Technology in the English Composition Classroom: Freshman Composition Students Using the Internet to Plan Assignments and Conduct Research.

Michael Allen Mccord
Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation
https://digitalcommons.lsu.edu/gradschool_disstheses/6504

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Historical Dissertations and Theses by an authorized administrator of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.
INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6” x 9” black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor MI 48106-1346 USA
313/761-4700 800/521-0600

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
TECHNOLOGY IN THE ENGLISH COMPOSITION CLASSROOM: FRESHMAN COMPOSITION STUDENTS USING THE INTERNET TO PLAN ASSIGNMENTS AND CONDUCT RESEARCH

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The Department of English

by

Michael Allen McCord
B.A., University of Iowa, 1989
M.A., University of Iowa, 1992
August, 1997
ACKNOWLEDGMENTS

The members of my dissertation committee are due a heartfelt “thank you” that is difficult to express. To Dr. Sarah Liggett (one of the best teachers I have ever met), Dr. John Fischer, Dr. Miles Richardson, and Dr. Mary Sue Garay: thank you so much for your helpful suggestions, encouragement, and cooperation on this project. Most special thanks are due to the director of this dissertation, Dr. Malcolm Richardson. Without your constant encouragement and wonderful suggestions on the many drafts I gave to you, I most certainly would not have completed this dissertation. You are not only my boss, but an admired mentor and precious friend. Thank you for everything you have done for me.

Of course, Judy Caprio, another wonderful friend, played a large part in this dissertation, and is present on every page of the text. As I sat in on Judy’s classes each day, I marveled at her ability to relate to her students and to inspire them. Judy, you have the “P” from Charlotte, the “h” from me and whether or not you ever decide you want that final “D,” I don’t know that I’ll ever be half the teacher that you are. I will try.

I also wish to thank the enduringly patient students in Judy’s 1002 and 1003 courses, but especially the eight
students who participated in the case study group. You were wonderful to work with, and I only hope that my future students will be as great as you were.

My parents also deserve my deepest gratitude. Without your help, I would never have made it through the first four years of college and you have continued to be an inspiration to me during my graduate work. Your encouragement at every turn on this long road has meant so much to me!

Finally, thank you, Melody. You are one of the few people I know who would encourage your mate to leave a secure job simply because you knew he wanted to go to college -- at age 29, no less! It's been a long time since then, and I want you to know how much your support has meant to me. I'm probably not the easiest guy to live with under the best of circumstances, and I know I've been even worse during this dissertation, but it is over now! We'll be moving on together to other things: a new job, a new area, a new house -- a new everything. But whatever the future brings, you should know that these have been the best years of my life and I have you to thank for that.

Later: One day after I wrote these acknowledgements, Melody was taken away in a terrible automobile accident. That does not change my love for her, or the gratitude I feel for having her in my life for more than twelve years.
Melody, I know you didn’t have a chance to read these acknowledgements, but I also know that you can read them now. You are my sweetheart, and I can’t describe how much I miss you already. The thing that keeps me going is the very real faith that I will be with you again one day. You will be in my heart every day until then.
PREFACE

As the use of computers and network technologies becomes pervasive throughout almost all segments of society, many composition educators at all levels are beginning to use these "new grammars," as Cynthia Selfe calls them. While this may not herald a move to yet another "New Rhetoric," it is true that recent professional conferences devote more and more time with each passing year to issues of technology in the classroom.

Most of these conferences, however, are filled with theoretical discussions and musings over the political implications of technology; almost nothing is presented which looks at what students and teachers actually do with technology in their courses once they have access to it. There are many legitimate reasons for this lack of research, some of which will be discussed in the body of this study. Nevertheless, some research must be done before the theoretical and pedagogical discussions of scholars begin to have real application in the freshman English composition classroom.

Because of my ten-year association with Writing Centers at two major state universities, and also because of my interest in computers which is almost as long-standing, I have had the opportunity to observe students as they use computers to compose essays. During just the past three years, I have observed students as they used network-
capable computers to access research information for their papers, although I have been using these resources for nearly seven years in my own work.

I know that using the computer and the Internet has changed the way I plan my own writing, and has also changed other aspects of the way I write. For several years, I have wondered how technology can affect the writing process of other students. But, like many others, until just the past several years I have seen writing as an intensely personal process that most people -- certainly myself, at any rate -- undertake in isolation. As far as I was concerned, this could make any systematic study of writing especially difficult, the excellent work of Flower and Hayes and others notwithstanding.

On the other hand, I have also used collaborative writing techniques in my classes and observed those techniques in classes taught by others. As I observed students both in and out of the classroom engaged in creating and negotiating collaborative texts, I was struck by how enthusiastic many of them were, though almost all of them were initially reticent, and justifiably so, to share their most intimate and private creative processes with the friendly strangers who were their classmates.

As students have become more aware of computers and network-based communications during the last three years or so, many have come to me with questions regarding their use
of these technologies as they write. Furthermore, since 1995, I have been able to observe and work with students enrolled in college composition courses that emphasize the use of computers and network communication in addition to the more traditional language- and rhetoric-based curriculum.

For some reason that is still difficult to explain, these classes always seemed so dynamic; students who were new to technology (and there were many of them) were not at all reluctant to admit their unfamiliarity, while those who were more experienced always seemed so willing to share their knowledge with the uninitiated. The sense of camaraderie that existed in these classrooms was unusual, and students always seemed to enjoy coming to class.

While all of this interested me, I was at a loss to find a way to conduct any formal research that could tell me more. There was very little published research that dealt with these issues that I could use for guidance, and that is still true today. Ultimately, I decided to forgo protocol analysis because I believe protocols risk distorting the writing process. I also decided to bypass the simply narrative account because all I would gain would be another useful, though purely anecdotal, account that could be added to the volumes that already appear on the World Wide Web.
The method I decided to use to research this new and unusual trend toward the use of technology, especially e-mail and the World Wide Web, in college composition is something of a hybrid -- part ethnographic, complete with thick description and volumes of observational data, but also part interview and questionnaire-based. While neither of these methods would likely be suitable in isolation, I believe they complement one another in the context of the present study.

The result is a study which closely examines the work that students do as they struggle to learn and then use Internet technology that is fast becoming widespread on college campuses, as well as in homes and businesses.
### TABLE OF CONTENTS

- Acknowledgments .............................................. ii
- Preface .......................................................... v
- Abstract. ....................................................... x
- Chapter 1: Introduction ...................................... 1
- Chapter 2: Methods. .......................................... 43
- Chapter 3: Results. ........................................... 69
- Chapter 4: Discussion/Implications of the Results .... 135
- Bibliography. .................................................. 172
- Appendix A. .................................................... 178
- Appendix B. ..................................................... 181
- Appendix C. ..................................................... 184
- Appendix D. ..................................................... 185
- Appendix E. ..................................................... 186
- Appendix F. ..................................................... 188
- Appendix G. ..................................................... 190
- Appendix H. ..................................................... 192
- Appendix I. ..................................................... 206
- Vita. ............................................................. 216
ABSTRACT

The use of computer and electronic communication and network technology is becoming increasingly important not only in society in general, but also in the college-level English composition classroom. These technologies amount to what some researchers term "multilayered literacies" or "new grammars." However, there have been few systematic studies of how students actually use these technologies. The current research presents a descriptive/naturalistic study of how students both learn and use the new electronic technologies as they accomplish research for, and respond to, a college-level writing assignment.

This study examines the use of computers and networks by eight case study participants in two Internet Emphasis English Composition courses that were held during the 1996 spring semester at Louisiana State University. Using a methodology that included recorded observations, interviews with students and teachers, questionnaires, student logs, and analysis of e-mail messages, this researcher closely followed the work of these eight students during a major unit of the semester.

This study found that students expect to use technology in their composition courses, that they are able to use it effectively, and that Internet and network resources provide them with useful information. This study
also found that using computers and electronic technology plays an important role in essay planning and prewriting activities. Moreover, computers and networks can help students to shape their writing in several important ways.

This study also sounds a cautionary note. While the results generally show that technology can be useful to college composition students as they plan and conduct research for their assignments, it also details several very significant, and heretofore unpublished, problems that can occur. For example, there is a risk that students in collaborative groups may assign writing tasks based more on the availability of computers to individual group members than on other, less restrictive criteria.

