'public' and available for other members of the class to read and to comment upon. Students are more likely to be careful and concise in what they write to a web forum because the messages are available for public consumption.[78]

This hypothesis is supported by earlier research completed on whether or not writing increased a student's ability to learn a subject. A students' participation in a web

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[77] John Piirto, "University Student Attitudes Towards E-Mail as Opposed to Written Documents," *Computers in the Schools* 14, no. 3/4 (1998): 28.

[78] Michael Barbour & Michael Collins (2001a), "Student Use of Electronic Communication in Second Year Biology Courses." (a paper presented at the annual meeting of the Society for Teaching and Learning in Higher Education, St. John's, NF, 2001), 12.

forum or other Internet discussion group allows the instructor to provide the student with feedback both on the content of their message and the presentation of that content. Moore (1993) found that "learning improves ... when writing assignments are complemented with instruction about how to use writing as a tool to learn [a subject.]"[79] In an earlier study, Ambron (1987) found in a survey conducted at the course "student response [was] extremely favourable; ... most mentioned the value of writing in helping them understand [the subject.]"[80] While both of these studies were specific to disciplines within the field of science, We can speculate that their findings may be applied to other disciplines.

While the trend in this body of research to date has indicated that there is a relationship between a student's use of CMC and their final grade in a course, instructors cannot be too quick to adopt this type of communications in their courses and expect students to thrive. Althaus (1996) speculated that "higher levels of motivation or scholastic achievement may also lead some students to participate in [CMC] more than others."[81] This conclusion provides encouragement for future research into the relationship.

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[79] Randy Moore, "Does Writing About Science Improve Learning About Science?" *Journal of College Science Teachers* XXII, no. 4 (1993): 217.

[80] Joanna Ambron, "Writing to Improve Learning in Biology," *Journal of College Science Teachers* XVI, no. 4 (1987): 266.

[81] Scott Althaus, "Computer-Mediate Communication in the University Classroom: An Experiment with On-line Discussions," (a paper presented at the annual meeting of the American Political Science Association, San Francisco, CA, 1996), 14.

Conclusion

As was stated at the beginning of this chapter, there are problems in defining computer-mediated communications and in having researchers use a common definition. These problems have lead the field of research on computer-mediated communications be inconclusive in many studies because depending on the type of computer-mediated communication utilised, the results can vary. This variance has lead to inconsistency within the field of research on computer-mediated communications.

However, another difficulty that has been a common theme throughout this chapter is the fact that the vast majority of research that has been conducted on computer-mediated communication has been done in isolation and has not built upon work that has previously completed. This was illustrated best in the discussion of content analysis. In this chapter, the researcher has attempted to address this fact by providing a theoretical basis, based upon previous research, for both the methods which have been utilised and the conclusions that have been drawn in this thesis.

Chapter 3 - Methodology

Introduction

This section outlines the research procedure utilised by the researcher. In order to collect data from various Internet discussion groups, faculty members at three different institutions were asked to give their permission for the researcher to monitor their various forms of Internet discussion groups.

Prior to the actual research on Internet discussion group, the researcher felt that it would be beneficial to consider the extent that various types of Internet discussion groups were being used by the Canadian university community. To achieve this, a survey[82] was sent by e-mail to thirty-five different universities across Canada on 16 August 1999. This survey was designed to assess whether or not Internet discussion groups were being used by these Canadian universities and to what extent they were being used. Sixteen of the thirty-five universities replied to this survey and their responses are discussed in Chapter 4.

There were three institutions approached by the researcher in order to obtain permission to monitor their Internet discussion groups: Acadia University (ACME electronic discussion groups), Memorial University of Newfoundland (AltaVista/SiteScape Forums/WebCT bulletin boards), and Carleton University (Usenet

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[82] See Appendix C for a copy of this survey.

newsgroups). In the case of Acadia University, the researcher sent an e-mail, along with an attachment[83], to the Senior Administrative Secretary in the Office of the Director of the School of Education on 16 July 1999. The Senior Administrative Secretary then forwarded that material to all faculty members within the School of Education at Acadia University and confirmed that it had been sent out on 20 July 1999. The researcher did not receive any responses from individuals at Acadia University and was unable to obtain any data from their ACME electronic discussion groups.

As Memorial University of Newfoundland was the researcher's own institution, the researcher sent a letter by e-mail directly to each of the faculty members, along with an attachment[84], on 15 July 1999. In total, there were eight faculty members that contacted the researcher, however, five of these were to inform the researcher that they were unable to assist in the thesis because they did not make use of Internet discussion groups. A sixth faculty member initially suggested that they may be able to provide the data set with software that they had available to them, but later declined to participate as they felt that the release of student grades would be in contravention of ethical standards held by Memorial University of Newfoundland.

The remaining two faculty members did give the researcher permission to contact students in three different classes, however. The researcher, either through the instructor or through the School of Continuing Education, as two of the classes were distance

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[83] See Appendix D for a copy of both this e-mail and the attachment.
[84] See Appendix E for a copy of both this e-mail and the attachment.

education classes, sent a letter and consent form[85] to each of the students in these three classes. The letter described the nature of the researched being conducted by the researcher, while the consent form contained a question asking students whether agreed or disagreed with participating in the research proposed by this thesis. The researcher also asked a question granting their instructor permission to release their final grade in the course to the researcher. No students were asked to provide their name unless they were allowing their consent for the research to proceed. This encouraged students to provide an anonymous negative response without fear of being identified. In any class where one or more students objected to the research proposed by this thesis, the researcher did not utilise the Internet discussion group related or associated with that class or attempt to access the grades of these students.

In classes that had 100% agreement of the enrolled students, the researcher would have monitored the Internet discussion group associated with their course and used their final grades as a part of the data set. However, none of the three classes was able to achieve the 100% agreement level. The one undergraduate class only had two students return consent forms, both in the affirmative to both questions. In the two graduate classes, the researcher received consent forms from nine of twenty-six students in one class and two of nine students in the other class. In the first class, all nine students indicated permission to monitor their course Internet discussion group and seven indicated permission for their final grades to be released. In the second class, both students indicated permission for their course Internet discussion group to be monitored

[85] See Appendix F for a copy of both the letter and the consent form.

and for their grades to be release. However, as none of the three classes obtained the 100% agreement level, the researcher did not use these to form a data set. This inability to obtain permission from students to have their grades released also meant that the researcher was not able to conduct any research into the relation between grades and participation in Internet discussion groups.

The final institution approached by the researcher was Carleton University. The researcher sent a letter[86] to each Department Head and/or School Director[87] at Carleton University on 16 July 1999 requesting permission to monitor the Internet discussion groups under the jurisdiction of their Department or School. In some cases the head or the director granted the researcher permission to monitor the Internet discussion groups under their jurisdiction, in other cases the head or director sent copies of the letter on to individual faculty members or had the researcher contact individual faculty members directly. The end result was that nine individuals granted permission for the researcher to monitor Internet discussion groups for their individual courses or in some cases their entire department or school. This provided the researcher with just under 500 Internet discussion groups to monitor, of which 135 provided data.

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[86] See Appendix G for a copy of this letter.

[87] See Appendix H for a list of all Department Heads and School Directors at Carleton University during the Summer of 1999.

Confidentiality and Monitoring

One of the prime concerns held by the researcher, and many of the post-secondary faculty members involved, was the need to ensure the confidentiality of both individual students and of various courses/departments involved with this thesis. In order to ensure that the students who were included in this thesis were assured anonymity, each student included was coded with a six digit number. Initially, this coding system was to be a seven digit number, with the first number indicating the institution. However, as the researcher was only able to obtain permission to monitor Internet discussion groups from one institution, this seventh digit was dropped.

The first digit represents whether the newsgroup was student-driven or instructor-driven, with "1" indicating a student-driven newsgroup and with "2" indicating an instructor-driven newsgroup. The next two digits represent the class number; with "01" indicating the first class monitored, "02" indicating the second class monitored, and so on. The final three digits represent the student number, with the first student being indicated with a "001", the second student being indicated with a "002", and so on. Reporting results in this manner protects the privacy of identity for individual students and for a whole class.

Another aspect which affected all components of this thesis is the method of data collection. In order to obtain the most natural set of data, the researcher would have preferred to use a method of data collection called as 'silent monitoring'. Silent

monitoring is a process whereby researcher collects the necessary data without being a presence in the individual Internet discussion groups. The reason for the use of silent monitoring is outlined by Tao, Montgomery and Pickle (1997). In their review of e-mail research, they recommend that future content analysis research "should consider using unobtrusive data collection methods in a naturalistic setting whenever possible."[88] Silent monitoring allows the researcher to observe the discussion that occurs in the Internet discussion group without becoming an issue which discourages discussions or modifies that discussion because it is obvious to people that they are being watched.

The researcher used a hybrid model of silent monitoring, in that an initial message was posted in each of the newsgroups that were monitored and then the process of silent monitoring began. The researcher expressed some concern that this initial message would negate the benefits of silent monitoring. However, the Ethics Committee of the Faculty of Education at Memorial University of Newfoundland concluded that this initial message was necessary to allow students the opportunity to know that they were being monitored and the ability to choose not to participate in the Internet discussion group.

Content Analysis

The first area of Internet discussion groups under consideration was exactly how they are groups were being used by students. To undertake this portion of the thesis, a content-analysis was used. After receiving permission to monitor various Internet

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[88] Supra. note 2, 479.

discussion groups, the researcher posted an initial message[89] to each of the newsgroups stating that it would be monitored for the purposes of thesis research. After this initial post, the researcher silently monitored each of the newsgroups. The researcher did not respond in the newsgroup to any follow-up posts made to his initial post and these follow-up responses to his initial post were not included as a part of any of the data sets.

At the end of each term, the researcher collected all of the messages in each of the newsgroups where permission was granted and saved them into individual files. Each file was then printed so the research was able to obtain an electronic copy and a hard copy of each message.

For the purposes of this content analysis, the researcher placed each and every message posted to the Usenet newsgroup into a specific category. As discussed in Chapter 2, the Tao, Montgomery and Pickle article suggests:

> (a) If a previous model has been adopted, relevant literature should be fully presented to justify one's choice of categories; (b) if the purpose of the research is to inductively come up with some better understanding of the content being analysed (whether the purpose is to understand the phenomenon or to produce a model), thick description of the categories (including the researcher's theoretical perspectives) with examples should be provided; (c) the validity of a study may also be increased by employing multiple measures of the same constructs being studied such as interviews of questionnaires.[90]

To make use of this suggestion, the researcher took the categories that were used by Collins in his 1998 research of electronic bulletin boards in Memorial University of Newfoundland Biology classes and modified them slightly for use with Usenet newsgroups. In 1998, Collins used the following categories.

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[89] See Appendix I for a copy of this initial message.

[90] Supra. note 2, 480.

- Discussion topics
- Assignments
- Access to the system
- Announcements
- Course content inquiries/responses
- Course-related inquiries/responses
- Comments
- Other[91]

However, given the differences which exist between Carleton University (and its Usenet newsgroups) and Memorial University of Newfoundland (and its bulletin board groups), the researcher felt it necessary to modify the categories to the following:

- Q/A (Questions & Answers) - posts that are either questions posed to the instructor, teaching assistant, or other students or answers to questions which have been posed
- Materials - posts concerning course materials
- Assignments - posts specifically concerning course assignments, including posts on tests or exams and questions and answers about exams/assignments
- Discussion - posts that are either instructor-driven or student-driven, for the purpose of discussing material germane to the content of the course
- Classifieds - posts which are buying or selling items which may or may not be germane to the content of the course; posts regarding lost or missing items which may or may not be germane to the content of the course
- C&S (Clubs & Societies) - posts that concern various clubs and/or societies on or off campus
- Other - posts which are specifically not germane to the content of the course or off topic posts

When the two lists are compared, there are many similarities. Both lists use the categories of "discussion," "assignments," and "other." The researcher has taken the category "course content inquiries/responses" and used in its place "material" which broadens the category to include posts about textbooks, reserve readings, etc.. The researcher has taken the category "course-related inquiries/responses" and used in its place "questions and answers", which again broadens the category slightly to include both

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[91] Supra. note 8, 81

course related inquires and responses and inquires and responses that are within the same subject area (e.g., possibly not for the Canadian Government and Politics course, but still within the realm of Political Science). The researcher has taken the "announcements" category and broken it into two separate categories, "classifieds" and "clubs and societies". This allowed the researcher to make a more specific determination about what kind of announcement is actually being made. Finally, the researcher dropped the category "access to the system" because it is not necessary in relation to the system of Usenet newsgroups created by Carleton University.

Once the messages had been collected, the researcher determined into which category posts fell and placed the results into the following table:

Table 9
Model - Contents of Posts Made to the 01 Newsgroup

Student	Q/A	Materials	Assignments	Discussion	Classifieds	C&S	Other
101001							
101002							
101003							
101004							

One of these tables were used for each course that was monitored.

Instructional Approaches

The second area that was considered was the different approaches to using Internet discussion groups. In using the Internet discussion groups, there were two different approaches that were used. These two approaches included a "hands on," instructor-driven approach and a "hands off," student-driven approach. Any newsgroup

where the instructor was visibly present in the newsgroup was considered to be a "hands on" approach, while newsgroups where the instructor was not involved in posting to the newsgroup was considered to be a "hands off" approach.

This investigation used the same summary table used for the content analysis.

Table 10
Model - Contents of Posts Made to Carleton Newsgroups by Instructional Style

Course	Q/A	Materials	Assignments	Discussion	Advertisements	C&S	Other
101000							
102000							
203000							
204000							

The results shown in this table assisted the researcher in determining whether or not there were any differences between the two instructional approaches and, if there were differences, exactly what those differences included.

As in many cases, permission to monitor a newsgroup came from the head of a department or the director of a school, the researcher was not able to determine the identity of the instructor in all instances. While each of the department head and/or school directors were contacted and this information was requested, not all were able to provide the information in a timely manner. Therefore, the consideration of the different approaches to using the Internet discussion groups have only been included in cases where the researcher was able to determine the identity the instructor.

The Nature of Internet Discussion Groups

As was discussed in Chapter 2, early research that has been conducted on Internet discussion groups indicated that they enhance classroom learning. Of interest to the researcher were the statements that "students who would normally be reluctant to ask questions in class or comment on issues will do so through computer conferencing"[92] and that students are able to participate in "round-the-clock dialogues."[93].

To consider the first statement, the data collected for the content analysis and instructional strategies components was to determine how many students had posted messages to each of the Usenet newsgroups used at Carleton University. This list of participants was then to be compared to a list of students registered in the particular course. These results were to be summarised in the following table:

Table 11
Model - Class Participation Levels

Course	Total students in the course	Number of students in the course posting	Number of students outside of the course posting
101000			
102000			
203000			
104000			

However, this table was not used as the researcher was only able to obtain the class list from one instructor. This meant that the researcher was only able to determine the

[92] Supra. note 68, 189.
[93] Supra. note 7, 32.

differences between student usage of students registered in the course compared to students not registered in the course for two of the newsgroups.

In addition to the data that will be obtained from this statistical consideration, there were also questions in the student questionnaire, as described in detail in the "Student Perceptions" section, these questions were designed to gain a better appreciation for the type of students that made use of the Usenet newsgroups.

The second statement said that Internet discussion groups allowed for round the clock discussion to occur. The data collected will be summarised in the following table:

Table 12
Model - Participation Times

Course	12am-4	4am-8	8am-12pm	12pm-4	4pm-8	8pm-12am
101000						
102000						
203000						
104000						
Total						
Total %						

As the messages from each of the discussion groups are summarised, a raw number was placed into the appropriate category. Once all the discussion groups entered into the table, the raw numbers were totalled and the percentage for each category was calculated. This data allowed the researcher to determine exactly when students were using their Internet discussion groups and if in fact round-the-clock discussions occurred.

Grades and Internet Discussion Groups

As was discussed in the "Introduction" section of this chapter, because the researcher was unable to obtain the necessary permission to monitor any of the Internet discussion groups at Acadia University, or at Memorial University of Newfoundland, the researcher was not able to proceed with any consideration of this section of the thesis.

Student Perceptions

In order to determine some of the students' perceptions of Internet discussion groups and their uses, the researcher administered a questionnaire[94] to students in four of the courses where the researcher also had permission to monitor the discussion group associated with that course. The questionnaire asked students questions about their use of the Internet discussion groups, their thoughts on the advantages and disadvantages, and their suggestions regarding the uses of Internet discussion groups.

The questions used were taken from questionnaires utilised in earlier studies by Scott Althaus (University of Illinois, Urbana-Champaign),[95] Michael Collins (Memorial University of Newfoundland)[96] and Michael Zack (Northeastern University).[97] The use

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[94] See Appendix J for a copy of this questionnaire.
[95] Supra, note 81.
[96] Supra. note 68.
[97] Supra. note 58.

of previously used questions by the researcher allowed him the opportunity to compare results obtained from his questionnaire with the results obtained in previous studies made by these three individuals.

The main purpose of this questionnaire was to determine trends in the use of Internet discussion groups that the mere presence of posts to these groups can't reveal. For example, a student can access an Internet discussion group, read the posts of other students but unless they contribute a post of their own, there would be no trail for the researcher to follow. It is for this, and other similar reasons, that a questionnaire is necessary to trace that unbeaten trail. These trends are discussed further in Chapter 4.

Teaching Strategies

Finally, the researcher surveyed the Internet discussion groups that are monitored for different techniques used for the purposes of learning. This survey included both occurrences that were instructor-driven and student-driven. For example, having the instructor pose an open-ended question which the students had to either answer or discuss is an example of an instructor-driven technique which uses the Internet discussion group for the purpose of learning. Another example discussed in Chapter 1 was where the instructor organised an online First Ministers' meeting after having divided the class into the various provincial and federal groups. In this example, the students used a course Usenet newsgroup to discuss and debate their positions and attempt to generate some interest in compromise, negotiation and positioning between the various student groups.

While organised by the instructor in the classroom, this was an example of a student-driven technique as students used the actual Internet discussion group to create their own learning through their first-hand experience of a First Ministers' conference.

The researcher surveyed all the Internet discussion groups which were monitored for examples of how these groups are being used to replace in-class learning or enhance in-class learning. These examples are discussed in Chapter 4.