Finally, this study outlines general problems that can occur when too much reliance is placed on hardware and software that is out-of-date or unreliable for other reasons.
CHAPTER 1: INTRODUCTION

1.0 OVERVIEW

This chapter outlines the focus of my research and situates it within the context of current literature in rhetoric and composition studies. While research into the use of computers and the Internet is still in a nascent, evolving stage and usually focuses either on the theoretical underpinnings of electronic communication or on specific software applications, much of the published information is helpful, if somewhat abstract. The focus of the current study is different, however, in that it examines how computers and Internet resources are used in two real-world English composition classrooms. This study will specifically focus upon what students do with these resources and how their behavior fits the pedagogical goals of the teacher who designs the courses. The focus group in this study is comprised of eight students enrolled in two second-semester English composition courses and their teacher.

This study differs from much previous research in Composition Studies because it does not attempt to analyze either the quantity or the quality of the writing produced by student participants. As I will discuss in more detail below, most recent research that attempts to show the
relationship between computers or computer software and writing ability concludes that technology has little influence -- positive or negative -- on the quantity or quality of student writing, (although some research shows a significant benefit for basic writers and students in remedial composition courses). However, for other valid reasons teachers may want to use technology in the classroom, such as the ease with which essay drafts can be shared between students via an asynchronous network or the ease with which students can rapidly access vast amounts of electronically-published information on diverse topics. Furthermore, the use of networks may influence students' processes of invention as well as the way they organize their essays. In addition, technology may promote collaboration among students. This study will examine these possibilities, along with several others.

1.1 FOCUS OF THE STUDY

Beginning with the Fall, 1995 semester, the Department of English at Louisiana State University introduced a series of courses designated in the course catalogue as “Internet Emphasis” courses. These courses continue to be offered each semester, and are mostly 1002 English Composition, 2002 Business Writing, and 3002 Technical
Writing. Internet Emphasis English courses must meet institutional and departmental goals such as those described in the next paragraph, although they also allow teachers to use computers and Internet technologies in their courses. The Internet Emphasis designation carries with it no formal departmental requirements concerning what Internet resources must be used, although teachers typically ask their students to use the World Wide Web to conduct research and to use e-mail to communicate. Some teachers also use the Internet to post course materials and assignments, and to circulate drafts for discussion and peer review. Many teachers require students to use the Internet for short periods during the semester, while others require students to use it throughout the term.

My research focuses upon one 1002 course and one 1003 course (an honors section) at Louisiana State University. Both courses took place during the 1996 spring semester. English 1002 and 1003 are final courses in the normal two-semester English composition sequence that all students at LSU are required to complete. The 1002 and 1003 English composition courses focus on the processes and strategies

---

While writing the final draft of this document, I learned that the Department of English no longer offers courses designated “Internet Emphasis.” This is because Internet technology has become so commonplace that teachers at LSU are now encouraged to use it in all of their English courses.
used to create and shape persuasive and argumentative essays. The 1002 and 1003 English composition courses also focus upon the use of persuasive techniques and various forms of argumentation, as well as on matters regarding critical analysis of evidence. Finally, 1002 and 1003 courses focus upon writing style, grammar, and mechanics. Students in 1002 and 1003 English composition learn:

1) to develop a reliable writing process;
2) to develop analytical and critical thinking skills, and to use those skills to write persuasive and argumentative essays;
3) to write for different audiences;
4) to use these skills to write college-level essays that are characterized by unity, organization, and support, as well as appropriate word choice, and that adhere to principles of standard usage, spelling and mechanics.

This study examines factors such as student and teacher attitudes and expectations toward computer and electronic communication technologies, the classroom social environment which develops in a course where technology is important, the availability and ease of use of computer hardware and network-access software, as well as how the use of the Internet can help or hinder students as they
respond to assigned writing tasks in terms of research and prewriting.

In addition, my research examines the ways in which online student-teacher communication takes place, as well as how students use the Internet in small group and large group communication. And, while the scope of this descriptive/naturalistic research does not allow a full-fledged examination into whether or not the use of computers in an Internet Emphasis English course provides useful professional and workplace skills, it does allow both students and teachers to report perceived professional development benefits.

1.2 THEORETICAL ASSUMPTIONS

The theoretical assumptions that underlie this study are as follows:

1) The use of computers and network resources are emerging literacies that are fast becoming pervasive in society. At the same time, college students expect to use these resources in their college classes. This is especially true in courses where much research is required;

2) Collaboration between students, though sometimes difficult to encourage in the traditional composition classroom, is based upon sound theoretical and pedagogical practice;
3) Much of current composition theory and practice is based upon a recognition of the importance of social constructionism, and is the basis for my pedagogical approach in this study;

4) Communication between students and teachers in composition classrooms should be encouraged;

5) Students must learn to write for a wider audience than just their teachers, and;

6) Computer and network technology is now reliable. In other words, students will usually be able to access network resources when they need to. Because the network was seriously overburdened, this was not the case only one year ago at LSU and probably many other college campuses.

I will discuss all of these assumptions in more detail in the remainder of this chapter, and in the chapters that follow.

1.3 OBSTACLES IN TECHNOLOGY AND COMPOSITION RESEARCH

Technology Outpacing Published Research

Research that focuses upon the use of computers and various forms of electronic communication is becoming ever more important in composition studies. However, such research brings with it some significant problems, both for the researcher and for those who read the reports. One problem is that research in this area quickly becomes outdated, though one can learn useful information even from
studies that focus on "old" technology. For example, Cynthia Selfe's 1985 description of students as they use computers to draft essays is still pertinent today, even though virtually no applications used by the students in her study are still used. The same is true of Lillian Bridwell and Ann Duin's early discussion of students who use computers to conduct research and compose essays (1985). Both of these scholarly essays provide insights into student behavior when they use computers, even though most of the hardware and software those students used is no longer available.

Computer hardware and software continue to become more powerful, more affordable, and easier to use each month. Technology advances so rapidly that equipment and software that are only a year or two old are already obsolete. For example, 486-class machines that were considered entry-level a couple of years ago are now unable to run even moderately sophisticated software applications. Moreover, software applications like word processors and network browsers now contain many additional features that make earlier versions seem very limited. Thus, a great deal of the research that focused upon these hardware and software technologies may also become obsolete after a relatively short time, though again, one expects that some aspects of
these studies will continue to have relevance even after newer technologies replace the old.

For example, two or three years ago many studies examined the influence of word processors on different aspects of student writing. While most of these studies showed little influence, it must be noted that the earlier versions of word processors were more difficult to use and offered fewer features than the programs that exist today. While one cannot dismiss these earlier studies on this basis, it makes sense to revisit this topic again, although the present study will not do so.

Studies published only one year ago already seem a bit dated because today's technologies are far more advanced than they were last year at this time. For example, World Wide Web search engines are now capable of much more precise and accurate document retrieval than they were last year. A year ago, one of the biggest complaints about the Web -- a complaint made by both teachers and students -- was that it was so very complicated. It was just too easy to begin searching for one topic, only to be drawn away by false or misleading search engine hits.

However, with the advent of "intelligent" search engines like HotBot and AltaVista, it is a much more straightforward process to type in plain-English search terms and get back a list of highly relevant and
hierarchically presented hyperlinked hits. This may be a boon for those who use the World Wide Web to conduct research, but it is a problem for those who last year published research based on the web, since that research applies to last years' technology, and not to what people typically use today. This state of affairs will probably continue since technological developments show no signs of waning.

The problem is magnified when we consider that those who read last years' research may be frightened away from using the Internet in their classrooms because they have the very legitimate worry that the World Wide Web continues to be confusing for students and teachers, overly chaotic, and difficult to integrate into a composition course. After all, one-year-old research in the field of Composition Studies is usually thought to be fairly current, so, unless readers have personal experience with the World Wide Web and with search engines, they may be unaware of recent important technological advances.

These difficulties notwithstanding, all of this points to the emergence of a new field in Rhetoric and Composition, a field that is at once dynamic and unstable, yet is of such great importance that it cannot be ignored. For researchers, this means that a commitment to constant professional development is necessary. For those who have
little interest in research, but want to use electronic
technologies in the classroom because of the wider social
implications of the Internet and electronic publication, it
is important to at least discuss technological advances
with knowledgeable peers or visit one or two of the many
online forums on a monthly basis. This is becoming much
easier to do than it was in the past since many
professional national and regional conferences contain
sessions devoted to technology. Also of great importance
are the many excellent resources that appear on the World
Wide Web such as The Alliance for Computers and Writing,
Magazine, and several university-sponsored sites like those
at Carnegie Mellon and Purdue.\(^2\) Although Composition
Studies is one of the most vigorous academic fields (and
has been since the mid-1960s) the current trend toward the
use of technology in the classroom makes it even more
active than it was earlier this decade.

**Attitudinal Disparities Regarding Technology**

Another problem regarding the use of technology in the
classroom is the wide disparity in the way it is viewed by
English teachers, by university administrators, by
students, by students' parents, and by potential employers.

\(^2\) Because some of these World Wide Web resources contain
long URL addresses, I will list them in the Bibliography.
There is no consensus either between or among these groups as to the importance of technology, or the place technology should hold within English Studies. My impression, though it is only an impression, is that employers and parents generally hold computers and electronic communication technologies in high regard, and expect students to learn and to use these technologies in school. Furthermore, questionnaires that I have distributed to students over the past two-and-one-half years lead me to the anecdotal conclusion that most students value technology and expect to learn to use it at the university. These questionnaires were given to 457 LSU students, most of whom were first- or second-semester composition students, and were distributed to students during the past year-and-a-half to determine students’ familiarity with computers and network technology, as well as the availability of these technologies and student attitudes toward using them.

It is difficult to generalize the attitudes of college and university administrators and English teachers regarding the use of technology in the classroom, although it is safe to say that there is much disagreement. Initial costs for computers and network connections are very expensive, and staffing and maintenance are even more costly. Since most research does not show a qualitative difference between writing in the computerized classroom
and in the traditional classroom, it is sometimes difficult to convince colleagues of the importance of technology. Moreover, many in English Studies are only now beginning to use computers in their own work, while others resolutely resist any use of technology.

Only time will tell whether the current emphasis on technology in Rhetoric and Composition is simply a flash in the pan, or something with a more lasting impact. Perhaps the best argument to make regarding technology is that much research remains to be done, and that, until more is known about this area, it probably makes sense to make judicious use of computers and electronic communication. Since society outside of the university is rapidly becoming more acquainted with technology, as evidenced by the huge increase in home computer sales and home and business network connections over the past two years, it is crucial that the English department not become the metaphorical little island in a vast sea.

According to Mark Spangler, in a recent issue of *PC Magazine*, 9.5 million households were connected to the Internet in 1995, although that number is expected to rise to 36 million households by the year 2000 (147). Even more pertinent for college educators are the figures of a recent study conducted by CNN and the National Science Foundation. Of 744 randomly-selected students in grades 7 through 12:
Forty-four percent said they use a computer daily and another 36 percent weekly -- and while game playing (93 percent) was the most common usage, writing school reports (89 percent) was not far behind.

The NSF poll also suggested that the Internet was a popular destination for teen-agers. Fifty-six percent said they'd done school research on the Internet, while 57 percent said they'd gone Net surfing for other reasons. And 77 percent said they preferred to do their research on the Net rather than looking up the information in books.

The poll showed that boys and girls used computers at about the same rates, although boys' average use of the Internet nearly doubled that of girls.

The teen-agers are still spending an average of nearly 20 hours per week in front of a television monitor and about 4 and half hours in front of the computer monitor. But 77 percent say they couldn't live without the computer, while 72 percent said the same about the television. 

Of course, figures over time are required to establish a trend, although these statistics from CNN/NSF are important for college educators. If our future college students will use computers and the Internet for academic reasons, it makes sense to try to determine how teachers can use these resources in their own courses. If the figures cited above constitute the beginning of a trend, as I believe they do, this is even more important and has broad implications for departments of English across the country.

Disparity in Equipment at Different Institutions

Perhaps the largest problem in establishing a discourse that involves computer or electronic...
communication networks is the disparity in hardware (including network connections) and software between different colleges and universities. Results from one study that examines work done in a computerized classroom, for example, may have little relevance at a university where no computerized classrooms exist.

Along the same lines, it may be difficult to apply research involving students who possess a high degree of computer or Internet expertise to a group of students who have less familiarity with these technologies. One hopes that the polyphony of methods, research locations, and skill levels of research subjects will enable readers and researchers alike to interpret and use research that will be most helpful and pertinent to those reader’s or those researcher’s situations, no matter what level of technology exists on a given campus.

The present study is offered in light of the problems and difficulties outlined above, perhaps in some sense even because of those problems and difficulties. The use of technology is becoming pervasive in the society outside of the classroom, and it is important to determine if there are valid reasons to use technology in the classroom. Since no one can predict what technologies will be available tomorrow, one must focus on current technology
and examine what benefits or drawbacks its use in the writing classroom presents to students and teachers.

1.4 REVIEW OF RELEVANT LITERATURE

Most literature concerning the use of computer technology and network communication appears in four very broad categories: 1) accounts, mostly anecdotal, that describe the use of technology in the composition classroom; 2) studies that examine the effect of specific software applications in the classroom; 3) theoretical discussions regarding the use of technology in the composition classroom, and; 4) Internet-published descriptions of how the World Wide Web can be integrated into the classroom. This final category is an area only limited published information exists. Furthermore, of the information that does exist, much of it cannot be classified as formal research. This fourth area takes the form of course descriptions, and sometimes actual courses (complete with syllabi, reading lists, assignment sheets, and evaluation forms), that are published on the Internet. Unfortunately, very few of these descriptions involve undergraduate composition courses, although some of them may in the future lead to interesting possibilities for the English composition classroom.

The first category of anecdotal accounts is relevant to the present study, although it must be noted that these
accounts rarely examine the Internet as a major resource for student research because widespread Internet use is a fairly recent phenomenon. The second category regarding specific software applications has limited relevance to the present study, precisely because most of the software in these studies is dated or apply only to synchronous network communication or specific word processors, for example. The third category of theoretical discussions, however, has relevance to this study because many of these theoretical discussions are presented by experienced teachers who have used computers and electronic technologies in their own classrooms. Finally, while it is interesting, the fourth category is not especially pertinent to this study because of the very limited amount of information available.

The present study focuses on ways the Internet can be used in the composition classroom -- a topic on which very little has been published. It is in this area that the present study breaks new ground. The rapid growth in the World Wide Web, once it began, took some time to filter into the college writing classroom. Of course, after the importance of the Internet became apparent, researchers required additional time to conduct studies and write results. With the normal lag time required to publish, the upshot is that published research is just now starting to appear in very limited quantities.
Technology in the Classroom

I have chosen to focus upon discussions of individual elements of technology rather than entire courses that use technology in various ways. As already mentioned, some discussions are dated, at least by the standards described above. Thus, although there may be some important insights described in a course description, for example, the bulk of the study in question may have little relevance on the present study.

For example, a thorough program evaluation involving a composition course that uses technology might involve discussions of social leveling within the classroom or student and teacher conferences via e-mail. These discussions are relevant to the present study. On the other hand, the same program evaluation might present a great deal of information involving Daedalus and Real Writer software, as well as material regarding drill-and-practice grammar exercises on the network, material that is not especially pertinent to the present study. I have chosen to present below what I consider to be important insights in the published accounts at the same time as I omit information that I consider to be less useful and relevant. Overall, discussions of specific courses and teacher experiences tend to be overwhelmingly supportive.
and positive regarding the use of technology, although I will describe some exceptions below.

Research on Synchronous Networks

The use of computers and electronic communication technologies in the writing classroom has been studied since the late 1970s, although the most important and groundbreaking research involved the ENFI (Electronic Networks for Interaction)\(^3\) consortium which began in the mid 1980s. ENFI began as a project at Gallaudet University in Washington DC that was designed to help deaf students communicate using written English rather than American Sign Language, but quickly spread to other colleges and universities. Although I will discuss the ENFI consortium in greater detail below, it is important to remember that almost all current research in this area is, in a very real sense, based upon those early and ground-breaking ENFI experiences.