Chapter 4 - Presentation and Analysis

Introduction

As was discussed in Chapter 2, Barbour (1999) surveyed 35 Canadian universities and found that seventeen (i.e. almost 80%) of these surveyed universities made use of Usenet newsgroups for some courses offered by their institution. Five replied that they did not use Usenet newsgroups and thirteen simply didn't respond.[98] Almost a year later, a similar survey was conducted by the researcher with similar results. It was discovered at this time that most universities across Canada make some use of Internet discussion groups: almost 90% web forums and over 80% Usenet newsgroups. However, there were two universities that made no use of Internet discussion groups at all.[99]

In 1999, Barbour found that Carleton University was the only university which created an Internet discussion group for every single course offered by the university each semester. As other universities require the request of an instructor to create an Internet discussion group, the environment at Carleton University provides the unique opportunity to explore both Internet discussion groups where the instructor is involved and those where the instructor does not post messages or even check the discussion group.

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[98] Supra. note 9.
[99] See Appendix K for the full results of this survey.

Content Analysis

While Carleton University provides a Usenet newsgroup for every single course offered by the university, the first questions that would have to be posed would be "Are these newsgroups used?" and "For what purpose?" To answer the first question, of the approximately 500 newsgroups that the researcher received permission to monitor, only 135 had any messages posted to them other than the researcher's initial message. As for the second question, the content analysis of the 135 Usenet newsgroups that used may begin to answer the question of "What are these newsgroups used for?" Table 13 presents the content analysis that was conducted by the researcher.

Table 13
Contents of Posts Made to Newsgroups

Class	Questions/Answers	Materials	Assignments	Discussion	Classifieds	Clubs & Societies	Other
2001	8	10	135	52	0	1	71
2002	8	13	14	81	0	1	15
1003	0	0	1	0	0	0	1
1004	0	0	0	4	1	1	1
1005	0	0	0	0	0	1	0
2006	12	17	5	0	2	0	8
1007	0	0	0	0	0	1	0
2008	11	21	5	0	0	4	5
1009	1	0	0	0	0	0	2
1010	0	0	0	0	1	0	1
1011	2	0	1	0	1	0	1
2012	0	16	2	0	0	0	3
1013	0	0	0	0	0	0	1
1014	0	0	0	0	0	1	0
1015	0	0	0	0	0	1	0
1016	0	0	0	0	0	1	0
1017	0	0	0	0	0	1	0
1018	0	0	0	0	0	1	0
1019	0	0	0	0	0	1	0
2020	5	17	8	11	5	0	4
2021	6	5	3	3	5	4	2
1022	21	3	6	104	1	0	40
1023	4	0	1	73	6	7	52
2024	36	17	4	124	0	0	83
2025	6	3	5	89	2	6	20

1026	0	0	0	0	0	0	0
1027	2	0	0	0	0	0	0
1028	2	0	0	0	0	0	0
1029	1	0	0	0	0	0	0
1030	0	0	0	0	0	0	2
2031	0	14	2	0	0	0	1
1032	0	0	0	2	0	0	0
2033	0	0	0	0	0	0	1
2034	0	0	0	0	0	0	1
1035	0	2	0	0	0	0	0
1036	22	1	27	2	13	0	9
1037	6	0	2	8	8	1	7
1038	3	0	2	2	0	0	0
2039	2	7	0	1	1	1	2
1040	1	0	0	0	0	0	0
2041	6	11	0	0	1	0	2
1042	5	1	10	2	2	0	5
1043	9	1	5	2	1	0	4
2044	0	8	2	0	0	0	1
2045	3	7	0	2	0	0	1
2046	0	2	0	0	0	0	1
1047	0	0	0	0	0	0	1
1048	0	0	0	0	1	0	0
1049	0	0	0	1	0	0	1
1050	0	0	0	0	1	0	0
1051	0	0	0	0	5	0	0
1052	0	0	1	0	9	0	4
1053	0	0	0	0	2	0	0
1054	0	0	0	0	1	0	0
1055	0	0	0	0	1	0	0
1056	0	0	0	0	0	0	1
1057	0	0	0	0	1	0	0
1058	0	0	0	0	1	0	0
1059	0	0	0	0	0	0	1
1060	0	0	0	0	1	0	0
1061	0	0	0	0	1	0	0
1062	0	0	0	0	1	0	0
1063	0	0	0	0	1	0	0
1064	0	0	0	0	0	0	1
1065	0	0	12	0	0	0	0
1066	0	0	0	0	1	0	0
1067	0	0	0	0	1	0	0
1068	0	0	0	0	1	0	0
1069	0	0	7	0	0	0	0
1070	5	0	0	0	0	0	0
1071	2	0	0	0	0	0	0
1072	0	0	0	0	0	0	1
1073	0	0	0	0	1	0	0

1074	0	0	0	1	1	0	1
1075	4	7	8	5	4	0	17
1076	6	1	0	0	0	0	7
1077	5	7	1	4	0	0	3
1078	2	2	1	0	1	0	3
2079	6	16	17	6	8	3	6
2080	3	2	0	0	0	0	0
2081	21	26	10	0	1	3	0
1082	0	0	0	0	0	1	0
1083	7	1	1	0	16	0	0
1084	0	0	0	0	3	0	0
1085	0	0	0	0	18	0	1
2086	6	2	5	0	14	1	9
1087	0	2	0	0	1	0	0
1088	0	0	0	0	1	0	0
1089	4	2	2	0	1	0	1
1090	0	0	0	0	0	1	0
1091	2	0	0	0	5	2	0
1092	0	0	0	0	1	0	0
1093	2	0	0	0	8	1	0
1094	0	0	0	0	0	1	0
1095	10	2	0	0	7	1	2
1096	0	0	0	0	1	0	0
1097	0	0	0	0	3	0	0
2098	6	36	6	0	6	0	2
1099	0	0	0	0	4	1	0
1100	0	0	0	0	0	1	0
1101	0	0	0	0	0	1	0
2102	0	2	0	0	1	1	0
2103	1	14	3	0	2	1	0
1104	0	0	0	0	1	1	0
2105	0	3	0	0	1	1	0
1106	0	1	0	0	0	0	0
1107	0	0	0	0	2	0	0
1108	0	0	0	0	2	0	0
1109	0	0	0	0	2	0	0
1110	0	0	0	0	1	0	0
1111	0	2	0	0	2	0	0
1112	0	0	0	0	0	0	1
1113	0	0	0	0	1	0	0
1114	0	0	0	0	1	0	0
2115	0	2	0	0	1	0	0
1116	0	0	0	0	1	0	0
1117	0	0	0	0	0	0	1
1118	0	0	0	0	1	0	0
1119	0	0	0	0	1	0	0
1120	0	0	0	0	2	0	0
1121	0	0	0	0	2	0	0

1122	0	0	0	0	2	0	0
1123	0	0	0	0	2	0	0
1124	0	0	0	0	2	0	0
1125	0	0	0	0	1	0	0
1126	0	0	0	0	1	0	0
1127	0	0	0	0	1	0	0
1128	0	0	0	0	1	0	0
1129	0	0	0	0	1	0	0
1130	0	0	0	0	1	0	0
1131	0	0	0	0	1	0	0
1132	0	0	0	0	1	0	0
1133	0	0	0	0	1	0	0
1134	0	0	0	0	0	0	1
1135	1	1	0	0	0	0	0
Total	275	307	314	579	223	55	412
Total %	12.7%	14.2%	14.5%	26.7%	10.3%	2.5%	19.0%

Overall, the vast majority of the use of Internet discussion groups was for course-related items (e.g., Questions/Answers, Materials, Assignments, and Discussion). Only one in three messages posted was not germane to the course (e.g., Classifieds, Clubs & Societies, or Other).

However, this apparent positive trend in usage isn't uniform throughout all of the newsgroups that were monitored. When the results were divided between newsgroups where the instructor was involved, instructor-driven, and newsgroups where the instructor was not involved, student-driven, the results vary considerably. The researcher used information provided by the department heads or school directors, along with the Carleton University World Wide Web site and the signature files in individual messages to determine the identity of the instructors for each course. For the purpose of this thesis, any newsgroup where the instructor posted a message was considered an instructor-driven newsgroups.

Table 14
Contents of Posts Made to Newsgroups based on Instructional Model

Model	Questions/Answers	Materials	Assignments	Discussion	Classifieds	Clubs & Societies	Other
Instructor	168 *(12.5%)*	271 *(20.2%)*	221 *(16.4%)*	369 *(27.5%)*	50 *(3.7%)*	27 *(2.0%)*	238 *(17.7%)*
Student	107 *(13.0%)*	36 *(4.4%)*	93 *(11.3%)*	210 *(25.6%)*	173 *(21.1%)*	28 *(3.4%)*	174 *(21.2%)*
Total	275 *(12.7%)*	307 *(14.2%)*	314 *(14.5%)*	579 *(26.7%)*	223 *(10.3%)*	55 *(2.5%)*	412 *(19.0%)*

When the newsgroups are broken down into instructor-driven and student-driven, the course-related usage in instructor-driven newsgroups climbs to over 75%, while the course-related usage in student-driven newsgroups falls to approximately 50%. On closer reflection, there are two categories where there are large differences in the percentage of usage and two other categories where there are smaller noticeable differences.

The two categories where there are large differences are the "Materials" and "Classifieds" categories. Approximately one out of every five messages that were posted in instructor-driven newsgroups were posted to the "Material" category. At the same time, approximately one out of every five message posted in student-driven newsgroups were posted to the "Classified" category.

The two other categories where there were noticeable differences were the "Assignments" and the "Other" categories. The percentage of posts made to the "Assignment" category was approximately 5 percent higher in instructor-driven newsgroups, while the percentage of posts made to the "Other" category was approximately 4 percent higher in student-driven newsgroups. These specific observations also follow the trend that instructor-driven newsgroups have more course-related content than student-driven newsgroups.

Some of these differences may be due to a different mindset on the part of the students who know that the instructor is present and will eventually read what is posted. However, as Tables 15 and 16 will indicate, many of these differences are due to the direct activity of instructors and teaching assistants, that is the calculation of their own posting to the total for the newsgroup. Tables 15 and 16 provide a content analysis on a student by student basis for one class over two terms: the Fall terms being illustrated in Table 15 and the Winter term in Table 16. There were 157 students, one instructor and at least three teaching assistants in this class. This class is utilised as an example of how in an instructor-driven newsgroup, the totals for each content category can be skewed based upon the instructors own participation.

Table 15
Contents of Posts Made to Newsgroup 2020

Students	Questions/Answers	Materials	Assignments	Discussion	Classifieds	Clubs & Societies	Other
S-001							
S-002							
S-003				2			
S-004							
S-005							
S-006							
S-007							
S-008							
S-009							
S-010							
S-011							
S-012	1						
S-013							
S-014							
S-015							
S-016				1			
S-017							
S-018							
S-019							
S-020							
S-021							
S-022							
S-023							

S-024							
S-025			1				1
S-026							
S-027							
S-028							
S-029							
S-030							
S-031							
S-032							
S-033							
S-034							
S-035							
S-036							
S-037							
S-038							
S-039				1			
S-040							
S-041							
S-042							
S-043							
S-044			1				
S-045							
S-046							
S-047							
S-048							
S-049							
S-050							
S-051							
S-052							
S-053							
S-054							
S-055							
S-056							
S-057							
S-058	1			1			1
S-059							
S-060							
S-061							
S-062							
S-063							
S-064							
S-065							
S-066							
S-067							
S-068							
S-069							
S-070							
S-071							

S-072							
S-073							
S-074	1			1			
S-075							
S-076							
S-077							
S-078							
S-079							
S-080							
S-081				1			
S-082							
S-083							
S-084							
S-085							
S-086							
S-087							
S-088							
S-089							
S-090							
S-091							
S-092							
S-093							
S-094							
S-094							
S-095							
S-096							
S-097				1			
S-098							
S-099							
S-100							
S-101							
S-102							
S-103							
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S-105							
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S-130							
S-131							
S-132							
S-133							
S-134							
S-135					1		
S-136							
S-137							
S-138							
S-139							
S-140							
S-141							
S-142							
S-143							
S-144							
S-145							
S-146							
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S-148							
S-149							
S-150							
S-151							
S-152							
S-153							
S-154							
S-155							
S-156							
S-157							
S-158					1		
S-159					1		
S-160					2		
I-001	2	15	3	1			2
TA-001			3	1			
TA-002							
TA-003		2		1			

As is indicated in this table, during the Fall term only 11 of the 157 students or 7% of the students in the class actually posted a message to the newsgroup. The activity of this 7% accounted for 32% of the total activity in this newsgroup. In addition to the 157 students in the class, three students who were not members of the class (i.e., S-158, S-159 and S-160) also posted messages to the newsgroup. This would bring the total student activity to 40% of the messages posted to this newsgroup.

During the same term, the instructor posted 46% of the messages to this newsgroup, while three teaching assistants posted accounted for 14% of the usage in this newsgroup. In numeric terms, those responsible for instruction within the course posted 30 of the 50 messages in the newsgroup. This trend continued into the Winter term.

Table 16
Contents of Posts Made to Newsgroup 2021

Students	Questions/Answers	Materials	Assignments	Discussion	Classifieds	Clubs & Societies	Other
S-001							
S-002							
S-003							
S-004							
S-005							
S-006							
S-007							
S-008							
S-009							
S-010							
S-011							
S-012							
S-013							
S-014							
S-015							
S-016							
S-017	1						
S-018							
S-019							
S-020							
S-021	1						
S-022							

S-023							
S-024							
S-025	1			1		3	
S-026							
S-027							
S-028							
S-029							
S-030							
S-031							
S-032							
S-033							
S-034							
S-035							
S-036							
S-037							
S-038	1						
S-039							
S-040							
S-041							
S-042							
S-043							
S-044							
S-045							
S-046							
S-047							
S-048							
S-049							
S-050							
S-051							
S-052							
S-053							
S-054							
S-055							
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S-060							
S-061							
S-062							
S-063							
S-064							
S-065							
S-066							
S-067							
S-068							
S-069							
S-070							

S-071							
S-072							
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S-076							
S-077							
S-078							
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S-080							
S-081							
S-082							
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S-084							
S-085							
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S-087							
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S-111							
S-112							
S-113							
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S-116							
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S-118							
S-119							
S-120							
S-121							
S-122							
S-123							
S-124							
S-125							
S-126							
S-127							
S-128							
S-129							
S-130							
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S-149							
S-150							
S-151							
S-152							
S-153							
S-154							
S-155							
S-156							
S-157							
S-158							1
S-159				1			
S-160						1	
S-161		1					
S-162					5		
I-001	1	4	2	1			

TA-001	1						
TA-002							1
TA-003							

During the Winter term, even fewer students participated in the newsgroup. As this table indicates, only 5 of the 157 students or 3% of the students in the class actually posted a message to the newsgroup. However, the activity of these students still accounted for 32% of the total activity in this newsgroups, the same percentage as the Fall term. In addition to the 157 students in the class, there were five students who were not members of the class (i.e., S-158 through to S-162) who also posted messages to the newsgroup during the Winter term. This brought the total student activity to 65% of the messages posted to this newsgroup or two out of every three messages.

During the same term, the instructor only posted 27% of the messages to this newsgroup, while three teaching assistants posted accounted for 7% of the usage in this newsgroup. In numeric terms, those responsible for instruction within the course only posted 10 of the 28 messages in the newsgroup. However, it should be noted that students who had nothing to do with this class accounted for half of the student activity and most of that activity fell into non-course-related categories.

This activity by non-students, or students not enrolled in the class, is something which cannot be prevented in an environment where the instructor cannot control who has access to the discussion group, as is the case with Usenet newsgroups. This is also illustrated in Table 17[100], which presents the usage from one department by students,

[100] Table 17 is included in Appendix L and not in the body of the thesis due to its size and format.

instructors and teaching assistants. This department had 55 active newsgroups during the Fall of 1999 and Winter of 2000.

There were 121 different students, 5 different instructors and 4 different teaching assistants who posted one or more messages to these 55 newsgroups. However, in 27 of these newsgroups, one student was responsible for almost all of the use. In newsgroups 84 and 107 to 133, student S-043 posted at least one message in each of these groups, which was approximately half of the newsgroups associated with this department. This student was also responsible for all but 11 messages in 9 of these newsgroups and was the only student to post in another 18 newsgroups.

With the exception of the almost "monopoly of usage" by one student of half of the newsgroups in this department, the usage in this department also indicates that there were only an average two to three students posting to each newsgroup. The fact that some of these newsgroups were associated with first year courses, which have over a hundred students, indicates that the level of students in each course using these newsgroups was quite small. In fact, the greatest amount of usage came from individual instructors (e.g., I-003, I-004 and I-005), who were more prolific than any of the students on a per newsgroup basis.

Nature of Internet Discussion Groups

While the following section attempted to answer the question of what the newsgroups being used for, one of the questions considered in this section is: "When are

these newsgroups being used? As has been discussed earlier, one of the primary advantages of Internet discussion groups is the fact that they can facilitate round the clock discussion. Table 18 provides the number of messages that were posted by each four hour block of time on a newsgroup-by-newsgroup basis.

Table 18
Time of Day of Posts Made to Newsgroups

Class	12:00am-4:00	4:00am-8:00	8:00am-12:00	12:00pm-4:00	4:00pm-8:00	8:00pm-12:00
2001	10	2	57	93	64	51
2002	4	0	10	41	41	36
1003	0	0	1	1	0	0
1004	0	0	2	2	1	1
1005	0	0	1	0	0	0
2006	1	2	15	21	4	1
1007	0	0	1	0	0	0
2008	4	0	10	11	13	8
1009	0	0	0	1	0	2
1010	0	0	0	0	0	2
1011	0	0	0	1	1	3
2012	0	0	2	11	7	0
1013	0	0	1	0	0	0
1014	0	0	1	0	0	0
1015	0	0	1	0	0	0
1016	0	0	1	0	0	0
1017	0	0	1	0	0	0
1018	0	0	1	0	0	0
1019	0	0	1	0	0	0
2020	1	2	14	13	10	10
2021	2	0	7	8	6	5
1022	6	3	45	56	42	23
1023	13	3	36	37	31	23
2024	18	2	49	69	76	50
2025	13	0	18	43	38	19
1026	0	0	1	1	1	1
1027	1	0	0	1	0	0
1028	1	0	0	1	0	0
1029	0	0	1	0	0	0
1030	0	0	1	0	1	0
2031	0	0	3	1	12	1
1032	1	0	0	0	0	1
2033	0	0	0	0	0	1
2034	0	0	0	0	0	1
1035	0	0	0	1	1	0
1036	3	0	13	24	24	10
1037	7	1	3	5	13	3

1038	0	0	1	3	3	0
2039	3	0	4	3	3	1
1040	0	0	1	0	0	0
2041	2	0	5	10	2	1
1042	4	1	3	10	5	3
1043	3	0	4	6	8	1
2044	0	0	7	2	1	1
2045	2	0	3	3	5	0
2046	0	0	2	1	0	0
1047	0	0	1	0	0	0
1048	0	0	0	0	1	0
1049	0	0	0	0	2	0
1050	0	0	1	0	0	0
1051	0	0	2	1	1	1
1052	1	0	2	3	7	1
1053	0	0	1	1	0	0
1054	0	0	1	0	0	0
1055	0	0	1	0	0	0
1056	0	0	0	0	0	1
1057	0	0	1	0	0	0
1058	0	0	1	0	0	0
1059	1	0	0	0	0	0
1060	0	0	0	0	1	0
1061	0	0	1	0	0	0
1062	0	0	1	0	0	0
1063	0	0	1	0	0	0
1064	0	0	0	1	0	0
1065	0	1	4	1	6	0
1066	0	0	1	0	0	0
1067	0	0	1	0	0	0
1068	0	0	1	0	0	0
1069	0	0	1	1	2	2
1070	0	0	2	1	2	0
1071	0	0	1	1	0	0
1072	0	0	0	1	0	0
1073	0	0	0	1	0	0
1074	0	1	0	3	0	1
1075	2	1	8	4	20	10
1076	0	0	6	2	4	3
1077	1	0	1	6	5	7
1078	0	0	1	4	2	0
2079	6	4	23	16	8	5
2080	1	0	2	1	1	0
2081	9	1	16	16	7	12
1082	0	0	1	0	0	0
1083	0	0	6	5	9	4
1084	0	0	1	2	0	0
1085	0	1	5	2	7	2

2086	0	0	7	11	10	7
1087	0	0	1	1	0	1
1088	0	0	0	1	0	0
1089	0	0	0	4	4	0
1090	0	0	0	0	1	0
1091	0	0	1	3	5	0
1092	0	0	0	0	1	0
1093	0	0	1	9	5	1
1094	0	0	0	0	1	0
1095	0	2	9	7	3	1
1096	0	0	1	0	0	0
1097	0	0	1	1	0	1
2098	2	2	17	22	12	1
1099	0	0	1	3	1	0
1100	0	0	1	0	0	0
1101	0	0	1	0	0	0
2102	0	0	1	3	0	0
2103	0	0	10	9	2	0
1104	0	0	1	0	1	0
2105	0	0	1	3	0	1
1106	0	0	0	0	0	1
1107	0	0	1	1	0	0
1108	0	0	1	1	0	0
1109	0	0	2	0	0	0
1110	0	0	1	0	0	0
1111	0	0	2	1	1	0
1112	0	0	1	0	0	0
1113	0	0	1	0	0	0
1114	0	0	1	0	0	0
2115	0	0	2	1	0	0
1116	0	0	1	0	0	0
1117	0	0	1	0	0	0
1118	0	0	1	0	0	0
1119	0	0	1	0	0	0
1120	0	0	1	1	0	0
1121	0	0	1	0	0	0
1122	0	0	1	0	0	0
1123	0	0	1	0	0	0
1124	0	0	1	0	0	0
1125	0	0	1	0	0	0
1126	0	0	1	0	0	0
1127	0	0	1	0	0	0
1128	0	0	1	0	0	0
1129	0	0	1	0	0	0
1130	0	0	1	0	0	0
1131	0	0	1	0	0	0
1132	0	0	1	0	0	0
1133	0	0	0	0	1	0

1134	0	0	1	0	1	0
1135	0	0	0	0	0	0
Total	122	29	506	636	547	322
Total %	5.6%	1.3%	23.4%	29.4%	25.3%	14.9%

These results indicate that users (i.e., students, teaching assistants and instructors) did post messages to newsgroups at all hours of the day or "round-the-clock." While there were certain time periods that received more use than others, there was some usage during each four hour time period.

When considered more closely, just over 50% of all messages were posted during the traditional university classroom time periods (e.g., 8:00am-12:00 and 12:00pm to 4:00) and another 25% of all messages were posted during non-traditional university classroom time period (e.g., 4:00pm to 8:00). This means that approximately 25% or one in every four messages was posted during time when universities typically do not hold classes at all (e.g., 8:00pm-12:00, 12:00am to 4:00 and 4:00am to 8:00).

In addition to the data collected from the messages posted to various newsgroups, surveys completed by students of four different courses provided other information about students' activity in these newsgroups.[101] One piece of information that isn't present in simply viewing the message posted is how many people actually access the newsgroups without posting a message to it, which would leave a trail to follow. According to the information provided in the surveys, almost 50% of students accessed the newsgroups without posting a message to them.

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[101] See Appendix M to view the complete results of the student surveys.

The surveys also revealed that Usenet newsgroups were part of other courses for almost 60% of the students, while approximately the same percentage of students had never accessed a Usenet newsgroup prior to that school year. In addition to accessing Usenet newsgroups for course purposes, approximately 45% of students surveyed reported signing on to newsgroups for work and/or pleasure. Given the small number of messages posted to many newsgroups or the small number of students posting messages to newsgroups, the number of students lurking (i.e., individuals who access a newsgroup to read the messages, but who do not post messages themselves) appears to be much greater than the number of students actually participating.

This lurking population is significant. However, it is both understandable and quite remarkable in some respects. According to the students surveyed, approximately 60% of respondents indicated that they had used a Usenet newsgroup for another course. This is quite remarkable as approximately the same percentage of students reported to never having used a Usenet newsgroup prior to that year. What appears to be more interesting is the fact that 45% of students responded that they also signed on to other Usenet newsgroups for work or pleasure purposes. These high levels of usage reported by the students are quite remarkable given the observations from class 2021, where only 3% to 7% of students actually participated in the newsgroup by posting a message to hat newsgroup.

Student Perceptions

While students appear to be adjusting to the usage of Internet discussion groups, it also appears that many Canadian universities are not that concerned about students' perceptions of Internet discussion groups. This lack of concern was largely indicated by the comments made concerning the criteria for adoption of Internet discussion groups by many universities is solely reliant upon the instructor's interest and level of technical ability. The comments made in this survey of Canadian universities did not indicate that student opinion was something that was considered in terms of whether or not to utilise an Internet discussion group.

However, when surveyed two thirds of students indicated that they would like to see Usenet newsgroups available to them, and two percent even felt that participation in these Usenet newsgroups should be required for all students. When asked to comment on the statement "I would recommend that all professors adopt the use of Internet discussion groups in their classes," 50% of students reported "Somewhat agree" or "Strongly agree." Only 18.9% reported that they disagreed. However, while half of the students felt that discussion groups should be used by professors, only one third of students surveyed actually reported that they used the newsgroup themselves.

Of the two-thirds of students who did not sign on to the Usenet newsgroups, there were four main reasons provided for not doing so: awareness, knowledge, time and "ludditism." Two factors which individual instructors and universities should be able to

overcome were the issues of students not knowing that the newsgroup even existed or simply not knowing how to access the newsgroup. While these reasons for non-use may be obstacles that can be overcome, there are two larger issues which universities may not be able to overcome. Many students reported that with their class schedules, readings, assignments, work schedules and social life, they simply did not have the time to sign on to these newsgroups. The final and most common reasons given for not signing on to the newsgroups was "ludditism" or a simply dislike of computers and technology.

While most students may not access Internet discussion groups, they can easily point to the benefits that they see in the medium. The most common benefit reported by the students was the ease of access to instructors, teaching assistants and other students. This ease of access created a greater level of communication between the individual student and their instructor, teaching assistant and peers. In addition to access, another common benefit reported was that the Internet discussion group provided students to ability to go beyond the lecture, both in terms of being able to provide more material and in terms of being able to go beyond the actual time assigned to the lecture.

In addition to the benefits reported by the students in their surveys, the researcher was also able to witness many benefits that occurred in student usage. In some newsgroups, students were involved in the reviewing of supplemental materials and posting their commentary for others. This activity provided a sharing of information and allowed students to spend less individual as opposed to collective time on supplemental materials, but more collective time. Another instance of student benefit that were witnessed by the researcher included the creation of study groups through online

collaboration and in-depth discussion of class topics that went well beyond the bounds of class in both time and detail.

While there were many reported or observed benefits to the Internet discussion groups, students also reported many dislikes regarding Internet discussion groups. In terms of technical dislikes, the students found it difficult or were unable to access the discussion groups from home. They also disliked the amount of "spam" or non-course-related messages. The students also reported as their main dislike the lack of student participation and the lack of involvement by instructors and teaching assistants, which they feel contribute to the lack of student participation, as their main dislikes.

In completing their surveys, students did not just discuss their dislikes towards Internet discussion groups, but also addressed methods for instructors and universities to compensate for these dislikes. In a somewhat cyclical manner, students reported that if more students were involved in the Usenet newsgroup, student participation would increase. The assumption is that more students would result in a greater diversity of opinion and simply more for someone to react to. In terms of technology dislikes, the students responded that a more user-friendly system would increase student usage. While not stated in the surveys, more user-friendly might indicate an icon-based environment. Students also stated that more information on how to use the Internet discussion groups, in terms of written instructions or tutorial sessions where they could be shown how to use the system would be useful. While students felt that these two things would increase student participation, they felt that active use by their instructor and teaching assistants would increase student participation more than anything else.

Students also provided reasons in favour of the involvement of instructors and teaching assistants in their responses. When asked to respond to the statement "The Internet discussion group allowed the professor to be more responsive to the needs of students," approximately 45% of students indicated that they "Somewhat agreed" or "Strongly agreed." Approximately a third of students agreed with the statement "I think our use of the Internet discussion group improved the quality of the course overall," while almost 60% disagreed with the statement "Use of the Internet discussion group lowered the overall quality of the course."

It is interesting to note that roughly one out of every five students agreed with the statement: "The Internet discussion group improved the teacher's effectiveness." This low level of support may be due to the small number of instructors who made use of the discussion groups (e.g., 26 of the 135 newsgroups that were monitored were instructor-driven). However, it may also be due to the ways in which instructors chose to use the discussion groups.

Teaching Strategies

While instructors only participated in fewer than 20% of the Internet discussion groups that were monitored by the researcher, they did use the discussion groups as had been suggested by many of the students in their surveys. Much of their use was in the form of posting course material, such as outlines, assignments and announcements. Another one of the more common means for the instructor to use the discussion groups

was to post notes from the classroom lectures. These notes took many forms, from providing the addresses of World Wide Web sites that were discussed in class to providing bibliographical references to texts, articles or works of art.

The instructors were not the only group who used the discussion groups for instructional purposes. Teaching assistants also made use of the discussion groups. This use took the form of posting announcements, organising study groups or exam review sessions. One of the creative uses by the teaching assistants was to post the discussion questions that would be covered in their sessions, so students could come more prepared.

In addition to being utilised as a broadcast medium, instructors also organised the students using the discussion groups. In some instances, students were instructed to provide material in preparation for class presentations. Others were instructed to publicly review presentations and ask follow-up questions of the presenters in the discussion groups. In one course, the instructor had students who were unable to participate during the in-class discussion, post their contributions to the discussion group.

While all of these uses by instructors and teaching assistants provide a more valuable experience to students, the researcher was left with the impression that use of the Internet discussion groups by the instructors and teaching assistants appeared less as a planned component of the course, as a useful tool to push more course material on the students.

Chapter 5 - Conclusion

Introduction

One of the main concerns or weaknesses mentioned by the students in the analysis of Internet discussion groups was the lack of knowledge and/or technical ability on how to access these discussion groups. However, in this concern expressed by the students, they raise one of the primary components of research concerning teaching and learning and the use of the Internet. The hardware and software are constantly changing to become easier to use or more "user-friendly." Students are entering the post-secondary environment with more technology skills as secondary school curricula change to meet the demands of the new economy and as a higher percentage of students have access to personal computers at home.

The data collected from the discussion groups observed by the researcher were from the Fall 1999 and Winter 2000 terms. These data are over a year old and with the rapidity of technological change, the question of whether the same conclusions might be drawn from a more recent set of data is a valid one. This question is especially applicable to the survey of Canadian universities conducted for this thesis late in the summer of 1999. If a similar survey were to be conducted in the summer of 2001, the number of Canadian universities using some form of Internet discussion group would probably increase and the amount of use within individual universities would also probably

increase. As the usage of this medium continues to increase, others may wish to conduct research of this nature.

Summary

According to the data collected in the survey to Canadian universities by Barbour (1999), and the survey used for this thesis, the vast majority of universities made use of some form of Internet discussion groups. Of the universities that did not make use of discussion groups, the most common reasons that were provided were the university's inability to control the amount of access to (i.e., who utilised these forums) the discussion group and the university's inability to control the content (i.e., what was discussed in these forums) of these discussion groups.

Of those universities that did make use of discussion groups, the vast majority of this use occurred with instructors from technology or science related disciplines. The reason for this appears to be the comfort level with technology expressed by faculty members within these disciplines. The comments made on one of the university surveys summarises these ideas:

> The level of use of the Web and the Net in a given faculty or department seems to roughly correspond to an existing level of knowledge and comfort with technology. For instance, many of the departments within the faculty of science are more developed than the department of arts. However, in each case usage appears to require an individual within a department who has a personal interest in computers and the Web and who is willing to spend significant amounts of their time on development. At this time there is no formal recognition for faculty who are actively using technology in teaching. It is not a consideration for promotion, retention, or tenure.

However, it appears that the most logical discipline to make use of Internet discussion groups would be disciplines within the arts and social sciences. Discussion is more inherent in the curricula of courses within the arts and social sciences than it is in courses within the technical fields or sciences. Regardless of the discipline, within a post-secondary environment, how much time can an instructor spend on class discussion and still be able to cover all of the required material within a course? Some universities have taken to using "teaching assistant classes," which are used solely for discussions and problem solving. However, even these sessions are limited by time.

The only medium that post-secondary instructors have access to that can allow for two-way discussion (i.e., instructor to student/student to instructor and student to student) at any time is the Internet discussion group. Not only do instructors and students have access to it at any time, but, as the data presented in Chapter 4 have indicated, they utilise it at any time. Table 11 indicated that there was use in all of the six time slots and that almost half of the use occurred in non-traditional hours (i.e., 4:01pm to 8:00am). This type of access and usage provides instructors and students with the ability to participate in class discussions whenever they want.

While instructors and students may have access to these discussion groups at any time, in the two classes where the researcher was able to obtain class lists the percentage of students who actually posted messages to the discussion groups was very low. There were only 7% of students in class 2020 and 3% of students in class 2021. This level of usage begs the question as to why an instructor would bother with the additional work of an Internet discussion group when only these few students make use of it. However, a

count of the number of students who simply post messages does not provide an accurate reading of the level of participation in the class. There are many students who do not post messages to the discussion group, but still participate in the discussion by simply reading the messages (i.e., "lurking"). According to the survey completed by four of the classes, almost 50% of the students who had accessed their course discussion group during the previous term had not posted a message. Using the data from classes 2020 and 2021, it is a safe assumption to state that approximately 5%-10% of students in a given class will post messages to a discussion group while another 50% of students in the same class will read the message in the discussion group on a regular basis (i.e., "once per week" or "more than once per week"). The survey results indicate that almost two out of every three students are participating in the Internet discussion groups.

After having considered how much of the class is actually making use of these Internet discussion groups we may ask: what are these students logging into these discussion groups to read and why do so few actually post messages of their own? According to the content analysis in Table 13 contained in Chapter 4, the largest number of messages posted fell into the "Discussion" category. Even when the data were broken down into instructor-driven and student-driven discussion groups, as was completed in Table 14, the "Discussion" category still had the highest percentage of messages. However, the percentage of messages that fell into the "Discussion" category did not increase a significant amount in instructor-driven discussion groups compared to student-driven discussion groups. The percentage of messages in the "Materials" category increased significantly, but the presence of an instructor did not increase the amount of

discussion. In addition, the presence of an instructor in the discussion group only had a small decrease on the amount of "Other" messages that were posted. This pattern of usage indicates the presence of an instructor in a discussion group did not increase the amount of two-way discussion and did not decrease the amount of non-course related messages.

What the presence of an instructor in a discussion group did appeared to effect was the number of messages being posted by people who were not in the class. As was indicated in the tables relating to classes 2020 and 2021, only a small number of students who were not in the class posted messages to the discussion group. This compared to classes 1107 to 1133, all 27 of which were student-driven, where almost every single post came from the same student.

Discussion

As was indicated by students in their responses to the survey and by many of the research studies, such as Foley and Schuck (1998), a majority of students find the use of Internet discussion forums useful, even enjoyable. However, given the small number of students who actually post messages to their Internet discussion groups and the large number of students who simply "lurk" around these discussion groups, the primary concern of universities that choose to make use of this medium must be how to convince these "lurkers" to post message to the discussion forum and how to reach the more than one-third of students who choose not to access these discussion groups at all.

The information provided in the student surveys may provide some suggestions. One of the most consistent reasons provided to the question "If you did not sign on to the Usenet newsgroup, please briefly explain why not?" was that students did not know that the discussion group was available to them. Another of the more consistent responses was the lack of knowledge on how to access the discussion groups. One of the main reasons for these obstacles appears to be the small number of instructors that make use of the discussion groups. This reason was suggested in the previous section, "the level of use of the [World Wide] Web and the [Internet] in a given faculty or department seems to roughly correspond to an existing level of knowledge and comfort with technology."

This fact was recognised by the individuals responsible for setting the computer policies at various universities. In completing the survey that was e-mailed to them, one individual suggested that she "expected use to grow as faculty abilities ramp up." Another individual commented that "the main issues aren't related to the tool. They're to do with the time the professor is willing to put into it, and how to get unconfident or insecure students to participate -- they are potentially putting their ignorance on display."

Most of the discussion groups that were monitored for this thesis were student-driven. If the instructor does not utilise the discussion group themselves, then they also would not promote its use during class time. However, it appears that even this obstacle is beginning to be overcome. According to one individual who's university supports WebCT as an e-learning tool, "seminars about WebCT offered to faculty are oversubscribed."

If the instructor doesn't use the discussion group, but as mentioned above this trend is changing, the lack of usage by the instructor does not provide the average student with an incentive to use the discussion group. One of the incentives for post-secondary students are the marks they obtain for completing an activity. If an activity has a value within the course evaluation, the majority of students will complete that activity. If an activity has no value within the course evaluation, unless it will assist the student in obtaining marks through a related activity, the vast majority of students will not complete that activity.