The studies at Gallaudet are described in detail by Trent Batson (1988, 1989, 1993). Batson used a local area network that allowed his students to communicate using English instead of American Sign Language. Although the use of computers and a local network as resources in writing courses for deaf students is important, what is

\(^3\) The original acronym as it was used at Gallaudet stood for “English Natural Form Instruction.”
most significant for this study is that teachers at many other colleges and universities rapidly adopted ENFI for their own classrooms.

By 1987, an ENFI consortium was formed by teachers at Gallaudet and several colleges and universities where deaf students were not the focus of instruction. These colleges and universities included the University of Minnesota, Northern Virginia Community College, the University of Texas at Austin, and Floyd College in Rome, Georgia. The teachers who participated in the ENFI consortium used computers and electronic communications in their own work, but they also wanted to know how, or even if, these technologies could be used by students in their writing classes.

ENFI writing classes typically used computer networks that allowed students to communicate with other students in the same class and with the teacher. This communication was synchronous, or real-time, in that student writing appeared on the computer screen as soon as it was written. Normally, the computer screen that each participant saw was split into two parts: the top two-thirds included the running commentary of the class as a whole as each student "published" his or her messages to the network. The bottom one-third of the screen was an area where each student could compose his or her message. Once the message was
complete, the student sent it to the network where it immediately appeared in the upper part of the screen. Messages in the top screen continually scrolled by as more and more students published comments, although participants could use a scroll bar to move to an earlier section if they desired.

According to Diane Thompson, this rapid movement of text is disconcerting for some students and teachers since the top screen frequently begins to move even while a participant is in the process of reading (1987, 1993). If several students publish their comments simultaneously, the message being read can scroll right off the screen, forcing the reader to use a scroll bar to try to retrieve the remainder of the message. While this fast-paced reading and writing may have a place in the writing classroom, it does not allow participants to follow a discussion linearly, and does not allow time to consider carefully the points that others make and to reflect upon and respond to those issues in writing.

Though it is not the only problem, this lack of coherence is a main problems with synchronous networks. Non-linearity should not always be equated with lack of coherence; hypertext is a good example where non-linear text is very coherent, for example, although it does allow
readers to make choices they ordinarily could not make in a linear text.

However, in the case of early ENFI experiments, I believe the criticism is valid because students had no choice regarding the speed at which messages scrolled up the screen or the organization of message "threads." Split-screen, synchronous network communication encourages many different conversations to take place simultaneously in a manner that is difficult to follow. Participants must read messages at the same time they are composing a response to earlier messages so as to catch threads of the topic that interests them. Frequently, that thread comes to a dead end and students must try to pick up another thread that interests them. For students who are not extremely fast thinkers, composers, or typists, such an experience can be frustrating. This kind of activity also may lead students to believe that no discussion is ever resolved, that consensus is never reached, only that participants move on to something else; in short, that true dialogue does not exist in the networked classroom.

**Flaming**

Another problem that fast-paced synchronous communication over a network can lead to is called "flaming." Flaming is when one student unfairly criticizes another, engages in unwarranted personal attacks, uses
sexual innuendo or other forms of intimidation to insult or belittle others, or uses profanity to excess. Although he reports examples of successful cooperation on the network, J. Douglas Miller also reprints an example of flaming. In this transcript, reproduced exactly as students typed it on their computers, students are supposed to create a screenplay where the scenario involves the purpose for aliens coming to earth:

General: They came here to get laid, satisfy them if you want to get rid of them.

I [Miller] immediately attempt to deflect the flaming from the General:

Daddy: (To his daughter) I think they are just hungry darling—why don’t you make some nice tuna fish and catsup sandwiches for them—the kind you like.

Rotominr: yeah

Rotomaj: SHUT UP

Mommy: HEY WHY DID YOU BLOW UP MY HOUSE?? (shouts at general)

Nukephys: (boiling angry) no nuclear weapon war here, what hell do you think you are doing? (to mommy)

After several lines of general indirection, Mommy finally picks up the General’s cue with the following: [Miller]

Mommy: I WILL HAVE TO GET RID OF YOU BY STRIPPING MY CLOTHES AND DANCING IN FRONT OF YOU AND MAKE YOU SO HARD.

Rotominr: yeah!

Rotomaj: “YEAHH”

Rotominr: you take (the girl) I take her
Girl: nooooo!

Rotominr: OK

Mommy: WE SHOULD TRY TO USE OR LOVE POWER.

Rotominr: (as I moved towards mommie i jumped into
the couch)

Girl: You can’t catch me! I am a fast runner!!!!! And
yes use our love power!!!

Mommy: NO NOT WITH YOU, I WANT TO DO IT WITH THE
GENERAL!!!!!!!!!!!!!!

Mommy: OK DO IT

Rotominr: too late bitch

Mommy: FUCK!!!

General: (general grabs video camera to video tape a
possible porno movie that he can make millions from)
(130-31).

Miller concludes the transcript by saying that, "The
flaming became even more heated before the class period
mercifully ended” (131), although one wonders how that
could be possible. So as not to distort the record, Miller
is not completely negative about his experience with a
synchronous network, and his article describes some
successes as well as this example of flaming.

Nevertheless, flaming is reported by many teachers who use
synchronous networks in the writing classroom. While
synchronous network communication may have a place in the
classroom, it must be used with great care since a couple
of instances like that described by Miller could effectively destroy the learning environment.

**Advantages to Synchronous Computer Networks**

Synchronous network communication such as that used in ENFI classrooms have the obvious advantage that students have the opportunity to write a great deal more than in a traditional classroom. Although oral class discussions still occur in a networked classroom, a significant number of discussions take place in writing over the network. And, while there are differences between synchronous and asynchronous networks, research involving synchronous networks continues to be extremely important since it is a way to learn how students use the network and how that use influences classroom and writing behaviors.

One advantage to synchronous networks is that transcripts of each class session can be produced. As Fred Kemp reports, transcripts can be very helpful for teachers as they try to plan strategies for subsequent class meetings, and for students as they study their discourse practices on the network (175). This finding continues to be important for teachers today who use networks in the composition classroom.

In addition, either synchronous or asynchronous networks allow students to spend less time in teacher-led discussions, and more time writing among themselves in the
classroom. This may be an advantage over traditional classrooms, although some teachers (as well as some students) may not find this kind of communication desirable.

**Networks and the Society of the Classroom**

Since the late 1980s, composition scholars have published some research involving non-ENFI local area networks. Many of these researchers advocate the use of on-campus local area peer networks as an effective method for teaching English composition classes (see Michael Spitzer, Gail E. Hawisher, and Barker and Kemp). Local area networks offer some advantages over the traditional classroom, but they are in some ways limiting because they are usually restricted to students in just one or two writing classes, while Internet-based courses can do everything that a LAN-based course can do, with the addition that an Internet-based course can connect any number of students with a vast number of discourse communities and research locations that exist outside the classroom, the dorm, or the university library.

**Networks and Student Collaboration**

Barker and Kemp's work is especially interesting because it shows that discourse over a network tends to level the playing field by providing an instructional context that is "enfranchising, open, and egalitarian"
(23), and this would seem to apply not just to local area networks, but to wide area networks (like the Internet), as well. For example, Barker and Kemp point out that women participate on the network to a much greater degree than they do during in-class discussions, though men are also very active. In a more recent article, Emily Jessup also reports results of a study in which she finds that women participate more frequently in computerized communication forums than in traditional classrooms, and that a more thoroughly "nonhierarchical" dialogue takes place (346). Mary Flores believes that this phenomenon occurs because computer-based discourse supports a thoroughly "constructivist approach to writing and thinking" (115), while Cynthia Selfe supports the notion that network-based computer classrooms remove "face-to-face" cues like "gender, age, and social status" (1990, 127). Barker and Kemp also found that students who are too shy to speak in the classroom communicate better over the local network. In addition, very aggressive students cannot dominate discussion on the network as they sometimes do in class, although these students continue to participate actively in network discussions (21). Finally, Barker and Kemp also present their findings regarding "psychological filtering" which suggest that participants in network discussions are not distracted by odd habits or
speech patterns, unusual physical appearance or clothing, or body language (21), findings that are supported by Cooper and Selfe (1990). Though this filtering takes place for obvious reasons, it can make communication more rewarding and helpful for all participants.