This incentive system was raised by students in their responses to the survey. It was also suggested by 65% of students that they should have the ability to decide whether or not their participation in the Internet discussion group would be worth a percentage of their final grade, with 2% saying that participation should be a required component of the course that was worth 5%-10% of their final grade. The use of the Internet discussion group by instructors as a means for class-related discussions which would eventually be worth 5% or 10% of the students' final grade would increase the numbers of students who would participate in these groups by simply having more students replying to a question or statement made by the instructor. According to responses in the student surveys, many students stated that if there were more students participating, that would lead to more differences of opinions and increase the likelihood that they would participate. This would not only increase the amount of instructor-to-student/student-to-instructor interaction, but also the amount of student-to-student interaction.

However, what concrete actions can instructors take to increase the usage of their Internet discussion group, other than simply having participation in the discussion group worth a percentage of the student's final evaluation? Marks alone are unlikely to increase participation if that participation isn't encouraged and guided. The first step that instructors need to take is to make sure that all students know about the Internet discussion group and how to access it. Some of the suggestions from the students included putting a paragraph or two in the course outline about the discussion group and how to access it or setting up a computer lab orientation session for those students who may not be that computer literate.

In addition to ensuring that students have the knowledge and technical ability to use the Internet discussion groups, instructors must also ensure that they have guided activities for the students to complete when the access the discussion group. There were numerous suggestions on ways to use computer-mediated communication provided by McComb (1993) outlined in Chapter 2. These suggestions included:

1. Students submitted their group assignments to me. I inserted my comments in capital letters under the pertinent text in their work, asked them to resubmit until the work was "good enough" to continue, and send the assignments back.

2. Students or groups sent questions or concerns to me or to other students as private mail.

3. I sent instructions, questions, directions, guidance, etc. to groups or individuals as private mail.

4. Groups sent me weekly group process reports as private email. I responded to problem areas or issued praise in return email.

5. Students wrote and edited their assignments online using the text editor.

6. Some groups wrote their assignments on a word processor, uploaded them and sent them to me.

7. I posted class announcements on the bulletin board.

8. Students posted messages (although not too many) on the builetin board.

9. I made course materials that would otherwise have been handouts available on the library disk.

10. Through Internet, students had access to other resources, such as Comserve discussion groups, as well as an outside grader for the final project.[102]

Some of the suggestions from the students surveyed included having the instructor post weekly discussion questions for the students to respond to, having students read one piece of supplemental material and post a review of it to the discussion group so that all students could read their summary, or having the instructor provide additional materials (e.g., World Wide Web sites, articles, etc.) for the students to view and discuss. These types of guided activities would provide the students with something meaningful to do, while allowing the instructor some substantive material to provide an accurate mark and to enhance the student's learning experience.

Conclusions

There are many conclusions that can be drawn from this thesis. The first and most obvious conclusion is that Internet discussion groups are useful to student learning and could be utilised more often by individual instructors and post-secondary institutions in general. This conclusion is drawn largely from the students own perceptions of Internet discussion groups that were provided in the student surveys. According to these perceptions the usefulness of the Internet discussion group appears to increase with the

[102] Supra. note 27.

presence of instructors and teaching assistants, particularly when these individuals use the Internet discussion group for guided learning activities, such as those described above.

However, there appears to be an interest among students to use these mediums with or without the presence of an instructor. Many students who had reported not to use their course's Internet discussion group at all, stated that they did not do so because they either did not know it was available or they did not know how to use this discussion format. Only a small percentage of students reported not using the Internet discussion group because they did not want to use the medium. This means that with an increase of knowledge that these Internet discussion groups exist, and with some training provided to overcome any gap in technical skills, students will use this medium in larger numbers without the insistence of an instructor.

It should not be taken for granted that students are the only ones that need training to overcome the gaps in technical ability. As was stated in one of the surveys to Canadian universities, "the level of use of the [World Wide] Web and the [Internet] in a given faculty or department seems to roughly correspond to an existing level of knowledge and comfort with technology." The first step in increasing the educational value of Internet discussion groups is to increase the level of knowledge and comfort of the faculty members in using this technology. Once they feel comfortable in using this medium, they will be able to provide the needed incentive to increase the level of student participation, thus increasing the educational value of the medium.

Recommendations for Future Research

There are a number of recommendations that could be made for future research in the field of Internet discussion groups. While this thesis has provided a large amount of data, there is some data which it was unable to either appreciate to the fullest extent, or unable to access.

The inability of the researcher to obtain permission to follow a process of true silent monitoring placed limitations on the data collected. Students in the affected classes no longer acted as if they weren't "being watched" because they had knowledge that they, were in fact, "being watched." Future research into the area of Internet discussion groups needs to follow a process of true silent monitoring to obtain a natural data set.

The ability of future researchers to have knowledge about the nature of the class might also assist them in their research. In many instances, the researcher placed certain messages into particular categories without the knowledge of the instructions provided by the professor. The researcher did not have access to a course outline which would have provided information about the tests and assignments, due dates, and required use of the Internet discussion group or if there was any required use at all. All of this knowledge would make the classification of any content analysis of future research into Internet discussion groups much more valid.

While the researcher was able to "scratch the surface" in terms of the consideration of what percentage of students make use of Internet discussion groups, this consideration was with two out of a possible 135 classes. The ability to obtain additional

class lists for the courses associated with individual Internet discussion groups would strengthen any future researcher's consideration of this component of Internet discussion groups. The consideration provided in this thesis does not have a large enough data set to draw any firm conclusions.

One of the major disappointments of the researcher was the inability to obtain permission to use any of the classes from Acadia University or Memorial University of Newfoundland as a part of the research for this thesis. This meant that the research could not consider how a student's level of participation in an Internet discussion forum might affect the grades of that student. This is an area of research that could to be explored further as the number of universities that make use of Internet discussion groups increase and the number of courses making use of Internet discussion groups within these universities also increases.

Another possible opportunity for future research was raised in a comment by one of the individuals responsible for computer policy at one of the universities that was surveyed.

> If you could compile statistics on what packages Canadian universities are using, that would be very helpful. Applications Analysts such as myself often have to take a shot in the dark based on a few Internet reviews and our own testing, when statistics would probably show right now that more than 50% of Canadian universities are using WebCT or considering it.

At present there are three or four main e-learning platforms, such as WebCT, FirstClass, TopClass and Web Course in a Box, along with a number of other less popular pieces of software. In addition to specific e-learning platforms, e-mail listservers, Usenet newsgroups and simple CGI scripts also provide instructors with opportunities to use

Internet discussion groups. As was suggested by the Applications Analyst above, there is little research available to these individuals on what e-learning tools are being used by Canadian universities.

In this thesis the researcher has spent a considerable amount of time reflecting upon the statistical nature of Internet discussion groups. Much less consideration was given to the results of the student survey found in Appendix J. One area that may interest future researchers is a greater consideration of the raw data contained in Appendix M or a general consideration of student perceptions of Internet discussion groups.

One final area that may be of interest to future researchers may be a controlled experiment to determine whether the use of Internet discussion groups assist the actual learning practice. This type of experiment could include the use of a control class that was taught without the use of an Internet discussion group and an experiment class taught in the same manner except the instructor makes use of an Internet discussion group. These two classes could be given pre-tests and post-tests to determine which class experienced the greatest increase in content retention or knowledge.

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Appendix A - Definition of Terms

For the purposes of this thesis, the following terms will be utilised to mean:

Field of Education - a Canadian undergraduate environment at the university level.

I Seek You (ICQ) - a piece of software created by Mirabilis which allows users to communicate with each other in a variety of ways, such as real-time chat, e-mail, voice, message board, data conferencing, file transfers, or Internet games.[103]

Internet Relay Chat (IRC) - a system that enables Internet users to talk with each other in real time over the Internet rather than in person.[104]

Multiple User Dungeon (MUD) - a text-based virtual reality programme in which multiple users can interact synchronously as they navigate between different rooms in the virtual reality domain.[105]

Multiuser Object Orientated (MOO) - a newer version of a MUD, MOOs allow users to easily create enhanced characters, objects and rooms. In turn, these help create text-based virtual reality sites.[106]

Networked - a series of computers that have been connected to one another to allow for sharing of resources, specifically hardware and software.

Thread - a series of posts made to an Internet discussion group which are all tied to the same subject heading (i.e., topic).

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[103] ICQ Inc. Mirabilis. 18 April 1999 <www.mirabilis.com>.
[104] Getting Online: Glossary of Internet Terms. Manchester City College. 18 April 1999 <http://www.idea.org.uk/go/courses/RT/gloss.htm#I>.
[105] Terry Anderson and Margaret Haughey, *Networked Learning: The Pedagogy of the Internet* (Montreal, QC: Cheneliere McGraw-Hill, 1998).
[106] Ibid.

Appendix B - Messages Received by the Researcher in Response to the Monitoring of the Internet Discussion Groups

[Message 1]
Subject: Newsgroup monitoring
Hello, I read your email about your monitoring of the ecology newsgroup. I note that you are monitoring only biology newsgroups. I am a student here at Carleton in biochemistry, and my experience has shown that not many students use these newsgroups because the professors don't necessarily monitor them, so they feel it is pointless. Did you consider monitoring an ITV section newsgroup. For example the newsgroup for linguistics 29.241T will have a lot of traffic because this course is offered only by ITV, so the students have to use it in order to find out who's taking the course.

Good luck with your thesis.

[Message 2]
Subject: Carleton newsgroups

Hi!

I have read several of your postings for your research. One of them was my 2nd year documentary class 28.216*/19.216*

You mentioned monitoring it in the next term. This course is only until December, so it won't be going on in January anymore.

I remember mentioning before that active groups to follow are 28.100 and 28.225*, (next term 28.251*), both journalism newsgroups.

Hopefully this little bit of info will help. Good luck with your thesis.

[Message 3]
Subject: No subject was specified.

Hi Michael,

I have noticed your monitoring post in several biology newsgroups. I believe you might have better luck and certainly a lot more activity if you monitored the newsgroup for the

Carleton course 67.242avw (Climate Change: An earth sciences perspective). [Message 3]

[Message 4]
Subject: Re: This newsgroup will be monitored for thesis research

I think this is a great idea, although why you would want to study a dying medium is beyond me. But I'm just an undergrad.

Small problem. It is considered poor netiquette by some Usenetians to ask them to respond to a question in email, if the question is posed on a newsgroup.

However, the number of people who would find your request offensive is trivial, but it is beneficial for you to understand that this element of Usenet purist exists.

[Message 5]
Subject: Re: This newsgroup will be monitored for thesis research

Received your email, wanted to quickly thank you and encourage you that it is indeed acceptable to email me. I will respond more fully when time permits.

I had an excellent experience with 12.350 last year because the Usenet Group was required class participation. 2 posts a week was the minimum.

I have some great archives of posts from that course, and I would be more than willing to send some of them your way if the parameters of your research permit you to read them.

[Message 6]
Subject: Re: This newsgroup will be monitored for thesis research

You can be sure that your monitoring announcement has encouraged people to not use this newsgroup very much at all, even for course related discussion.

[Message 7]
Subject: newsgroup surveillance

Dear Michael Barbour:

I'd like to respond to your use of the ##.###X, XXXXXXXXXXXXXXXXX, newsgroup for your research.

I must tell you that I find it a bit disturbing that you were allowed to monitor the newsgroup for my course without my permission. Contacting the department head is not

sufficient, for it is instructors who decide how the newsgroup will function in their course. (Of course, my boss should have consulted me before agreeing.) The newsgroup is important to the social and intellectual life of the course, but an outsider who does not hear how the group is contextualised in live in-class discussion will not necessarily see how.

Newsgroups interest me too, and so I'd like to discuss your methodology with you. Beyond the non-permission issue and resultant surveillance effect of your lurking on our newsgroup, there are a couple of other assumptions that I think could give you trouble. One is your assumption that an evaluation of the quality of posts will help you "determine whether or not there is educational value in this particular newsgroup." I don't see how you can do this without knowledge of the entire course. The other is that you will not consider follow-ups to your posting as part of your research. This baffles me! Do you believe that will make your research more objective? I think follow-ups to your posting, or the research subjects' acknowledgement of our position as research subjects, could be extremely valuable to you, and that to suppress these responses is to misrepresent your research. The "Big Brother" posting that responded to your post, plus this letter from me, plus the *lack* of postings by students who do not want to be under surveillance, are integral to the newsgroup now that the newsgroup is being studied.

Appendix C - Survey to Canadian Universities

1. Has your University established World Wide Web forums (such as AltaVista Forums, TopClass, Web Tools in a Box, or WebCT) for any of the courses offered in your University calendar?

   a) Yes b) No

2. If yes, to what extent does your University provide these forums?

   a) a select few courses
   b) some courses, but not all
   c) all courses in some departments and none in others
   d) all courses in some departments and some in others
   e) all courses offered in your University's calendar

3. If no to question 1 or anything other than e) to question 2, what are your University's plans for web forums in the future (if any)?

4. Has your University established Usenet newsgroups for any of the courses offered in your University calendar?

   a) Yes b) No

5. If yes, to what extent does your University provide these forums?

   a) a select few courses
   b) some courses, but not all
   c) all courses in some departments and none in others
   d) all courses in some departments and some in others
   e) all courses offered in your University's calendar

6. If no to question 4 or anything other than e) to question 5, what are your University's plans for Usenet newsgroups in the future (if any)?

7. Are there any other comments which you would like to make?

Appendix D - Material Presented to Faculty at Acadia University

[E-mail]

Michael K. Barbour
Box 621, RR #1 Indian Meal Line
Portugal Cove, Newfoundland
A0A 3K0 Canada

Telephone/Fax: (709) 895-3514
e-mail: mkb@ncf.ca
Homepage: www.ncf.ca/~an650

01 June 1999

Professor, School of Education
Acadia University
Wolfville, Nova Scotia
B0P 1X0

Dear Madame/Sir:

I am a student working on my Masters in Education degree at Memorial University of Newfoundland. As a component of that degree, I am beginning research on my thesis topic of the educational uses and values of Internet discussion groups.

In this regard, I am approaching you, as a Professor in the School of Education, in the hope that you are able to assist in my research towards my thesis. Acadia University is the only university in all of Canada that makes wide use of computer technologies as part of their regular course offerings. As a component of these computer technologies, I am particularly interested in the ACME electronic discussion groups used by the School of Education. In this respect, I am writing you to ask for permission to silently monitor your discussion group(s) for any course that you are teaching as research for my thesis.

I have been informed by the Acadia Institute for Teaching and Technology that it is technically possible for me to silently monitor and that they would assist me in establishing that connection. The only thing that I would ask of you is your permission to monitor the number of posts made per student per week and the time that posts are made to the ACME discussion group(s). In research that has been done on Internet discussion groups, early results have shown that Internet discussion groups accomplish three things in the classroom: that students who would normally be reluctant to ask questions in class or comment on issues will do so; that students are able to reflect and compose at their own pace and convenience, resulting in round-the-clock dialogues; and that the electronic

forum extended class discussion beyond the class period. By monitoring these factors, I hope to determine whether or not these statements are valid in the Canadian post-secondary context.

Please find enclosed a letter that each of your students would be required to read and consent to, in order to undertake this research. Note, in addition to your permission, I will need a permission rate of 100% from the students in order to continue with this research. If even one student objects, I will not be able to use that class as a part of my thesis. You will also notice a second question which asks the students their permission to view their final grades for the course. Research in the area of electronic mail has indicate a statistically significant correlation between the students uses of e-mail (quantity of e-mail) and their final grades in American universities. In addition to testing the Canadian context of above mentioned research, depending on student permission, I would also like to test the applicability of this theory to Internet discussion groups.

In return for allowing me to monitor your ACME electronic discussion group(s) and for the above mentioned arrangements, results from the discussion groups in your course(s) would be made available. If you were to look at the current research in the field of education and the Internet you will find a fair amount written on e-mail and the World Wide Web, however, there has been little written on Internet discussion groups. Hopefully, my thesis and the research that I would conduct from your discussion groups could begin to shed some light in this area.

If you have any concerns about the confidentiality of individual students during this study, I would be happy to forward to you my thesis proposal which outlines the specific measures which I intend to take to ensure this confidentiality. I would like to thank you for your time and consideration of my request.

The proposal for this thesis, and the data collection methods included as part of that proposal, have been approved by the Ethics Review Committee of the Faculty of Education at Memorial University of Newfoundland. If you have any questions or would like to discuss any part of this request, you can reach me by one of the means contained on my letterhead. If you prefer, you can also contact my supervisor (Dr. Marc Glassman) or the Associate Dean (Dr. Bruce Sheppard) at (709) 737-8587.

With kindest regards,
Michael K. Barbour

:attachment

[Attachment]

Michael K. Barbour

Box 621, RR #1 Indian Meal Line
Portugal Cove, Newfoundland
A0A 3K0 Canada

Telephone/Fax: (709) 895-3514
e-mail: mkb@ncf.ca
Homepage: www.ncf.ca/~an650

01 June 1999

Dear Student:

I am a student working on my Masters in Education degree at Memorial University of Newfoundland. As a component of that degree, I am beginning research on my thesis topic of the education uses and values of Internet discussion groups.

Your professor has agreed to allow me, with the permission of you the students, to silently monitor your discussion group for this course as research for my thesis.

The only thing that I would ask of you is your permission to monitor your discussion group(s) for the number of posts per student per week and the time that posts are being made to the discussion group. In research that has been done on Internet discussion groups, early results have shown that Internet discussion groups accomplish three things in the classroom: that students who would normally be reluctant to ask questions in class or comment on issues will do so; that students are able to reflect and compose at their own pace and convenience, resulting in round-the-clock dialogues; and that the electronic forum extended class discussion beyond the class period. By monitoring these factors, I hope to determine whether or not these statements are valid in the Canadian post-secondary context.

Please find enclosed a permission slip that each student is be required to read and fill out. Note, I will need a permission rate of 100% from the students in this class in order to continue with this research. If even one student objects, I will not use this class as a part of my thesis.

You will also notice a second question which asks for your permission to view your final grades for this course. Recent research has indicated that there may be a connection between the use of e-mail discussion with the professor and with other students and the final grades that students receive these courses. By allowing access to

... / 2

the final grades for this course, you will be granting me the opportunity to test this theory with Internet discussion groups.

Any participation in this study is voluntary and not connected to grades that you may receive in this course. Note that it is possible for you to agree that the discussion group can be monitored, but to deny access to your final grades.

Finally, I would like to assure you that your confidentiality will be maintained throughout this study. No one, not even my thesis supervisor, will be able to identify individual students. If you have any concerns about the confidentiality of individual students during this study, I would be happy to provide with you the specific measures which I intend to take to ensure this confidentiality.