This research is especially interesting for teachers who would like to find techniques that open the discussion to those who are sometimes reluctant to share ideas. If Barker and Kemp's research is accurate, the "potentially profound advantage[s] of networks" described by Ann Hill Duin and Craig Hansen (111) should be just as relevant when the network is no longer local, but becomes nationwide or worldwide -- as it does in Internet Emphasis composition courses. In addition, such an atmosphere has the potential to nurture a collaborative writing environment for the very reasons outlined above (see Herrmann, 1991; Daiute, 1986; Heap, 1989; Dubrovsky, et al., 1991; and Selfe and Wahlstrom, 1989).

Spitzer's summary of research on local area networks outlines results that are similar to those described by Barker and Kemp. In addition, Spitzer found that classroom dynamics become subtly altered when part of the course takes place on a network. While the teacher is clearly in a position of authority in a traditional classroom, he or she tends to yield authority on a network. In short, the
teacher becomes one more voice on the network, and not a voice of constant authority. Carol Cyganowski (1990) and Kathleen Skubikowski and John Elder (1990) report similar findings. According to Spitzer, the teacher's "comments have no more prominence than those of the students, and the reduction in authority translates into increased empowerment for students" (59).

Spitzer is not especially clear about what he means by "empowerment," although, if I interpret his comments correctly, I believe he is referring to the fact that, because the teacher becomes just one voice in a multiplicity of voices, students become more focused upon their text as text (and with the accompanying concerns of form, style, and content), and not as much by how they can manipulate the text to please the teacher. Skubikowski and Elder report that "students were not waiting for the teacher's word on a piece before they began reworking it," (103) but began revising based upon comments made by other students on the network. If Spitzer's research is accurate, and if Skubikowski and Elder's anecdotal account is likewise accurate, the same advantages should accrue to students who use a wide area network like the Internet.

On the other hand, Diane Thompson (a member of the original ENFI consortium though she worked with hearing students), presented results of an initial study that
contradict those discussed above. Thompson's early ENFI experience using a networked classroom was decidedly unsatisfactory, and did not at all meet with her initial expectations or the results of others who used technology in the classroom. Thompson found that she contributed the majority of writing on the network, and that her students seemed more dependent upon her than in a traditional classroom.

Although results like these are atypical in the literature, they do exist, and that is part of the reason that computer-based Internet communication deserves further study. While much of this "dissenting" research is very good, some of it, when analyzed very carefully, provides hints concerning problems that may have led to unfavorable results. For example, Thompson outlines a philosophy of teaching in a computer classroom that almost certainly influenced her results:

Computer conferencing discourse hinges on the teacher who guides and controls the process. She is responsible for creating multiple dialogues in writing which respond to the needs of each student and to the group as a whole... Whatever the specific content of the lesson, she is at the center of the discourse, organizing and maintaining constant writing to stave off the boredom and rejection which the participants in a computer conference are prone to feel when their comments are not responded to. (1988, 194)

These comments indicate that Thompson, initially at least, was reluctant to step back from center-stage, that
she felt compelled to initiate and guide student discussion on the network in the same way that teachers typically lead classroom discussions. Later, after Thompson decided that her voice did not have to be the central voice on the computer network -- that she could relinquish some authority to her students -- she came to have a much more favorable opinion regarding network-based writing courses. Once Thompson overcame the initial impulse constantly to lead the discourse in her network-based classrooms, she became a vigorous supporter of the use of computer and network technologies in college writing courses:

Once I was able to break free of my initial limiting mindset of imitating my understanding of classic ENFI, a model designed to teach English communication as a second language to deaf students, I began to look at the network as a toolbox, a set of capabilities that could help me to achieve my ENFI goal of encouraging and facilitating a wide variety of interactive written communication activities. (1993, 227)

It is almost always difficult and disconcerting for teachers to use computers and electronic communication technologies in the classroom for the first time, although the same could probably be said about almost any kind of revolutionary teaching innovation. This is especially true for experienced teachers who have taught traditional courses for many years, and have developed sound pedagogical principles that might not, at first glance, be easy to incorporate into a classroom with computers and
networks. It is especially difficult for teachers who must learn the technology at the same time as their students.

**Software Applications in the Classroom**

As already mentioned, this study will not examine in detail the use of specific software applications that are frequently discussed in the literature, even though a great deal is published in this area (see, for example, Rohde, 1993; Mayers, 1996; Friedman and Rand, 1989; Markel, 1994; Williamson and Pence, 1989). Many studies deal with the use of word processing programs, spelling and grammar checkers, synchronous network software, drill-and-practice programs, and sentence and paragraph "analyzers." While these studies are interesting, none of them deal with today's World Wide Web browsers, such as Netscape, since browsers are, like the Web itself, so very new.

**Theoretical Discussions**

Perhaps the most common type of publication regarding the use of technology in the classroom is the scholarly theoretical discussion that presents ideas concerning the importance, scope, or political implications of computers and network communication. For example, one can read numerous articles about the political implications of computers in the classroom, although it is not the purpose of this study to examine the political and economic differences between the "haves" and the "have-nots" as
these articles so frequently do. While questions raised by articles of this kind are certainly important, I do not attempt to answer them here. On the other hand, theoretical articles that deal with the influence of technology on the society of the classroom are important to this study, as are publications that discuss ideas of multiple literacies, the potential effect of technology on collaboration, and the transformations that the use of technology can lead to in terms of teacher/student relationships.

**Layered or Multiple Literacies**

One of the most significant concepts introduced in theoretical discussions regarding the use of computers and networks in the composition classroom is that of "layered literacy," presented by Cynthia L. Selfe (1989) and sometimes referred to as "multiple literacies" by other authors. Selfe compares the "traditional" literacies of the page and the book with the new literacies of the computer. Traditional literacies are well-known to teachers and to students. Traditional literacies consist of a finite number of lines on a finite number of pages. They encourage a linear, left-to-right, page-to-page reading. Add to these components the details of document design (fonts, spacing, type sizes, and so forth), conventions of the table of contents and indexes, and the
standard methods of publication and production, as well as countless other elements, and the boundaries of the traditional literacies of the page and the book become apparent.

Scholars like Walter Ong (1982), Eric Havelock (1976), and Marshall McLuhan (1967), as well as social constructionist scholars argue that traditional literacies (and we should include oral literacies here, along with cinematic and media literacies, among others) have shaped, and continue to shape, the way we create and categorize knowledge as well as how we interpret the world. These arguments are well-known by composition scholars, but with the introduction and widespread use of computers, some theorists believe we are seeing the development of a new kind of literacy that will soon become pervasive.

It is unlikely that traditional literacies will ever be replaced, nor should they. But scholars like Cynthia Selfe, in her 1989 essay "Redefining Literacy: The Multilayered Grammars of Computers," recognize that a new literacy has begun with the introduction and widespread use of computers:

If we accept that the conventions of specific media determine how we construct reality, we can begin to see how the use of computers as communication aids might affect literacy in two important ways. First, computers add several new grammars to the lists of things that individuals must learn before they become successfully literate in a computer-supported
communication environment. We can posit grammars associated with computer keyboards and with computer screens, grammars connected with computer systems or with word-processing packages, and grammars related to the use of computer networks or printers. These new kinds of literacy are layered over and have a substantial impact on the tasks of reading and writing. Second, computers change the way we "see" text and construct meaning from written texts. Like the concepts of "indexing" and "zooming-in," some of the conventions associated with computers do not exist in the natural world, and these conventions change the way in which we think about communication problems. (6)

If it is true that computers and electronic networks create a new media and a new literacy, it makes sense to encourage our students to use that literacy. This is especially true if our students will likely encounter and use that literacy -- both while at the university and in the workplace.