The proposal for this thesis, and the data collection methods included as part of that proposal, have been approved by the Ethics Review Committee of the Faculty of Education at Memorial University of Newfoundland. If you have any questions or would like to discuss any part of this request, you can reach me by one of the means contained on my letterhead. If you prefer, you can also contact my supervisor (Dr. Marc Glassman) or the Associate Dean (Dr. Bruce Sheppard) at (709) 737-8587.

With kindest regards,

Michael K. Barbour

:enclosure

Appendix E - Material Presented to Faculty at Memorial University of Newfoundland

[E-mail]

Michael K. Barbour
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Homepage: www.ncf.ca/~an650

15 July 1999

Professor, Faculty of Education
Memorial University of Newfoundland
St. John's, Newfoundland
A1B 3X5

Dear Professor:

I am a student working on my Masters in Education degree at Memorial University of Newfoundland (MUN). As a component of that degree, I am beginning research on my thesis topic of the educational uses and values of Internet discussion groups.

In this regard, I am approaching you, as a Professor in the Faculty of Education, in the hope that you are able to assist in my research towards my thesis. Memorial University of Newfoundland makes regular use of AltaVista Forums/WebCT bulletin boards to accompany many of its course offerings. I note that you are one of the many faculty members at MUN that has made use of this technology. In this respect, I am writing you to ask for permission to silently monitor your discussion group(s) for any course that you are teaching as a component of research for my thesis.

The only thing that I would ask of you is your permission to monitor your discussion group(s) for the number of posts per student per week and the time that posts are being made to the discussion group. In research that has been done on Internet discussion groups, early results have shown that Internet discussion groups accomplish three things in the classroom: that students who would normally be reluctant to ask questions in class or comment on issues will do so; that students are able to reflect and compose at their own pace and convenience, resulting in round-the-clock dialogues; and that the electronic forum extended class discussion beyond the class period. By

monitoring these factors, I hope to determine whether or not these statements are valid in the Canadian post-secondary context.

Please find enclosed a letter that each of your students would be required to read and consent to, in order to undertake this research. Note, along with your permission, I will need a permission rate of 100% from the students in order to continue with this research. If even one student objects, I will not be able to use that class as a part of my thesis. You will also notice a second question which asks the students their permission to view their final grades for the course. Research in the area of electronic mail has indicate a statistically significant correlation between the students uses of e-mail (quantity of e-mail) and their final grades in American universities. In addition to testing the Canadian context of above mentioned research, depending on student permission, I would also like to test the applicability of this theory to Internet discussion groups.

In return for allowing me to monitor your AltaVista Forum(s)/WebCT bulletin board(s), results from the discussion groups in your course(s) would be made available. If you look at the current research in the field of education and the Internet you will find a fair amount written on e-mail and the World Wide Web, however, there has been little written on Internet discussion groups. Hopefully, my thesis and the data that I would collect from your discussion groups could begin to shed some light in this area.

Finally, if you have any concerns about the confidentiality of individual students during this study, I would be happy to forward to you my thesis proposal which outlines the specific measures which I intend to take to ensure this confidentiality. I would like to thank you for your time and consideration of my request.

The proposal for this thesis, and the data collection methods included as part of that proposal, have been approved by the Ethics Review Committee of the Faculty of Education at Memorial University of Newfoundland. If you have any questions or would like to discuss any part of this request, you can reach me by one of the means contained on my letterhead. If you prefer, you can also contact my supervisor (Dr. Marc Glassman) or the Associate Dean (Dr. Bruce Sheppard) at (709) 737-8587.

With kindest regards,
Michael K. Barbour

:attachment

[Attachment]

Michael K. Barbour

Box 621, RR #1 Indian Meal Line
Portugal Cove, Newfoundland
A0A 3K0 Canada

Telephone/Fax: (709) 895-3514
e-mail: mkb@ncf.ca
Homepage: www.ncf.ca/~an650

15 August 1999

Dear Student:

I am a student working on my Masters in Education degree at Memorial University of Newfoundland. As a component of that degree, I am beginning research on my thesis topic of the education uses and values of Internet discussion groups.

Your professor has agreed to allow me, with the permission of you the students, to silently monitor your discussion group for this course as research for my thesis.

The only thing that I would ask of you is your permission to monitor your discussion group(s) for the number of posts per student per week and the time that posts are being made to the discussion group. In research that has been done on Internet discussion groups, early results have shown that Internet discussion groups accomplish three things in the classroom: that students who would normally be reluctant to ask questions in class or comment on issues will do so; that students are able to reflect and compose at their own pace and convenience, resulting in round-the-clock dialogues; and that the electronic forum extended class discussion beyond the class period. By monitoring these factors, I hope to determine whether or not these statements are valid in the Canadian post-secondary context.

Please find enclosed a permission slip that each student is be required to read and fill out. Note, I will need a permission rate of 100% from the students in this class in order to continue with this research. If even one student objects, I will not use this class as a part of my thesis.

You will also notice a second question which asks for your permission to view your final grades for this course. Recent research has indicated that there may be a connection between the use of e-mail discussion with the professor and with other students and the final grades that students receive these courses. By allowing access to

.../2

the final grades for this course, you will be granting me the opportunity to test this theory with Internet discussion groups.

Any participation in this study is voluntary and not connected to grades that you may receive in this course. Note that it is possible for you to agree that the discussion group can be monitored, but to deny access to your final grades.

Finally, I would like to assure you that your confidentiality will be maintained throughout this study. No one, not even my thesis supervisor, will be able to identify individual students. If you have any concerns about the confidentiality of individual students during this study, I would be happy to provide with you the specific measures which I intend to take to ensure this confidentiality.

The proposal for this thesis, and the data collection methods included as part of that proposal, have been approved by the Ethics Review Committee of the Faculty of Education at Memorial University of Newfoundland. If you have any questions or would like to discuss any part of this request, you can reach me by one of the means contained on my letterhead. If you prefer, you can also contact my supervisor (Dr. Marc Glassman) or the Associate Dean (Dr. Bruce Sheppard) at (709) 737-8587.

I would ask that you complete the enclosed permission form and return it to me at the above address or to Dr. Glassman or Dr. Sheppard at the Faculty of Education. I thank you for your help in conducting my thesis research.

With kindest regards,

Michael K. Barbour

:enclosure

Appendix F - Material Presented to Students at Memorial University of Newfoundland

[Letter]

Michael K. Barbour

Box 621, RR #1 Indian Meal Line
Portugal Cove, Newfoundland
A0A 3K0 Canada

Telephone/Fax: (709) 895-3514
e-mail: mkb@ncf.ca
Homepage: www.ncf.ca/~an650

15 August 1999

Dear Student:

I am a student working on my Masters in Education degree at Memorial University of Newfoundland. As a component of that degree, I am beginning research on my thesis topic of the education uses and values of Internet discussion groups.

Your professor has agreed to allow me, with the permission of you the students, to silently monitor your discussion group for this course as research for my thesis.

The only thing that I would ask of you is your permission to monitor your discussion group(s) for the number of posts per student per week and the time that posts are being made to the discussion group. In research that has been done on Internet discussion groups, early results have shown that Internet discussion groups accomplish three things in the classroom: that students who would normally be reluctant to ask questions in class or comment on issues will do so; that students are able to reflect and compose at their own pace and convenience, resulting in round-the-clock dialogues; and that the electronic forum extended class discussion beyond the class period. By monitoring these factors, I hope to determine whether or not these statements are valid in the Canadian post-secondary context.

Please find enclosed a permission slip that each student is be required to read and fill out. Note, I will need a permission rate of 100% from the students in this class in order to continue with this research. If even one student objects, I will not use this class as a part of my thesis.

You will also notice a second question which asks for your permission to view

.../2

your final grades for this course. Recent research has indicated that there may be a connection between the use of e-mail discussion with the professor and with other students and the final grades that students receive these courses. By allowing access to the final grades for this course, you will be granting me the opportunity to test this theory with Internet discussion groups.

Any participation in this study is voluntary and not connected to grades that you may receive in this course. Note that it is possible for you to agree that the discussion group can be monitored, but to deny access to your final grades.

Finally, I would like to assure you that your confidentiality will be maintained throughout this study. No one, not even my thesis supervisor, will be able to identify individual students. If you have any concerns about the confidentiality of individual students during this study, I would be happy to provide with you the specific measures which I intend to take to ensure this confidentiality.

The proposal for this thesis, and the data collection methods included as part of that proposal, have been approved by the Ethics Review Committee of the Faculty of Education at Memorial University of Newfoundland. If you have any questions or would like to discuss any part of this request, you can reach me by one of the means contained on my letterhead. If you prefer, you can also contact my supervisor (Dr. Marc Glassman) or the Associate Dean (Dr. Bruce Sheppard) at (709) 737-8587.

I would ask that you complete the enclosed permission form and return it to me at the above address or to Dr. Glassman or Dr. Sheppard at the Faculty of Education. I thank you for your help in conducting my thesis research.

With kindest regards,

Michael K. Barbour

:enclosure

[Consent form]

I grant my permission for the researcher of this thesis to silently monitor my posts in the AltaVista/SiteScape Forum/WebCT bulletin board created for this course (Education _____), with the confidence that at no point will the researcher use any students name or refer to the specific course in his research, published or unpublished.

Yes _____ No _____

I grant my permission for the researcher of this thesis to have access to the marks that I receive for my participation in the AltaVista/SiteScape Forum/WebCT bulletin board created for this course (Education _____), with the confidence that at no point will the researcher use any students name or refer to the specific course in his research, published or unpublished.

Yes _____ No _____

If you have checked "Yes" to either of the above questions, please sign your name in the space provided. If you checked "No" to both questions, you may leave this space blank.

_____

Signature of student

Appendix G - Material Presented to Faculty at Carleton University

Michael K. Barbour

Box 621, RR #1 Indian Meal Line
Portugal Cove, Newfoundland
A0A 3K0 Canada

Telephone/Fax: (709) 895-3514
e-mail: mkb@ncf.ca
Homepage: www.ncf.ca/~an650

16 July 1999

Dr. «First_Name» «Surname»
«Department»
Carleton University
Ottawa, Ontario
K1S 5B4

Dear Dr. «Surname»:

I am a former graduate of Carleton University, having received my Bachelor of Arts (Honours) with a major in Political Science and a minor in History in the Fall of 1996. Presently, I am working on my Masters in Education degree at Memorial University of Newfoundland. As a component of that degree, I am beginning research on my thesis topic of the educational uses and values of Internet discussion groups.

In this regard, I am approaching you, as the Head/Director of your Department/School, in the hope that you are able to assist in my research towards my thesis. Carleton University is the only university in all of Canada that has a Usenet newsgroup for each and every course offered in its calendar. I am writing you to ask for permission to silently monitor the newsgroups which fall under your Department as research for my thesis. The Usenet newsgroups offered within the Carleton University domain are available to the public through any Carleton University server and in the past have been available on the World Wide Web through newsreader sites (such as www.dejanews.com).

Specifically, I would post an initial message to each of the newsgroups stating that this newsgroup is being monitored for the purposes of thesis research. After this initial post, I will begin to silently monitor the newsgroups for the following: content category

... / 2

which responses fall; quantity of responses per student; and the total number of students who post to each newsgroup. I will not respond to any follow-up posts made to this initial post and I will not make any other posts to any newsgroup after the initial post. For your information, I have enclosed a copy of the initial post that I would make to all the monitored newsgroups. I welcome any feedback that you may have.

The amount of time or resources that your Department will have to expend would be minimal. All I would ask is that you forward to me a list of all the courses being offered by your Department for that term, the name of the professor and teaching assistant (if any) for each course, and the number of students enrolled in the course after the final date to add/drop courses. Finally, to be able to monitor these newsgroups I would ask that you prepare a letter for Computer and Computing Services (CCS) to arrange for a Carleton University account on the Rideau or CHAT server.

In return for allowing me to monitor the newsgroups in your Department and for the above mentioned arrangements, results from the newsgroups in your Department would be made available. In addition to sharing the raw data with yourself and any other professors in your Department who might be interested in the information, I would also analysis these data and prepare a report explaining how the newsgroups in your Department are being used, comment on strengths and weaknesses, and make suggestions for future use.

If you were to look at the current research in the field of education and the Internet you will find a fair amount written on e-mail and the World Wide Web, however, there has been little written on Internet discussion groups. Hopefully, my thesis and the research that I would conduct from the newsgroups in your Department could begin to shed some light in this area.

Also, if you have any concerns about the confidentiality of individual students during this study, I would be happy to forward to you my thesis proposal which outlines the specific measures which I intend to take to ensure this confidentiality.

If this is not something that you would like completed at a Departmental level, I would ask that you make this letter available to individual professors and instructors within your Department. This way if individual professors and/or instructors would like to participate, the option is available and the method is outlined for them.

... / 3

I would like to thank you for your time and consideration of my request. Finally, if you have any questions or would like to discuss any part of this request, you can reach me by one of the means contained on my letterhead. If you prefer, you can also contact my supervisor (Dr. Marc Glassman) or the Associate Dean (Dr. Bruce Sheppard) at (709) 737-8587. The proposal for this thesis, and the data collection methods included as part of that proposal, have been approved by the Ethics Review Committee of the Faculty of Education at Memorial University of Newfoundland.

With kindest regards,

Michael K. Barbour

: enclosure

[Enclosure]

For the next term, this newsgroup will be monitored for the purpose of thesis research. As a graduate student in Education at Memorial University of Newfoundland, I am researching a thesis on the educational uses and values of Internet discussion groups. As a part of that research, this newsgroup will be monitored for the following: content category which responses fall; and quantity of responses per student.

What this means is that I will monitor all posts to this public newsgroup and place them into one of these categories:

-> Q/A (Questions & Answers) - posts that are either questions posed to the instructor, teaching assistant, or other students or answers to questions which have been posed.
-> Materials - posts concerning course materials.
-> Assignments - posts specifically concerning course assignments, including posts on exams and questions and answers about exams/assignments.
-> Discussion - posts that are either instructor-driven or student-driven, for the purpose of discussing material germane to the content of the course.
-> Advertisements - posts which are buying or selling items which may or may not be germane to the content of the course.
-> C&S (Clubs & Societies) - posts that concern various clubs and/or societies on or off campus.
-> Other - posts which are specifically not germane to the content of the course or off topic.

As well, I will monitor all posts to see how many posts appear in this newsgroup on a weekly basis and how many different students are posting to the newsgroup.

The purpose of this monitoring is to determine exactly what is being written in this newsgroup (which will help determine whether or not there is educational value in this particular newsgroup) and to determine how many students in the class are actually using this newsgroup and how often (which will help determine if the majority of students use and benefit from this newsgroup or just a small number).

Prior to making this post, I have obtained permission to monitor this newsgroup from the Head of the Department.

Finally, follow-up posts to this message will not be included in that data that is collected. As well, I will not be making any other posts to this newsgroup. If you have any questions or wish to discuss this post, I ask that you e-mail me at u75mkb@morgan.ucs.mun.ca, my supervisor Dr. Marc Glassman at

glassman@plato.ucs.mun.ca, or my Associate Dean Dr. Bruce Sheppard at bsheppar@calvin.stemnet.nf.ca. Thank you for your co-operation in my thesis.

Michael K. Barbour
Graduate student, Memorial University of Newfoundland

Appendix H - Department Heads and School Directors at Carleton University

B. Jones	Faculty of Arts and Social Sciences
S.A. Mahmond	Faculty of Engineering
Allan Maslove	Faculty of Public Affairs and Management
P.J.S. Watson	Faculty of Science
B. Gianni	School of Architecture
Bryan Gillingham	School for Studies in Arts and Culture
J. Sinclair	School of Biochemistry
R.C. Wyndhem	Department of Biology
V. Kumar	School of Business
Pat Armstrong	School of Canadian Studies
G.W. Buchanan	Department of Chemistry
Tina Daniels	School of Child Studies
J.L. Humar	Department of Civil and Environmental Engineering
Ann Stuart Laubstein	School of Cognitive Science
Iain Lambert	School of Computational Sciences
E. Kranakis	School of Computer Science
Katherine Kelly	Institute of Criminology and Criminal Justice
Charles Gordon	Institute of Directed Interdisciplinary Studies
R.P. Taylor	Department of Earth Sciences
P.N. Rowe	Department of Economics
J.S. Wight	Department of Electronics
L.T.R. McDonald	Department of English Language and Literature
D.C. Wigfield	School of Environmental Science
Joan DeBardeleben	School of European and Russian Studies
Bryan Gillingham	School of Film Studies
Dominique Rosse	Department of French
J. Kenneth Torrance	Department of Geography
Deborah Gorham	Department of History
Peter C. Emberley	College of the Humanities
M. de Leeuw	School of Industrial Design
I. Munro	Department of Integrated Science Studies
J.A. Brook	School of Interdisciplinary Studies
Christopher Dornan	School of Journalism and Communication
Roland Jeffreys	School for Language, Literatures and Comparative Literacy
M. MacNeil	Department of Law
Ian Pringle	School of Linguistics and Applied Language Studies
Paul Attallah	School of Mass Communications
K.S. Williams	School of Mathematics and Statistics
Robert Bell	Department of Mechanical and Aerospace Engineering

Bryan Gillingham	School of Music
Jan Drydyk	Department of Philosophy
J.C. Armitage	Department of Physics
Glen Williams	Department of Political Science
K. Matheson	Department of Psychology
Frances Abele	School of Public Administration
Joseph G. Ramisch	Department of Religion
Colleen Lundy	School of Social Work
Brian Given	Department of Sociology and Anthropology
R.A. Goubran	Department of Systems and Computer Engineering
Peter Kruus	Department of Technology, Society and Environmental
Katerine Arnup	School of Women's Studies

Appendix I - Initial Message Posted to Internet Discussion Groups

For the next term, this newsgroup will be monitored for the purpose of thesis research. As a graduate student in Education at Memorial University of Newfoundland, I am researching a thesis on the educational uses and values of Internet discussion groups. As a part of that research, this newsgroup will be monitored for the following: content category which responses fall; and quantity of responses per student.

What this means is that I will monitor all posts to this public newsgroup and place them into one of these categories:

-> Q/A (Questions & Answers) - posts that are either questions posed to the instructor, teaching assistant, or other students or answers to questions which have been posed.
-> Materials - posts concerning course materials.
-> Assignments - posts specifically concerning course assignments, including posts on exams and questions and answers about exams/assignments.
-> Discussion - posts that are either instructor-driven or student-driven, for the purpose of discussing material germane to the content of the course.
-> Advertisements - posts which are buying or selling items which may or may not be germane to the content of the course.
-> C&S (Clubs & Societies) - posts that concern various clubs and/or societies on or off campus.
-> Other - posts which are specifically not germane to the content of the course or off topic.