Furthermore, if Selfe is correct about this new layer of literacy, it becomes much easier to understand why most studies cannot support a correlation between the use of computers and better or more effective writing in student compositions, since students who use technology are adding a new literacy or competence, but not one that is necessarily better or more effective than textual literacy.

Selfe is not the only composition scholar to advance the notion that computers have led to an important new layer of literacy. For example, Ron Fortune argues that the kind of graphical representations that the computer
makes available can help students reinterpret their ideas (1989) in ways that traditional literacies cannot. Ann Hill Duin and Craig Hansen relate the concept of this new literacy to changing social relations, both in and out of the classroom (1994).

In a similar vein, Andrea Hermann believes that computers and electronic networks lead to a literacy that is "increasingly social, collaborative, and interactive" (156), and that teachers must find ways to accommodate and evaluate these changes in the classroom. Finally, as William Costanzo points out:

It is not simply that the tools of literacy have changed; the nature of texts, of language, of literacy itself is undergoing crucial transformations. Along with these transformations come shifts in the sites of literacy. From the home and the classroom to the market and the workplace, computers are reshaping the environments in which language is learned, produced, and practiced. (11)

Since all of the theories described above are extensions of the social construction theory advanced in Composition Studies by Bruffee (and much earlier by Mikhail Bakhtin and Lev Vygotsky), they have found some measure of acceptance in this field. However, it is still necessary to examine classroom pedagogical practice as well as theoretical assumptions. The present study does just that.
Writing as Social Act

One promising aspect of computers and electronic networks -- this new literacy -- for the composition classroom is the way these technologies influence the social relationships within the classroom in terms of collaboration, discussion, negotiation, and other forms of communication among students and between students and teachers. A significant amount of theoretical work discusses these concepts in detail.

Computers and computer networks help to make concrete to our students the idea that writing is not a purely individual act, but an act that is constantly focused and reshaped in a powerful social dynamic. To put this idea, delineated by Kenneth Bruffee (1984), into practice is sometimes difficult in the traditional college classroom. Using computers to encourage students to collaborate on research, writing, revising, and publishing texts is a useful adjunct to more traditional practices. Janet M. Eldred puts this idea into sharper focus:

In composition theory, where emphasis was once placed on writing as a personal, expressive process, writing is now viewed as a social act; a similar transformation has occurred in the literature... surrounding the microcomputer. When the microcomputer was first introduced, it was touted as a personal tool. But a major benefit of a computer is its capacity to locate and access public information more quickly and easily than traditional methods. Highlighting these benefits, most of the literature
focuses now on communications features, on how to make these personal tools more social. (209)

Computers and the World Wide Web can make accessing information both easier and more comprehensive for students, and these are advantages for students in the Internet Emphasis English courses. However, modern computers also allow students to discuss, collaborate, compose, design, edit, and publish documents on the network, all in a very short time. The World Wide Web also allows students to encounter and participate in a wide diversity of discourse groups, such as discussion lists in Usenet Newsgroups and interactive Web pages that they might not otherwise come to know. This was especially important for the case study participants in the present study.

1.5 RESEARCH QUESTIONS

My review of the literature leads me to attempt to answer the following research questions in the present study:

1) How does the required use of the Internet influence students as they a) plan and prepare a response to an assignment, and; b) as they conduct research for the assignment?

Although there is no previous research upon which this question is directly based, it arises from the general theoretical discussions already presented by Selfe, Hermann, Eldred, and Costanzo. If the Internet can help to introduce students to discourse communities outside the
classroom, perhaps students will use those discourse communities to provide them with ideas and direction for the texts they produce.

For example, can a Web-based discourse community influence students' ideas about a particular topic? If so, is this different from what might take place in a more traditional composition classroom? In addition, how does the World Wide Web serve as a resource for students as they conduct research for an assignment? Is the multiplicity of conflicting voices so confusing that students become paralyzed as they try to differentiate between "good" sources of information and other sources that are less effective?

2) How does the use of computers and electronic communication foster small group communication and collaboration in the composition classroom?

If technology can lead students to discourse communities outside the classroom, what can technology do in terms of the community that exists inside the classroom? If writing becomes a social act in the networked classroom in the way that Duin and Hansen, Selfe and Wahlstrom, and Daiute describe, what implications does this have for classroom practice in composition? As a way to foster trust, collaboration, and communication, many composition teachers strive to build cohesive communities of writers in
the classroom; do computers and computer networks encourage this effort, or do they stand in the way?

This is especially important in the first stages of the implementation of computers and networks in college and university classrooms. At most institutions, students come to the first- or second-semester composition classroom with a wide diversity of computer and Internet experience. At first glance, this fundamental variation in skill levels seems as if it might work against efforts to establish community in the classroom, since it immediately places another element of difference between students. Therefore, it is extremely important that this question be examined in detail. Few teachers want to introduce an entirely new "class" system that can interfere with communication and collaboration into their composition courses.

3) How does the use of network-based computers affect communication between student and teacher?

While many teachers encourage the development of a community between students in the classroom, few of them want to be left out of that community. Given discussions of classroom "leveling" presented by Spitzer, Skubikowski and Elder, and Cyganowski, will students use the electronic network to communicate with their teacher in an Internet Emphasis composition course? For example, do students engage in online conferences with the teacher? How is
network communication between students and teachers valued, if at all? If students do communicate with teachers via e-mail, are there any changes in the format or content of that communication when compared to more traditional composition courses? For example, do students formulate their questions more effectively precisely because the questions are written, rather than spoken in scheduled oral conferences or quick between-class discussions as so often happens?

In other words, if leveling between student and teacher does occur in the network-based composition course, does that have an effect on other forms of communication that would normally take place?

4) Does the use of network-based computers introduce significant technical problems for students? In other words, is the technology reliable enough for students to use?

This is another question that is not addressed in the literature, perhaps because the answer likely varies a great deal from campus to campus, and perhaps even at different times on the same campus. While this question is based upon my observations of students as they use the computer facilities at Louisiana State University, the answer may interest those at other institutions.

Some of my discussion will certainly be important in a wider context. For example, what do students do if the
network goes down? Can they continue with the assignment, or are they at the mercy of the technicians who must first repair the network? These questions will be important at almost any institution, since many network problems are caused by Internet bandwidth "traffic jams" that no single institution can predict or correct.

5) Can a teacher use computers and the Internet to foster rhetorical goals that are important in most traditional English composition courses?

This is, of course, the central question in the present study, though it is a question that has not been the subject of empirical research before. Since almost all freshman writing courses must meet institutional and departmental requirements and goals, can a network-based classroom support those requirements and goals? In addition, most teachers have additional goals over and above those established by the institution or department. Can teachers use computers and the Internet to advance these goals, or does an emphasis on technology interfere with and distort the kinds of traditional pedagogical goals described on page 4?

Most freshman composition courses require students to study and use traditional rhetorical principles as they complete assignments during the semester. Will computers and networks aid teachers as they teach these rhetorical principles, or does technology add a layer of complexity
that confuses students? Does the teacher have to spend so much time teaching technology that he or she is forced to sacrifice important non-technological principles that are taught in the traditional composition classroom?

For example, all composition courses at LSU require students to critically evaluate evidence before using that evidence to support their own arguments. If students in an Internet Emphasis course can quickly gather large amounts of data, will they attempt to substitute quantity for quality? And, since many of the voices on the Internet are reactionary and inflammatory, will students, due to the sheer mass of information, overlook logical fallacies and poorly-supported arguments?

Each of these five research questions are important in a field in which the use of computers and network-based communication is becoming common. Teachers who plan to use technology in the classroom must carefully consider the answers to these questions so they can provide a balanced and useful classroom experience for their students.
CHAPTER 2: METHODS

2.0 OVERVIEW

Chapter Two describes the participants in this study: the students, the teacher, and the researcher, and the context for the assignment upon which this study focuses. It also further describes the two Internet Emphasis English 1002 and 1003 courses that are the focus of this study and the physical settings of the various classrooms.

Chapter Two also describes the research methods for this study. I observed students in the two Internet Emphasis English courses for approximately one month during the fall 1997 semester as they completed a writing assignment that required them to use computers and the Internet. In addition, I also asked students to complete questionnaires and logs during this time, and to participate in several interviews. Although my observations were focused upon two case study groups, I collected data from all students enrolled in the two courses.

2.1 STUDY PARTICIPANTS

The Students

The participants in this case study consisted of eight students, four from each of the second-semester Internet Emphasis English composition courses that Ms. Judy Caprio
taught during the Fall 1996 semester at Louisiana State University. One course was a 1002 course with 17 students, while the other was an honors 1003 course with 14 students. While this study focuses on the case study participants, I also gathered data from the other students in the courses.

**Description of Students**

Following is a brief description of the individual students who participated in the case study. This information was obtained from student data sheets that all students in Ms. Caprio’s courses complete early in the semester. While some of the students listed academic and professional interests on their data sheets, none of the students had declared a major at the time they completed the data sheets. Also included are brief descriptions of students' computer experience. This information comes not from student data sheets but from the results of a questionnaire that will be described later in this chapter. Pseudonyms are used here and throughout this text for all participants.

**9:00 A.M. 1003 Participants:**

**Mr. John Ahern.** Mr. Ahern is 18 years old and works as a busboy at two different restaurants. Although he has not declared a major, he plans to major in either biology or chemistry. Mr. Ahern has some experience with computers and with network access and occasionally used both
technologies at home before he came to LSU. He was classified as an intermediate computer user for this study.

**Ms. Tanya Smith.** Ms. Smith is 18 years old. She works part-time at the LSU Medical Center. She plans to major in biology and pre-med. Ms. Smith began the semester as a novice computer user.

**Mr. Mark Hellwig.** Mr. Hellwig is 18 years old and makes pizzas at a local establishment. His major is in electrical engineering. Mr. Hellwig began the semester as a novice computer user.

**Ms. Janet Lasky.** Ms. Lasky is 17 years old. She works part-time in the Life Science Biology Laboratory at LSU. Ms. Lasky has not declared a major, but is interested in microbiology. In addition, Ms. Lasky has used computers since she was in elementary school and can program in two languages. She is also an experienced Internet user. Ms. Lasky was classified as an expert computer user.

12:00 P.M. 1002 Participants:

**Ms. Jody McCracken.** Ms. McCracken is 26 years old. Ms. McCracken is the only student from the two case study groups who is married. She has two young children and also works as a medical transcriptionist in a doctor’s office. Her major is pre-optometry. Ms. McCracken is also the only
student in the 12:00 group who has much computer and network experience. Ms. McCracken has an America Online account and frequently uses that account to access the Internet. She was classified as an expert computer user.

Ms. Carol Curry. Ms. Curry is 18 years old and is a part-time lab assistant at LSU's Gulf Coast Research Laboratory. She is in the pre-med program. Ms. Curry began the semester as a novice computer user.

Ms. Diane Crawford. Ms. Crawford is 19 years old. She is a part-time dental assistant at a local dentist's office. Ms. Crawford is in the pre-dental program. Ms. Crawford was classified as an intermediate computer user.

Ms. Cathryn Anderson. Ms. Anderson is 18 years old. She is the only student in either of the two case study groups who does not have a part-time job. She is undecided about her major. Ms. Anderson was classified as a novice.

Information Provided to Students

Near the beginning of the semester, I distributed to the students, both via e-mail and in person, a short description of the study and asked their permission to sit in on their class (Appendix A). I also explained that much of the research would focus on case study participants, and asked students to volunteer to be participants in the case study. At the next class session, Ms. Caprio again allowed me to briefly address her students in person, at which time
I distributed a short questionnaire designed to gauge students' familiarity with computers, and with online services and the Internet (Appendix B). In addition, I asked students to sign a list only if they were willing to participate as case study group members.

Later, shortly before my research was about to begin, I again addressed each class in person and distributed and explained a release form that I hoped each student would sign. The release form allowed me to read course materials and to collect and use the documents that students turned in to their teacher as material for my research (Appendix C). This release form outlined the documents I would gather for the study and assured students of confidentiality while research was in progress and anonymity in the published dissertation. This document also assured students that no interview or questionnaire data would be shared with their teacher until well after final grades were submitted. All students in both classes signed the release form.

In exchange for participating in the study, I promised students that I would print the final drafts of their papers on my home printer (one copy for each participant, and a copy to turn in to the teacher). Since I could not pay students for participating in the study, I tried to show my appreciation in this way. This was useful to
students because there are few printers on campus for student use. In addition, I promised that students who wanted a copy of the final draft of this study could have one if they informed me of their mailing address. One student has provided me with a mailing address, although I plan to e-mail all students after this research is complete so that I can send each of them a copy of the study.

Student Skill Levels and Method of Selection

In the 9:00 1003 group, eleven of the fourteen respondents agreed to enter the pool from which case study participants would be drawn. In the 12:00 1002 class, six of the seventeen respondents agreed to enter the case study pool. In each of the two classes I separated responses according to computer and Internet familiarity so as not to load the groups with students who were all experts or all novices. Each group of responses contained students who reported themselves as novice users (those with little computer or Internet experience) another as intermediate (those who are familiar enough with computers to use software to accomplish basic tasks like typing papers and who have some experience using e-mail and the Internet), and a third group of responses from students who reported themselves as expert users of computers and the Internet (those who understand computer hardware and software operating systems, can use software to perform advanced
operations, and have much experience using the Internet and can perform sophisticated network searches).

To be classified as intermediate, students had to have experience both as computer and Internet users. Several students in both classes reported themselves as intermediate computer users but had no experience at all using the Internet. I classified these students as novices for the purposes of this study. All students who reported themselves as expert computer users also reported themselves as expert Internet users.

In the 9:00 1003 class of fourteen students, eight students (57%) reported themselves as novices on the questionnaire, while four (29%) reported themselves as intermediate, and two students (14%) as expert computer and Internet users. In the 12:00 1002 class of seventeen students, nine (53%) reported themselves as novices, six (35%) as intermediate, and two students (12%) as expert computer users.¹

¹ These figures compare favorably to results I have obtained to questionnaires I distributed to many first and second-semester English composition students over the past year-and-a-half at LSU. Out of a total of 457 respondents, 260 (57%) report themselves as novices, 157 (34%) as intermediate, and 40 (9%) as expert users of computers and the Internet. While the above figures are anecdotal, since I did not distribute them to every 1001 or 1002 class, they do lend support to the reliability of the present study as representative of freshman composition students at LSU.
One student in the 9:00 class dropped the course before my research began, although this student was not a case study participant. No other students withdrew from either course during the remainder of the semester. In selecting students for the case study groups, I intended to select one expert, one intermediate, and two novice computer and Internet users to work together in the same collaborative group in each class, since I believe this mix best represents the skill levels of students on campus.

With this constraint in mind, I listed each student in the discrete skill levels at random on a sheet of paper beside consecutive single-digit numbers. I then repeatedly used the RNG computer random number generator and chose students based on the number that appeared. The RNG generator is a true physical random number generator that generates random numbers based on unstable electrical frequencies. This program is available at http://pcl502.geographie.uni-regensburg.de/html/rng/wwwrng.htm.

Shortly before I announced to the classes that I had chosen the case-study participants, one novice student from the 12:00 class withdrew his name from the volunteer list because he feared participation would require him to perform additional work. It may be fortunate, from my perspective, that this student withdrew before I actually began to conduct research. After his withdrawal, I
returned to the random number generator and chose a replacement for this student from the remaining pool of novice students in the 12:00 1002 class. Later that day, I announced to each class via e-mail the names of the case study participants.

The Teacher

Ms. Caprio is an English composition teacher at Louisiana State University who has nearly thirty years of teaching experience. She was one of the charter teachers in the Internet Emphasis English program at LSU when it began during the 1995 fall semester. Ms. Caprio chose to teach Internet Emphasis English courses even though she initially had very little experience using computers and almost no experience using the Internet.

Since she began teaching Internet Emphasis courses, Ms. Caprio has learned a great deal about both computers and the Internet, and, in fact, her colleagues often seek her advice in these areas. Ms. Caprio believes that her decision to teach Internet Emphasis courses has resulted in important career development because she is now much more familiar with computer applications and with the Internet than she was before she began to teach Internet Emphasis courses, and can respond to the many questions directed to her even by students in her traditional English composition courses that do not have an Internet Emphasis. By the 1996
fall semester, Ms. Caprio could be classified as close to an expert computer and Internet user, though she realizes there is always more to learn in this rapidly-developing area. Ms. Caprio enthusiastically supported this research.