As well, I will monitor all posts to see how many posts appear in this newsgroup on a weekly basis and how many different students are posting to the newsgroup.

The purpose of this monitoring is to determine exactly what is being written in this newsgroup (which will help determine whether or not there is educational value in this particular newsgroup) and to determine how many students in the class are actually using this newsgroup and how often (which will help determine if the majority of students use and benefit from this newsgroup or just a small number).

Prior to making this post, I have obtained permission to monitor this newsgroup from the Head of the Department.

Finally, follow-up posts to this message will not be included in that data that is collected. As well, I will not be making any other posts to this newsgroup. If you have any questions or wish to discuss this post, I ask that you e-mail me at

u75mkb@morgan.ucs.mun.ca, my supervisor Dr. Marc Glassman at glassman@plato.ucs.mun.ca, or my Associate Dean Dr. Bruce Sheppard at bsheppar@calvin.stemnet.nf.ca. Thank you for your co-operation in my thesis.

Michael K. Barbour
Graduate student, Memorial University of Newfoundland

Appendix J - Student Questionnaire[107]

Usenet Newsgroups

1. Did you sign on to the Usenet Newsgroups this term?

   Yes _____ No _____

   If you did not sign on to the Usenet Newsgroups, please briefly explain why not?

2. How often did you access the Usenet Newsgroups without posting a message to it?

   Never use it _____
   Used it once or twice only _____
   Use it once per week _____
   Use it more than once per week _____

3. Approximately how many times did you post a message to the Usenet Newsgroups?

4. Approximately how many times a week did you check the Usenet Newsgroups for messages relating to the course?

5. From where did you sign on to the Usenet Newsgroups? (Please check all that apply). If more than one, please double check the one you used the most.

   From home or dormitory _____
   From on campus _____
   From work _____
   Other _____

   If other, please describe _____

6. Have you used an Usenet Newsgroups as a part of any other course? (Circle one)

[107] Taken from questionnaires used by Scott Althaus (University of Illinois, Urbana-Champaign), Michael Collins (Memorial University of Newfoundland) and Michael Zack (Northeastern University).

Yes _____ No _____

Which course(s)? _____

7. Had you ever signed on to the Usenet Newsgroups before taking this course?

Yes _____ No _____

If yes, to the best of your memory, about when was the last time you used an Usenet Newsgroups before this term? (Please check the most applicable of the following)

Not more than a few days before this term _____
A few weeks before this term _____
A few months before this term _____
At least a year before this term _____

8. How would you describe your experience with the Usenet Newsgroups before coming to this class (choose one):

1. Never heard of them before _____
2. Heard of them but never tried them myself _____
3. Experienced Internet discussion group user _____

If you answered 1 or 2 above, describe your current use of Usenet Newsgroups:

Never use them _____
Use them only for the class component _____
Use them for class component and also for personal use _____

9. Describe your use of the Usenet Newsgroups for this class:

Never use it _____
Used it once or twice only _____
Use it once per week _____
Use it more than once per week _____

10. Was the professor's level of activity in the Usenet Newsgroups sufficient for your needs?

Yes _____ No _____ N/A _____

11. Was the teaching assistant's level of activity in the Usenet Newsgroups sufficient for your needs?

    Yes _____ No _____ N/A _____

12. Did your participation in the Usenet Newsgroups help you learn about the ideas and theories covered in class?

    Yes _____ No _____

13. In your opinion, what is the benefit of access to an Usenet Newsgroups?

14. What factors influence your level of contribution to the Usenet Newsgroups?

15. In the space below, please describe what you especially disliked about the Usenet Newsgroups?

16. In the space below, please describe what you especially liked about the Usenet Newsgroups?

17. In the space below, please write any suggestions for improving the Usenet Newsgroups?

18. To what extent do you sign on to other Usenet Newsgroups, either for work or pleasure? (Circle one)

    Never _____
    About once per month _____
    About once per week _____
    Several times per week _____
    Every day _____

19. Is the Usenet Newsgroups a necessary component of the course?

Yes _____ No _____

20. For future classes such as yours, would you like to see Usenet Newsgroups (choose one):

Not used at all _____
Available but still optional, and should count toward participation points if the student wants it to _____
Available but still optional, for extra credit points only _____
Required for all students taking the class, and participation should count for five to ten percent of the student's final grade _____

Student Impressions

1. The Internet discussion group improved the teacher's effectiveness.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

2. The Internet discussion group did not make the professor more accessible.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

3. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

4. Use of the Internet discussion group lowered the overall quality of the course.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

5. The Internet discussion group allowed the students in the class to feel closer and more cohesive than usual.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

6. The Internet discussion group enabled me to communicate with the professor outside of class more than I would otherwise.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

7. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

8. The Internet discussion group allowed me to feel more a part of the class than I usually do.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

9. I think our use of the Internet discussion group improved the quality of the course overall.

Strongly agree	_____
Somewhat agree	_____
Neither agree nor disagree	_____
Somewhat disagree	_____
Strongly disagree	_____

10. I would recommend that all professors adopt the use of Internet discussion groups in their classes.

Strongly agree	_____
Somewhat agree	_____
Neither agree nor disagree	_____
Somewhat disagree	_____
Strongly disagree	_____

Appendix K - Completed Universities Surveys

1. Has your University established World Wide Web forums (such as AltaVista Forums, TopClass, Web Tools in a Box, or WebCT) for any of the courses offered in your University calendar?

   a) Yes 14 b) No 2

Additional comments:
- Yes (altavista forum, webct).
- Yes (First Class).
- Yes. Computing Services offers a product called Caucus which about 60 courses have used at one time or another. Small groups of users have set up First Class or WebCT.
- Yes. We have both Usenet Newsgroups, and we use WebCT. Also, some instructors have implemented their own "web forums" using custom cgi-scripts for guest books, chat areas, announcement, etc..
- Yes. WebCT.

2. If yes, to what extent does your University provide these forums?

   a) a select few courses 6
   b) some courses, but not all 8
   c) all courses in some departments and none in others
   d) all courses in some departments and some in others
   e) all courses offered in your University's calendar

3. If no to question 1 or anything other than e) to question 2, what are your University's plans for web forums in the future (if any)?

- The university policy is to have the full control of any www content. In the past we had a "www wall" where students could discuss issues, but we were forced to shut it down by the university officials. There were content issues...
- Course delivery methods are determined by individual faculty & departments. Academic Computing promotes WebCT as a standard to be used in the absence of any compelling reason for using another product. Seminars about WebCT are offered to faculty are oversubscribed.
- Uncertain at this point.
- We have used our own chat since the 1980s (graffiti), which became web-enabled when the web "hit." Since that time we have also used our own in-house Lotus Notes chat (ITSchat) and Web Course in a Box. In January 1999 we purchased a WebCT license and are now standardising on that product and phasing out all others while working with other

universities on an Ontario-wide license for WebCT. Professors are not required to use online forums; use of them depends entirely on who wants to use them. Right now we have about 30 WebCT sites (which include chats) that will be active in September. This number continues to rise steadily as we teach course on how to design for WebCT and the word gets out.
- No formal plans, but electronic course delivery is the future.
- All the required tools (usenet newsgroups, WebCT, etc.) are in place to support web-based forums. These tools are available to any faculty who wish to use them. Only a few faculty members at this point are interested.
- Gradual growth. Watch for emerging leaders, among the products.
- We promoting the use of WebCT in all faculties.
- At this time there is no formal plan in place for the University of XXXXX's future development of Web forums in teaching. A new full-time permanent position for an Instructional Technology Coordinator was recently created, however, to assist instructors with the use of technology in their classes and teaching.
- Not planned per se, but I expect use to grow as faculty abilities ramp up.
- There is no institutional plan that I am aware of. C&C will continue to support these forums, and continuing education also does this for a different clientele. Basically, they are available for any course that wants them.

4. Has your University established Usenet newsgroups for any of the courses offered in your University calendar?

   a) Yes 13 b) No 3

Additional comments:
- No - We are unable to use newsgroups (all connections closed to any news server).

5. If yes, to what extent does your University provide these forums?

   a) a select few courses 9
   b) some courses, but not all 4
   c) all courses in some departments and none in others
   d) all courses in some departments and some in others
   e) all courses offered in your University's calendar

6. If no to question 4 or anything other than e) to question 5, what are your University's plans for Usenet newsgroups in the future (if any)?

- They can't control it so they don't want it...
- We tend to use e-mail lists rather than newsgroups.
- None. WebCT is our vehicle of choice.
- No formal plans, but electronic course delivery is the future.

- If faculty request it, they get it. So far, only a few have requested it.
- None. We don't encourage the use of newsgroups. The user doesn't have enough control - can't delete their own postings or clean out the newsgroup.
- No plan for promoting Usenet newsgroups.
- At this time, Usenet newsgroups are used almost exclusively by Computer Science instructors. WebCT has a newsgroup feature that makes it unnecessary to create or use a separate one. Other faculties and departments that have tried Usenet newsgroups have experienced little or no traffic. In most cases, professors now simply post their announcement on a Web page and encourage students to contact them directly via e-mail rather than through a forum open to all other students. As an academic communication vehicle, the use of Usenet newsgroups will likely continue to diminish at the University of XXXXX.
- Good question. I don't expect demand to increase substantially as WebCT provides more ease of use.
- To continue to offer them to all faculty for all courses.

7. Are there any other comments which you would like to make?

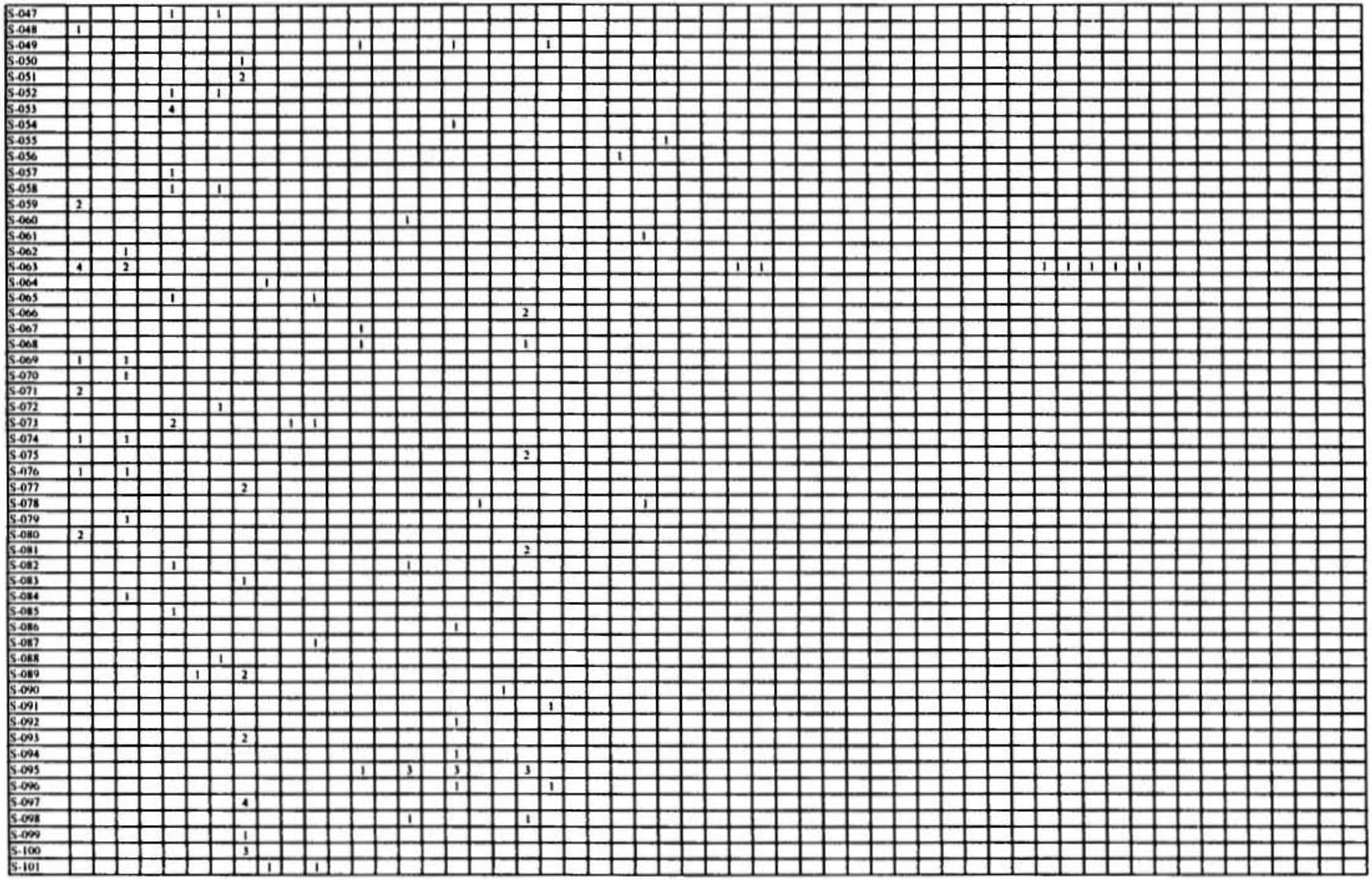
- At the current time there are no online forums of any sort hosted at XXXXX University. Furthermore, I am not aware of any official plans to create such online forums. You may want to contact me again a little later into the fall semester to see if there have been any changes since school started up again.
- Good luck.
- No.
- Class e-mail lists are also available and are used by some faculty.
- The University of XXXXX has about ### students on # campuses so its pretty hard to know what's going on in this area everywhere. TOPCLASS has been used in the faculty of education for a number of years. XXXXX launched a pilot project to introduce WebCT in a few select courses. Some of the engineering, science, and medical courses have set up their own newsgroups and/or websites.
- If you could compile statistics on what packages Canadian universities are using, that would be helpful. Application Analysts such as myself often have to take a shot in the dark based on a few Internet reviews and our own testing, when statistics probably show right now that more than 50% of Canadian universities are using WebCT or considering it.
- The use of these forums are more popular in distance education programs than they are for on-campus classes. Students on-campus still prefer face-to-face communication with instructors and other students.
- The main issues aren't related to the tool. They're to do with the time the prof is willing to put into it, and how to get unconfident or insecure students to participate - they are potentially putting their ignorance on public display.
- None.

- The level of use of the Web and the Net in a given faculty or department seems to roughly correspond to an existing level of knowledge and comfort with technology. For instance, many of the departments within the faculty of science more developed than the department of arts. However, in each case usage appears to require an individual within a department who has a personal interest in computers and the Web and who is willing to spend significant amounts of their time on development. At this time there is no formal recognition for faculty who are actively using technology in teaching. It is not a consideration for promotion, retention, or tenure.

Appendix L - Table 17

Usage in Newsgroups in One Department

Student	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133
S-001			2																																																				
S-002		1																																																				
S-003															1																																							
S-004								1																																													
S-005													1																																								
S-006			1																																																		
S-007								1																																												
S-008											1																																									
S-009								1																																												
S-010																									1		1																										
S-011	1		1	1								1	2	1	2	1				1	1	1	1	1	1	1	1																											
S-012			1																																																		
S-013			2					1																																												
S-014																												1																								
S-015																				2																																	
S-016																			1	1																																	
S-017	1																																																			
S-018																									1																											
S-019					2		2																																													
S-020					1		1																																													
S-021					1																																														
S-022							3																																												
S-023								1																																											
S-024	1																																																		
S-025																				1																																
S-026															1																																				
S-027					1																																														
S-028																	1																																		
S-029								1																																											
S-030	2																																																		
S-031													1				1																																		
S-032								1																																											
S-033																				1																																
S-034															2																																				
S-035								1																																											
S-036			1																																															
S-037								1																																										
S-038	1																																																	
S-039					1		2																																											
S-040											2																																							
S-041								2																																										
S-042	1																																																	
S-043						1																							1	1	1	1	2	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
S-044					1																																													
S-045						1																																												
S-046			1														4																																	



S-102											1																																													
S-103			1																																																					
S-104							2												1																																					
S-105	1																																																						
S-106								1																																															
S-107	1																																																						
S-108																	1																																						
S-109	2	1	1												3																																							
S-110					1		1																																																
S-111	1																																																						
S-112								1																																															
S-113													1		1		1			1	1																																		
S-114					1		2																																																
S-115	1																																																						
S-116					1		1																																																
S-117																																	2																						
S-118																	1																																						
S-119								1																																															
S-120								1																																															
S-121								1																																															
I-001																											3																												
I-002					2																																																		
I-003	1																								14																														
I-004																	4			38				2													2																		
I-005	26	3	41																																																				
TA-001	9																																																						
TA-002											1																																													
TA-003																									2																														
TA-004								3	1		1																																												

Appendix M - Completed Student Questionnaires

Class associated with newsgroups 020 and 021

30 Student surveys completed (2 spoiled)
5 Teaching assistants surveys completed

Usenet Newsgroups

1. Did you sign on to the Usenet Newsgroups this term?

Teaching Assistants
Yes 4 No 9
Students
Yes 19 No 1

If you did not sign on to the Usenet Newsgroups, please briefly explain why not?

Students
- Because I don't know how to use it, and I don't have a computer.
- I did, but I prefer to speak directly to people so I used it to check the messages left by teaching assistants.
- I never felt that I need extra information because I got enough out of the lecture.
- I activated my e-mail account in January for the first time in 4 years for the purpose of utilising the e-mail and minimal internet. I haven't had any questions to post so I haven't tried to find it. I usually find that my TA is accessible enough that it hasn't been necessary. I have never used the Usenet for any of my courses. Sorry.
- I don't like technology. I prefer human contact! :)
- Because I have Internet at home and had no desire to connect at school plus I do not know how.
- Never got around to it.
- I didn't know how. Plus when I tried to do something it said that I had an invalid password or something.
- Because I do not know how to use the net and I do not have one at home.
- Too much other work to do / Never really thought about it / Sometimes I forgot.

2. How often did you access the Usenet Newsgroups without posting a message to it?

	Teaching Assistants	*Students*
Never use it		8
Used it once or twice only		11

Use it once per week	4	4
Use it more than once per week	1	4

3. Approximately how many times did you post a message to the Usenet Newsgroups?

Teaching Assistants
- Once.
- 0.
- One or two.
- 3X.
- Monthly.

Students
- Never.
- None.
- 4X.
- 0.
- 3-4.
- Once or twice.
- 2X.
- 3.
- Once.
- Only once.

4. Approximately how many times a week did you check the Usenet Newsgroups for messages relating to the course?

Teaching Assistants
- Once.
- 1.
- One or less.
- 3X.
- 5 or 6.

Students
- Never.
- Once every few weeks.
- A couple time a month.
- Once.
- Once per term.
- 1.
- 0-1.
- 1/2.

- Only several times each term.
- Daily.
- 3 or 4 times.
- Once per week.
- Only once a month.
- Every couple of weeks.
- 7.
- 3.
- Not often, (not every week).
- Up to twice/week.

5. From where did you sign on to the Usenet Newsgroups? (Please check all that apply). If more than one, please double check the one you used the most.

	Teaching Assistants	*Students*
From home or dormitory	4	15
From on campus	2	11
From work		
Other		

If other, please describe:

6. Have you used an Usenet Newsgroups as a part of any other course? (Circle one)

Teaching Assistants
Yes 4 No 1
Students
Yes 18 No 9

Which course(s)? _____

Teaching Assistants
- Political Science.
- Canadian Studies.

Students
- First Year Seminars.
- Geology.
- Psychology.
- Computer Science.
- Legal Studies/Law.
- Mass Communication.
- Sociology.
- French.

- All.
- None.
- Interdisciplinary Social Science.
- Art History.
- Physics.
- Film Studies.
- History.
- Computer Science.
- Geography.
- ?37?

7. Had you ever signed on to the Usenet Newsgroups before taking this course?

Teaching Assistants

Yes 2 No 3

Students

Yes 3 No 23

If yes, to the best of your memory, about when was the last time you used an Usenet Newsgroups before this term? (Please check the most applicable of the following)

	Teaching Assistants	*Students*
Not more than a few days before this term	1	1
A few weeks before this term		2
A few months before this term	1	3
At least a year before this term		3

8. How would you describe your experience with the Usenet Newsgroups before coming to this class (choose one):

	Teaching Assistants	*Students*
1. Never heard of them before	3	15
2. Heard of them but never tried them		6
3. Experienced Usenet user	2	5

If you answered 1 or 2 above, describe your current use of Usenet Newsgroups:

	Teaching Assistants	*Students*
Never use them		8
Use them only for the class component	3	12
Use them for class and personal use		2

9. Describe your use of the Usenet Newsgroups for this class:

	Teaching Assistants	*Students*
Never use it		7
Used it once or twice only	1	11
Use it once per week	3	5
Use it more than once per week	1	3

10. Was the professor's level of activity in the Usenet Newsgroups sufficient for your needs?

Teaching Assistants
Yes 5 No N/A
Students
Yes 14 No 1 N/A 11

11. Was the teaching assistant's level of activity in the Usenet Newsgroups sufficient for your needs?

Teaching Assistants
Yes 1 No 1 N/A 1
Students
Yes 10 No 2 N/A 14

12. Did your participation in the Usenet Newsgroups help you learn about the ideas and theories covered in class?

Teaching Assistants
Yes No 4
Students
Yes 10 No 14

13. In your opinion, what is the benefit of access to an Usenet Newsgroups?

Teaching Assistants
- Communication.
- Yes, but it very much depends on the level of student interest.
- Give students an opportunity to discuss issues and ask questions not brought up or discussed in class.
- Better integration, other opinions/perspectives, ideas for interesting websites.
- Besides facilitating discussion and encouraging interest / New media its main benefit is 24 hour accessibility.

Students

- Obtain important class info.
- Finding out class information, when exams are, questions for exams.
- Yes.
- People can post questions they have while remaining anonymous (well at least read them) (= less intimidating).
- Gives students a chance to discuss things for which there is no time in class.
- Easy way to access information; ask questions, etc..
- Added information not covered in class, but related to topics / To keep informed of any important course changes in the event of a missed class.
- Info update especially for ITV students.
- Information on the course - notices, clarification of muddy points.
- Better understanding of concepts and added information.
- Absolutely none!
- Helps understand information better.
- Never used it.
- Accessing URL addresses that were used in class / Messages, key points from prof.
- To have discussions, and share ideas with others in this class.
- To have discussions with people who are in the class, get info etc. w/o having to be on campus.
- To ask relevant questions about class discussions and assignments/essays.
- Get info you missed in class.
- You can get notes, talk to people in your class, etc. -> Especially if you miss class or need clarification on something you can post a message and get all the info you need!
- Easy to ask questions, also to learn things going on in Canada - websites, books, news articles, etc..
- Other people can raise questions or experiences you have not thought before / Interesting way to think.
- Allows for important messages to be posted (websites, quotes, assignments, suggestions) / Allows students to further discuss some of the issues involving Canada.

14. What factors influence your level of contribution to the Usenet Newsgroups?

Teaching Assistants

- Access.
- Minimal use on the net -> if I'm not useful I get sucked in.
- Level of comfort with topic / Interest in discussion.
- TAship :).

Students

- If I know what will be posted.

- Do not need to use it for class, and is difficult and slow to access at home so do not use it much.
- Availability / Further comprehension of class lecture material.
- Time / More interested in establishing a human-connection.
- Interest in the topic, participation by others.
- Level of activity in newsgroup / Interesting/useful comments.
- Time / Ability to use this technology (which for me is poor).
- Accessibility - easy from home, available 24/7.
- Subject area / Chance to give my point of view.
- Being able to place a message without attaching your face is very bad for responsibility. Freedom of speech comes with responsibility. I pay to learn from a teacher, not a computer, I only talk to my teacher and classmates, I never post messages.
- Not using it made for 0 input.
- Never used it.
- My familiarity with the topic being discussed.
- Accessibility - I can only access it from campus.
- If I find things that I feel are important or threads that are just interesting.
- How often other people posted / What interesting information was posted by Prof/TA.
- Check up on questions on the newsgroups. Post info and other people see it.
- Never really need to have questions answered.
- Accessibility - easy on campus/more difficult at home / Convenience.
- Interesting commentaries or questions.
- Confusion (on assignments).

15. In the space below, please describe what you especially disliked about the Usenet Newsgroups?

Teaching Assistants
- Relative content lacking.
- Nothing.
- There was abuse of the space by people not in our class.
- No responses to my postings.
- Non-course-related postings can't be edited / Postings can't be removed.

Students
- Nothing.
- Slow to use, at home the telnet system is like a system from the eighties, can't use a mouse / Take up extra time, and is not needed and usually not very interesting.
- People's answers didn't seem to be getting answered (i.e. about papers before they were due).
- People asking the same question many times.
- No one ever posts anything; there is never anything useful posted.
- I don't like reading long messages on the computer screen.

- Gaining access very difficult.
- No one answering my questions.
- Dialogue is not continuous.
- Everything about the theory behind it.
- It didn't appeal to me.
- Never used it.
- Not being able to access it from home.
- Lack of involvement by students / Spam messages.
- Sometimes the messages don't get posted or it doesn't work.
- A lot of the postings were "junk" (i.e. textbooks for sale are usually 2/3 of all messages).

Some postings are irrelevant, and never get erased (ex. second term yet there are still postings from Sept.).

- Sometimes it takes time to really find what you want, to many mails.
- Some people use it as an advertising forum.

16. In the space below, please describe what you especially liked about the Usenet Newsgroups?

Teaching Assistants

- Quick info.
- Professor was good about answering questions and posting the websites access in class.
- See 13.
- Very easy to use / Easy access / 24 hour.

Students

- Access to class information from home.
- Class information.
- Easy to communicate with others who you may not talk to normally.
- Can ask questions at any time.
- Free, easy access, limited to CU students.
- Its novelty as a new medium.
- Posted reminders & dates, URLs.
- Having a hard copy of net sites & past info - you could go back before an exam & review topics.
- Give me things to look for and think about.
- Nothing.
- I heard it was a helpful place to check ideas and theories.
- Never used it.
- The ability to access the webpages that were used and distributed via the newsgroup by the prof.
- There were always people posting info.
- A way of posting websites discussed & shown in class.

- Get info on courses.
- Get feedback from others in your class.
- Good place to ask questions / Good place to find answers / Interesting.
- Give possibility to discuss subject or add materials not studied in class / You can have a look whenever you want.
- You could ask people their opinions and for their help on issues that you need clarified / The newsgroup allows students to voice their opinions to others.

17. In the space below, please write any suggestions for improving the Usenet Newsgroups?

Teaching Assistants
- In lecture, give a weekly discussion question.
- I'm happy with it.

Students
- Update the telnet system.
- Give a list of instructions in the first class.
- Postmaster to clean up/organise repetitions.
- Easier posting system / Encouragement from profs (a reason to go check the newsgroups).
- Pictures.
- Easier to access.
- None - served my purpose this year.
- More material marketing the benefits.
- Take it away or make sure every student has easy access. For people who don't have home connection, it is hard to take time at school. It discriminates against the poor.
- Have TAs write on newsgroups / Discuss readings / Give more websites / Get everyone involved (students).
- Have someone remove outdated messages.
- Advertise it more.
- Kind of "search engine" to find easily what you want.
- Clear away old postings i.e. From September.

18. To what extent do you sign on to other Usenet Newsgroups, either for work or pleasure? (Circle one)

	Teaching Assistants	*Students*
Never	1	15
About once per month	2	5
About once per week	2	3
Several times per week		3
Every day		

19. Is the Usenet Newsgroups a necessary component of the course?

Teaching Assistants			
Yes		No	5
Students			
Yes	9	No	15

20. For future classes such as yours, would you like to see Usenet Newsgroups (choose one):

Teaching Assistants	
Not used at all	
Available but still optional, and should count toward participation points if the student wants it to	5
Available but still optional, for extra credit points only	
Required for all students taking the class, and participation should count for five to ten percent of the student's final grade	
Students	
Not used at all	5
Available but still optional, and should count toward participation points if the student wants it to	13
Available but still optional, for extra credit points only	7
Required for all students taking the class, and participation should count for five to ten percent of the student's final grade	1

Student Impressions

1. The Internet discussion group improved the teacher's effectiveness.

	Teaching Assistants	*Students*
Strongly agree		2
Somewhat agree	1	6
Neither agree nor disagree	4	10
Somewhat disagree		3
Strongly disagree		3

2. The Internet discussion group did not make the professor more accessible.

	Teaching Assistants	*Students*
Strongly agree		2
Somewhat agree		4

Neither agree nor disagree	1	9
Somewhat disagree	1	5
Strongly disagree	3	4

3. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

	Teaching Assistants	*Students*
Strongly agree	1	3
Somewhat agree	3	12
Neither agree nor disagree	1	8
Somewhat disagree		
Strongly disagree		1

4. Use of the Internet discussion group lowered the overall quality of the course.

	Teaching Assistants	*Students*
Strongly agree		1
Somewhat agree		
Neither agree nor disagree	1	6
Somewhat disagree		7
Strongly disagree	4	10

5. The Internet discussion group allowed the students in the class to feel closer and more cohesive than usual.

	Teaching Assistants	*Students*
Strongly agree		
Somewhat agree	1	5
Neither agree nor disagree	2	12
Somewhat disagree	2	4
Strongly disagree		3

6. The Internet discussion group enabled me to communicate with the professor outside of class more than I would otherwise.

	Teaching Assistants	*Students*
Strongly agree		
Somewhat agree		7
Neither agree nor disagree	4	14
Somewhat disagree		2
Strongly disagree		1

7. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

	Teaching Assistants	*Students*
Strongly agree	1	3
Somewhat agree	3	11
Neither agree nor disagree	1	9
Somewhat disagree		
Strongly disagree		1

8. The Internet discussion group allowed me to feel more a part of the class than I usually do.

	Teaching Assistants	*Students*
Strongly agree		2
Somewhat agree		4
Neither agree nor disagree	2	12
Somewhat disagree	2	5
Strongly disagree		1

9. I think our use of the Internet discussion group improved the quality of the course overall.

	Teaching Assistants	*Students*
Strongly agree		1
Somewhat agree	2	8
Neither agree nor disagree	3	11
Somewhat disagree		1
Strongly disagree		3

10. I would recommend that all professors adopt the use of Internet discussion groups in their classes.

	Teaching Assistants	*Students*
Strongly agree	1	7
Somewhat agree	2	9
Neither agree nor disagree	1	5
Somewhat disagree		
Strongly disagree	1	3

Class associated with newsgroups 072 and 073

68 Student surveys completed

Usenet Newsgroups

1. Did you sign on to the Usenet Newsgroups this term?

Yes 18 No 50

If you did not sign on to the Usenet Newsgroups, please briefly explain why not?

- Not enough time.
- Did not know how - not enough time / Never heard about it for this class / Don't know how to use it.
- I did not think a newsgroup for this course was available.
- Didn't need to.
- Try to stay away from the Net as much as possible.
- Hadn't really crossed my mind.
- I don't like computers.
- No interest.
- I just never felt a need to. I don't really know what it is and never had an urge to find out.
- I do not have a computer at home and found that accessing the school computer was an inconvenience.
- I have found that most newsgroups are "enthusiastic" at the beginning of a course, and then offer little when it is most needed.
- I am interactive among friends and peers.
- I didn't know there was one.
- I didn't need to (apparently).
- Unaware of its existence.
- No need.
- Prof. did not emphasise the need to use it for this course.
- Nothing posted.
- Haven't had the need.
- No desire.
- Was not aware of it.
- Didn't need to.
- Didn't know it was there / No need to find it.
- I had no idea it was there.
- There was other means offered by course professors of communications (ex. web).

- Didn't know it exist & had no use for it. Small class therefore direct communication is easy.
- I can't think of any reason why I would use them, especially in this class.
- Forgot about it.
- I haven't found them useful in the past / Logging on is a hassle.
- Not interested.
- Didn't know it existed.
- Wasn't aware of it.
- ? Didn't know about it.
- Did not think there was a newsgroup.
- Did not know it existed - this is my first term @ Carleton.
- Have no idea what you're talking about. What is Usenet?
- The opportunity or necessity never presented itself.
- I do not know how to access it.
- I didn't know about it.
- Not necessary.

2. How often did you access the Usenet Newsgroups without posting a message to it?

Never use it	38
Used it once or twice only	14
Use it once per week	4
Use it more than once per week	3

3. Approximately how many times did you post a message to the Usenet Newsgroups?

- 0 (Zero).
- A couple.
- 0.
- Never.
- Twice.
- 5-10 times.
- ~2-3 a month.
- 2 or 3 times.
- I don't think I ever did.

4. Approximately how many times a week did you check the Usenet Newsgroups for messages relating to the course?

- 3-4 times.
- None.
- 0.
- Never.

- 8 times.
- No.
- Once or twice.
- Once every two weeks.
- 1/week.
- Once or twice in total.
- Maybe twice a month.
- 1 time per month.
- To this course, never.
- Once a week.
- Once/day.
- 2.

5. From where did you sign on to the Usenet Newsgroups? (Please check all that apply). If more than one, please double check the one you used the most.

From home or dormitory	17
From on campus	19
From work	1
Other	

If other, please describe _____

6. Have you used an Usenet Newsgroups as a part of any other course? (Circle one)

Yes 30 No 27

Which course(s)? _____

- Psychology.
- Statistics.
- Geology.
- Latin.
- English.
- Geography.
- Computer Science.
- History.
- Philosophy.
- Sociology.
- Canadian Studies.
- Legal Studies/Law.
- Religion.
- All my other courses.
- Film Studies.

- Linguistics.
- Applied Languages Studies.
- Chemistry.
- Business.
- Biology.
- Technology, Society, Environment.
- Political Science.

7. Had you ever signed on to the Usenet Newsgroups before taking this course?

   Yes 31 No 23

   If yes, to the best of your memory, about when was the last time you used an Usenet Newsgroups before this term? (Please check the most applicable of the following)

Not more than a few days before this term	8
A few weeks before this term	10
A few months before this term	5
At least a year before this term	12

8. How would you describe your experience with the Usenet Newsgroups before coming to this class (choose one):

1. Never heard of them before	12
2. Heard of them but never tried them myself	17
3. Experienced Internet discussion group user	22

   If you answered 1 or 2 above, describe your current use of Usenet Newsgroups:

Never use them	23
Use them only for the class component	10
Use them for class component and also for personal use	2

9. Describe your use of the Usenet Newsgroups for this class:

Never use it	43
Used it once or twice only	8
Use it once per week	2
Use it more than once per week	1

10. Was the professor's level of activity in the Usenet Newsgroups sufficient for your needs?

Yes 2 No 7 N/A 44

11. Was the teaching assistant's level of activity in the Usenet Newsgroups sufficient for your needs?

Yes 2 No 8 N/A 43

12. Did your participation in the Usenet Newsgroups help you learn about the ideas and theories covered in class?

Yes 4 No 33

13. In your opinion, what is the benefit of access to an Usenet Newsgroups?

- Question may be answered.
- Engage in academic discussion (and/or administrative matters) relating to the course or other educational areas.
- Post questions you have about the course.
- You can find out current events with the class.
- None.
- To keep up with what's going on in class / Any extras from teachers/TAs.
- Not much, because it is an underused resource.
- To get messages from profs.
- Share info / Answers to questions.
- Updates.
- No benefit unless prof & TAs don't participate.
- You can discuss ideas & problems outside of the class environment with your peers / Helps if one needs extra clarification of terms & enables students to come in contact with one another.
- To confer with fellow students at a time that is convenient.
- Easy access to fellow students, teacher, & TA's.
- Clarify issues, pass on deadline info, assignment info, etc..
- Students post questions you might have also and maybe you will get an answer.
- I didn't use it!!!
- Nil.
- To answer questions about assignments / Buy used book / Clarify due dates.
- Can get access and support with being on campus.
- Allows interaction between class members in off time from class.
- Its good if you don't have time to meet with people.

- Limited to the professor's participation level / Can promote discussion within a large class.
- Good to help with questions.
- For heavy theory or mechanics courses Usenet help solve problems when educator access is not available.
- Finding out info before class.
- Discussion.
- Never use it.
- Notes.
- I don't know what it is.

14. What factors influence your level of contribution to the Usenet Newsgroups?

- No time.
- Necessity.
- If one is available.
- Time / Useful & pertainable information.
- If its needed.
- None.
- If prof brings it up in class / If I have questions.
- If a professor is using it, then students will use it.
- Lack of time.
- Curious as to what other students had to say.
- Need for interaction outside of the course and lecture period.
- Interest of the posts.
- Access to a computer / Familiarity with computer programmes.
- Whether or not classmates encourage my participation.
- Amount of discussion / Whether or not there are regular postings from teacher or TA's.
- If its used by others. Most are not.
- I didn't use it!!!
- Interest.
- I anything posted is of relevance to what I want to know.
- Whether the prof uses it, or if other students use it in the class.
- Same classes don't require me to use them.
- I never contribute.
- The number of other people participating.
- If I had a question or problem with homework, I might use the newsgroup / if it is used by other students, most are not.
- Interest in subject matter.
- If I was really confused.
- If I have a question I use it.
- Other posts.
- Time and accessibility.

- Laziness.
- Awareness of it.
- If I knew there was a newsgroup for the class, I'd check it out.

15. In the space below, please describe what you especially disliked about the Usenet Newsgroups?

- When people post useless information (junk mail).
- Nothing.
- Hassle.
- Is a method for the professor to be farther away to communicate.
- Can't think of anything, don't use much.
- Never anything to read.
- I never went on.
- There are never any discussions being held when I log on.
- "I misses the last class, can I borrow someone's notes?"
- See # 14.
- That I don't know about it.
- I didn't use it!!!
- Nothing posted.
- Some answers to questions are too short, not enough information.
- May be its me, but it takes forever to register.
- The fact that it was being monitored / Spam from people not in the class or not concerning the class.
- Lack of content.
- People hide behind anonymity.
- Time consuming.

16. In the space below, please describe what you especially liked about the Usenet Newsgroups?

- Some answers can be answered.
- Engaging discussions.
- Everything.
- Open ideas.
- Nothing.
- Again, same as above.
- It is informative, it gives good information about the course.
- It is an extra resource for course information and materials.
- Cries for help in understanding.
- See # 13.
- Good information.
- I didn't use it!!!

- Nil.
- Answers to questions when prof. Not around to ask in person (other people in class try to help you out).
- When lots of other people are using it and when prof does, I like the quick responses to my questions and comments.
- Ability to find questions - typically someone had already posted the same question.
- Gives me info about the class.
- Easy to use tool.
- Notes.
- Source of course info.

17. In the space below, please write any suggestions for improving the Usenet Newsgroups?

- Make the questions answer sooner.
- Tell students how to use it and show them how / Can you get on it from home? / Does it exist?
- Notify students that one is available for the course.
- Make office hours.
- Same as above.
- Professors should start leading the a way because if students do not see this effort, then they will not use it.
- T.A.s should organise and announce group discussions that would be held on a weekly basis.
- They don't work w/o class & prof (or TA) participation. Most are not checked on a regular basis -> have no messages posted. If they were to be a benefit, professors/TAs have to announce they exist & encourage their use.
- I didn't use it!!!
- If I'm looking for info with regards to a course - I look up the course web page not Usenet.
- Actually have profs & TAs use it.
- Tell us there is a newsgroup.
- Tell us about them.
- Let us know there is a newsgroup.

18. To what extent do you sign on to other Usenet Newsgroups, either for work or pleasure? (Circle one)

Never	24
About once per month	11
About once per week	8
Several times per week	2
Every day	1

19. Is the Usenet Newsgroups a necessary component of the course?

Yes 7 No 32

20. For future classes such as yours, would you like to see Usenet Newsgroups (choose one):

Not used at all	19
Available but still optional, and should count toward participation points if the student wants it to	17
Available but still optional, for extra credit points only	10
Required for all students taking the class, and participation should count for five to ten percent of the student's final grade	

Student Impressions

1. The Internet discussion group improved the teacher's effectiveness.

Strongly agree	
Somewhat agree	3
Neither agree nor disagree	15
Somewhat disagree	1
Strongly disagree	8

2. The Internet discussion group did not make the professor more accessible.

Strongly agree	8
Somewhat agree	3
Neither agree nor disagree	11
Somewhat disagree	4
Strongly disagree	2

3. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

Strongly agree	3
Somewhat agree	6
Neither agree nor disagree	11
Somewhat disagree	2
Strongly disagree	6

4. Use of the Internet discussion group lowered the overall quality of the course.

Strongly agree	3
Somewhat agree	1
Neither agree nor disagree	11
Somewhat disagree	6
Strongly disagree	7

5. The Internet discussion group allowed the students in the class to feel closer and more cohesive than usual.

Strongly agree	3
Somewhat agree	3
Neither agree nor disagree	14
Somewhat disagree	1
Strongly disagree	7

6. The Internet discussion group enabled me to communicate with the professor outside of class more than I would otherwise.

Strongly agree	3
Somewhat agree	3
Neither agree nor disagree	14
Somewhat disagree	2
Strongly disagree	5

7. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

Strongly agree	4
Somewhat agree	5
Neither agree nor disagree	10
Somewhat disagree	2
Strongly disagree	5

8. The Internet discussion group allowed me to feel more a part of the class than I usually do.

Strongly agree	3
Somewhat agree	4
Neither agree nor disagree	11
Somewhat disagree	4
Strongly disagree	5

9. I think our use of the Internet discussion group improved the quality of the course overall.

Strongly agree	2
Somewhat agree	5
Neither agree nor disagree	14
Somewhat disagree	
Strongly disagree	6

10. I would recommend that all professors adopt the use of Internet discussion groups in their classes.

Strongly agree	7
Somewhat agree	7
Neither agree nor disagree	8
Somewhat disagree	3
Strongly disagree	4

Class associated with newsgroups 074 and 075

39 Student surveys completed

Usenet Newsgroups

1. Did you sign on to the Usenet Newsgroups this term?

Yes 10 No 29

If you did not sign on to the Usenet Newsgroups, please briefly explain why not?

- I signed up but rarely used it because I could not access it from my home.
- No interest in it - no time / Computer illiterate.
- Don't like computers.
- Did not have time to.
- I did not find the time, nor the use of signing on to the newsgroup.
- Because I did not find it necessary in order to be successful in the class.
- I don't have a computer.
- I had troubles getting the newsgroups.
- Too busy.
- I was not aware it was available and also felt things were made fairly clear in class.
- I did not know how to find out my password as it was different from the chat system.
- I've tried to use it from home (thought that was possible). It always asked for a username and password which I didn't have.
- I don't have the internet.
- I am computer illiterate.
- No time, no computer, never went to library.
- I tried to access the usenet from home a number of times but for reasons unknown to me or the technical department, was unable to.
- Not interested.
- No time.
- I didn't know how.
- Time. I have 3 kids and focused on homework & assignments.
- Because it was not really used & not part of course criterion.
- No time / No interest.
- I didn't know how to got on / I tried to use it, but it didn't work for me.
- I did not feel it was necessary.
- Didn't know how to. Wasn't aware of service.
- Don't know how.

2. How often did you access the Usenet Newsgroups without posting a message to it?

Never use it	14
Used it once or twice only	5
Use it once per week	6
Use it more than once per week	

3. Approximately how many times did you post a message to the Usenet Newsgroups?

- About twice.
- Never.
- Didn't.
- 0.
- Not often - PC problems mainly the reason.
- I have never posted a newsgroup messages, once for seminar class, for online reading questions.
- 4 times.
- Twice.
- Once, maybe.
- Once, when I had a question about a project I had.
- 2 or 3 times.

4. Approximately how many times a week did you check the Usenet Newsgroups for messages relating to the course?

- Maybe once every 2 or 3 months.
- Twice.
- Once or twice.
- I never really checked.
- 0.
- 1-2X.
- Once if remembered.
- Never.
- Once per week.
- Maybe 3 times the whole year.
- About once/week.
- 0-1.

5. From where did you sign on to the Usenet Newsgroups? (Please check all that apply). If more than one, please double check the one you used the most.

From home or dormitory	8
From on campus	8

From work _____
Other _____

If other, please describe _____

6. Have you used an Usenet Newsgroups as a part of any other course? (Circle one)

Yes 13 No 12

Which course(s)? _____

- Biology.
- Psychology.
- First Year Seminar.
- Journalism.
- Legal Studies/Law.
- Sociology.
- All 5.
- Human Rights.
- English
- But it was offering in Canadian Studies.

7. Had you ever signed on to the Usenet Newsgroups before taking this course?

Yes 8 No 16

If yes, to the best of your memory, about when was the last time you used an Usenet Newsgroups before this term? (Please check the most applicable of the following)

Not more than a few days before this term 6
A few weeks before this term 1
A few months before this term 3
At least a year before this term _____

8. How would you describe your experience with the Usenet Newsgroups before coming to this class (choose one):

1. Never heard of them before 7
2. Heard of them but never tried them myself 10
3. Experienced Internet discussion group user 3

If you answered 1 or 2 above, describe your current use of Usenet Newsgroups:

Never use them 11

Use them only for the class component	3
Use them for class component and also for personal use	4

9. Describe your use of the Usenet Newsgroups for this class:

Never use it	15
Used it once or twice only	2
Use it once per week	6
Use it more than once per week	

10. Was the professor's level of activity in the Usenet Newsgroups sufficient for your needs?

Yes 1 No 3 N/A 20

11. Was the teaching assistant's level of activity in the Usenet Newsgroups sufficient for your needs?

Yes 4 No 4 N/A 15

12. Did your participation in the Usenet Newsgroups help you learn about the ideas and theories covered in class?

Yes 2 No 12

13. In your opinion, what is the benefit of access to an Usenet Newsgroups?

- There wasn't really any maybe just being able to ask a question to someone other than the teacher.
- None.
- Questions can be answered and clarified.
- Notices from the professor or TA.
- I don't know the benefits because I don't use the system from social work.
- I don't know.
- Helps students to communicate with one another seeing as getting to everyone would be very difficult / Raise important ?'s & concerns about lectures, readings, course material.
- Getting notes, class info.
- Discussions, books for sale, study groups.
- Questions, to communicate out of class time.
- Yes, for class info i.e. exam dates, workshop dates / No, concerning actual class material.
- Students can communicate.

- To see what other students may have to say, this gives you a better understanding of the class.
- Peer help, discussion.
- A way for students to communicate.

14. What factors influence your level of contribution to the Usenet Newsgroups?

- Accessibility.
- None.
- Class requirement to participate, e.g. posting questions.
- I don't know.
- Time / Other work / Not really interested; I grasp the info okay on my own.
- Keeping in touch with what is going on.
- I used it for other classes.
- Never really contributed.
- Participation marks, similar interest groups...
- Time, availability of a computer, when I had questions.
- Only when there is a problem or answer that I need.
- Marks & class interest.
- Computer knowledge / Interest in course / Work/course load @ university.

15. In the space below, please describe what you especially disliked about the Usenet Newsgroups?

- I could not access it from anywhere other than a school computer lab.
- Nothing.
- Difficult to get onto.
- Never used.
- Some individuals used it for ridiculous reasons, complain about the boringness of certain lectures, etc..
- Unable to access from home the newsgroup postings...
- Things that were posted and had no relevance to the course.

16. In the space below, please describe what you especially liked about the Usenet Newsgroups?

- Can ask questions.
- Nothing.
- I like hearing others opinions about certain issues.
- It was fare.
- Messages, questions, comments on course...
- Yet another e-mail address...
- Did not really help me in any way. I could have survived without it.

- Many different types of questions on it, that I may have had as well.
- Easy to access, helped understanding, brought people together.

17. In the space below, please write any suggestions for improving the Usenet Newsgroups?

- Make it more accessible.
- Provide more easier info of how to get onto them.
- Maybe I should try it.
- Use as a specific class tool / Post weekly questions that are graded that would guarantee beneficial usage.
- Make them worth something i.e. get extra marks for being involved.

18. To what extent do you sign on to other Usenet Newsgroups, either for work or pleasure? (Circle one)

Never	14
About once per month	3
About once per week	4
Several times per week	
Every day	

19. Is the Usenet Newsgroups a necessary component of the course?

Yes 4 No 15

20. For future classes such as yours, would you like to see Usenet Newsgroups (choose one):

Not used at all	7
Available but still optional, and should count toward participation points if the student wants it to	10
Available but still optional, for extra credit points only	2
Required for all students taking the class, and participation should count for five to ten percent of the student's final grade	1

Student Impressions

1. The Internet discussion group improved the teacher's effectiveness.

Strongly agree	1
Somewhat agree	2
Neither agree nor disagree	5

Somewhat disagree	3
Strongly disagree	4

2. The Internet discussion group did not make the professor more accessible.

Strongly agree	3
Somewhat agree	1
Neither agree nor disagree	5
Somewhat disagree	2
Strongly disagree	3

3. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

Strongly agree	1
Somewhat agree	2
Neither agree nor disagree	3
Somewhat disagree	5
Strongly disagree	3

4. Use of the Internet discussion group lowered the overall quality of the course.

Strongly agree	
Somewhat agree	
Neither agree nor disagree	6
Somewhat disagree	1
Strongly disagree	7

5. The Internet discussion group allowed the students in the class to feel closer and more cohesive than usual.

Strongly agree	2
Somewhat agree	3
Neither agree nor disagree	2
Somewhat disagree	5
Strongly disagree	1

6. The Internet discussion group enabled me to communicate with the professor outside of class more than I would otherwise.

Strongly agree	2
Somewhat agree	1
Neither agree nor disagree	5

Somewhat disagree	1
Strongly disagree	5

7. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

Strongly agree	1
Somewhat agree	4
Neither agree nor disagree	5
Somewhat disagree	
Strongly disagree	5

8. The Internet discussion group allowed me to feel more a part of the class than I usually do.

Strongly agree	2
Somewhat agree	3
Neither agree nor disagree	6
Somewhat disagree	2
Strongly disagree	2

9. I think our use of the Internet discussion group improved the quality of the course overall.

Strongly agree	1
Somewhat agree	3
Neither agree nor disagree	6
Somewhat disagree	1
Strongly disagree	4

10. I would recommend that all professors adopt the use of Internet discussion groups in their classes.

Strongly agree	4
Somewhat agree	
Neither agree nor disagree	8
Somewhat disagree	1
Strongly disagree	2

Class associated with newsgroup 136

2 Student surveys completed

Usenet Newsgroups

1. Did you sign on to the Usenet Newsgroups this term?

   Yes _____ No 2

   If you did not sign on to the Usenet Newsgroups, please briefly explain why not?

- No information posted as we are a small class and we meet each week.
- There was no need for it. We were a small group and e met together every Friday to communicate.

2. How often did you access the Usenet Newsgroups without posting a message to it?

   Never use it 2
   Used it once or twice only _____
   Use it once per week _____
   Use it more than once per week _____

3. Approximately how many times did you post a message to the Usenet Newsgroups?

- 0

4. Approximately how many times a week did you check the Usenet Newsgroups for messages relating to the course?

- 0

5. From where did you sign on to the Usenet Newsgroups? (Please check all that apply). If more than one, please double check the one you used the most.

   From home or dormitory 1
   From on campus _____
   From work _____
   Other _____

   If other, please describe _____

6. Have you used an Usenet Newsgroups as a part of any other course? (Circle one)

   Yes ____2____ No _____

   Which course(s)?
   - All other courses
   - Biology / Philosophy

7. Had you ever signed on to the Usenet Newsgroups before taking this course?

   Yes ____2____ No _____

   If yes, to the best of your memory, about when was the last time you used an Usenet Newsgroups before this term? (Please check the most applicable of the following)

Not more than a few days before this term	1
A few weeks before this term	
A few months before this term	1
At least a year before this term	

8. How would you describe your experience with the Usenet Newsgroups before coming to this class (choose one):

1. Never heard of them before	
2. Heard of them but never tried them myself	1
3. Experienced Internet discussion group user	1

   If you answered 1 or 2 above, describe your current use of Usenet Newsgroups:

Never use them	1
Use them only for the class component	
Use them for class component and also for personal use	

9. Describe your use of the Usenet Newsgroups for this class:

Never use it	2
Used it once or twice only	
Use it once per week	
Use it more than once per week	

10. Was the professor's level of activity in the Usenet Newsgroups sufficient for your needs?

Yes _____ No _____ N/A 2

11. Was the teaching assistant's level of activity in the Usenet Newsgroups sufficient for your needs?

Yes _____ No _____ N/A 2

12. Did your participation in the Usenet Newsgroups help you learn about the ideas and theories covered in class?

Yes _____ No _____

13. In your opinion, what is the benefit of access to an Usenet Newsgroups?

- Can allow students to get info or talk with other students only in their class.
- Communicate with others in class / Buy/sell used textbooks.

14. What factors influence your level of contribution to the Usenet Newsgroups?

- Interest in what is being posted.

15. In the space below, please describe what you especially disliked about the Usenet Newsgroups?

- No comments.

16. In the space below, please describe what you especially liked about the Usenet Newsgroups?

- They are there but not a necessary part of the course. They are more for extra information than a component of the class.
- Opportunity to communicate with others in class.

17. In the space below, please write any suggestions for improving the Usenet Newsgroups?

18. To what extent do you sign on to other Usenet Newsgroups, either for work or pleasure? (Circle one)

Never 1

About once per month _____
About once per week 1
Several times per week _____
Every day _____

19. Is the Usenet Newsgroups a necessary component of the course?

Yes _____ No 2

20. For future classes such as yours, would you like to see Usenet Newsgroups (choose one):

Not used at all 1
Available but still optional, and should count toward participation points if the student wants it to 1
Available but still optional, for extra credit points only _____
Required for all students taking the class, and participation should count for five to ten percent of the student's final grade _____

Student Impressions

1. The Internet discussion group improved the teacher's effectiveness.

Strongly agree _____
Somewhat agree 1
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

2. The Internet discussion group did not make the professor more accessible.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree 1
Strongly disagree _____

3. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

Strongly agree _____
Somewhat agree 1
Neither agree nor disagree _____

Somewhat disagree _____
Strongly disagree _____

4. Use of the Internet discussion group lowered the overall quality of the course.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree 1
Strongly disagree _____

5. The Internet discussion group allowed the students in the class to feel closer and more cohesive than usual.

Strongly agree _____
Somewhat agree 1
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

6. The Internet discussion group enabled me to communicate with the professor outside of class more than I would otherwise.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree 1
Somewhat disagree _____
Strongly disagree _____

7. The Internet discussion group allowed the professor to be more responsive to the needs of the students.

Strongly agree _____
Somewhat agree 1
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

8. The Internet discussion group allowed me to feel more a part of the class than I usually do.

Strongly agree _____
Somewhat agree 1

Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

9. I think our use of the Internet discussion group improved the quality of the course overall.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree _____
Somewhat disagree _____
Strongly disagree _____

10. I would recommend that all professors adopt the use of Internet discussion groups in their classes.

Strongly agree _____
Somewhat agree _____
Neither agree nor disagree ____1____
Somewhat disagree _____
Strongly disagree _____