**The Researcher**

I am currently a graduate student in the Ph.D. program at LSU. Although my Master of Arts degree is in Literary Criticism, I have been interested in Rhetoric and Composition and have taken many courses in that area since 1987 when I was an undergraduate student at the University of Iowa. I have taught many composition courses as well as Technical and Business Writing courses during the past ten years. In addition, I have worked in Reading and Writing labs at both the University of Iowa and Louisiana State University since 1987, except for a brief time from 1992 to 1994 when I taught only freshman composition at LSU. My interest in computers as a resource for writers began in 1987 when I first began to make the transition from typing to word processing as a way to prepare my own documents for my own college courses.

The current research took place over a three-and-one-half week period shortly before the midpoint of the fall 1996 semester, when the two classes were scheduled to begin work on the Decision-Making Kit. I began to attend both of Ms. Caprio’s classes several sessions before work was to
begin on the assignment upon which this research focuses so that I could observe the classes and so that the students would have an opportunity to get used to having me in their classes. Ms. Caprio introduced me to her students as a Graduate Teaching Assistant working on a Ph.D. degree at LSU, and also as a researcher and a technical advisor for students and faculty in the Internet Emphasis English courses. Ms. Caprio allowed me to explain my research to students, and to distribute the first questionnaire described above. I explained that I would be observing the class for approximately one month, but that I would not participate in general class discussions.

2.2 ENGLISH 1002/1003 AND THE DECISION-MAKING KIT

English 1002 & 1003

Although these courses were designated as "Internet Emphasis," all 1002 and 1003 courses must meet the normal institutional and departmental requirements and goals described in Chapter One. For example, students must write at least seven papers during the semester, six of which are graded, and one of which is a final examination. The 1002 and 1003 courses focus on persuasion and written argumentation, as well as audience analysis and critical thinking skills.

In addition to these institutional and departmental requirements and goals, most 1002 and 1003 teachers have
additional requirements and goals which they expect students to learn and attain in their courses. For Ms. Caprio, one important goal is to work successfully as a member of a collaborative writing group. Since a great deal of post-college writing is collaborative in nature, Ms. Caprio believes it makes sense to work together in the classroom. But collaborative writing is much more than preparation for the world of work. It also provides a way to decenter the class, to remove the teacher as the center of attention, and to focus more upon learning among and from one's peers (see Flower, 1994; Gere, 1987; Lunsford and Ede, 1990).

Collaboration allows students to discuss the purpose for writing, as well as to analyze a potential audience for their work. Collaboration also allows students to use initiative in planning their responses to an assignment, and to create and enforce meeting schedules and an appropriate division of labor among group participants. In the context of an Internet Emphasis English course, collaboration has the potential to allow students to learn about computer and electronic communication technologies from one another, as well as from their teacher and LSU's computer support staff. In short, collaborative work may allow students greater freedom at the same time as it
encourages a higher degree of responsibility than most independent assignments.

Ms. Caprio also focuses a large part of her 1002 and 1003 courses upon critical thinking skills. These skills enable students to carefully examine and judge external evidence based upon its suitability for the subject. Of course, this also requires students to think carefully about the topic they present and the audience for that topic. Critical thinking is difficult to teach in any context, but it may be somewhat easier to teach in courses that use the Internet as a resource because students may be exposed to a wide range of ideas in the material from the World Wide Web.

As mentioned in Chapter One, those who teach in Internet Emphasis English courses are allowed to use computers and the Internet in any way that furthers their teaching goals. There are no institutional or departmental requirements for the use of technology over and above traditional requirements that all courses must meet. In an effort to familiarize her students with the vast resources available on the Internet, Ms. Caprio also includes a component that requires students to conduct research on the Internet. In addition, she typically includes a component that requires students in her Internet Emphasis courses to communicate with her via e-mail.
Ms. Caprio encourages e-mail conferences, though students are always free to meet with her in person. In addition, Ms. Caprio makes several assignments via e-mail, so students find it necessary to check their e-mail once each day, although Ms. Caprio always announces in advance when an e-mail assignment will be made. Ms. Caprio also uses the Internet to make important last-minute announcements to her classes, as she did one time when she became ill and could not attend either of her classes the next day.

Finally, Ms. Caprio uses the Internet to post topics or documents for her classes to read and respond to via an e-mail discussion list to which all class members belong. At times, Ms. Caprio posts a student paper and asks class members to respond to the ideas expressed in that paper.

I chose to study a 1002 course and an honors 1003 course so I could determine if there were any major differences or important similarities in the ways students in the two classes approached the planning process and conducted research for their assignments.

**Decision-Making Kit Assignment**

The written assignment sheet for the Decision-Making Kit is included as Appendix D. This assignment asked students to collaborate on an issue that each group believed to be significant, and to prepare a paper that
presented all sides of that particular topic to an interested reader or audience of their choice. Students were specifically asked not to come to any firm conclusions in this paper, but only to analyze the topic as completely as they thought appropriate. The Decision-Making kit assignment was designed to serve as an introduction to topics that students selected. After the Decision-Making kit was complete, students would next write an in-class position paper on their chosen topic. Students were allowed to use the research they had accomplished and their earlier Decision-Making essays when they wrote their in-class position papers.

Students were free to plan a schedule for completing the assignment as well as a division of labor in any way they saw fit. Some research and writing took place during regular class meeting times, and some took place out of class. Students could use any reference material they found appropriate for the assignment (such as library research, surveys, or personal interviews), although they were required to use and document at least three references from the Internet.

Since this was a collaborative assignment, Ms. Caprio allowed students to "govern" the process in the way they thought most appropriate. Students could decide to expel a member of the group if that member did not attend scheduled
group meetings or did not perform his or her agreed-upon tasks during the first week of work on the assignment. If a member was expelled, he or she would be required to complete the assignment as an individual, with a correspondingly reduced grade, since part of the grading criteria was based upon collaborative work. One student was expelled from a group in the 12:00 class because he attended no meetings and did no work on the assignment during the first week. This student was not a case study participant.

At the end of the unit, students turned in their Decision-Making papers, together with copies of all reference material they collected in preparation for the assignment. Students also were also required to complete and turn in a "Works Cited" page for their papers. I collected all materials from Ms. Caprio shortly after they were turned in to her and made copies of all papers and reference materials and then returned the originals to her. Although I collected more than two-hundred-fifty pages of material from the students in the two classes, for the purposes of this study I focus only upon work submitted by each of the case study groups.

**Student Training**

During the September 24 class sessions, I conducted one-and-one-half hour training workshops for the 1002 and
1003 courses. These training sessions were held in a large computer room on campus, and were the same as those I present to students in many other English courses. The workshops allow students to have a "hands-on" experience with the computers as we work together to learn the basics of computer and Internet technologies. The focus of the training was on e-mail and Internet search engine usage. Since e-mail is very easy to use, we spent only one-half hour on that application. On the other hand, search engines can be much more complex, so we spent the remainder of the period working with them.

During the search engine portion of the workshop, I purposefully led students through several poorly-constructed searches. These searches resulted in either very few hits or many thousands of hits. Of course, both results are unsatisfactory. Later, I led students through several sophisticated searches in which we used Boolean operators or punctuation mark operators to enter search criteria. In every case, these searches led students to highly-pertinent results. The purpose of these exercises was to acquaint students with the importance of proper search syntax as they use Internet search engines.

Physical Setting

The 9:00 English composition 1003 course took place in a second-floor classroom in Coates Hall, a building near
the center of campus. The room was pleasant and the large windows allowed a great deal of natural light to enter the room. Students sat in five rows of desks facing the front of the room where the teacher’s desk was located. The blackboard was at the front of the room.

The 12:00 English composition 1002 class took place in a first-floor room in the same building. This room was not quite as pleasant since there were fewer windows and they did not work properly. In addition, the dimensions of the room were more rectangular, with the teacher’s desk and the blackboard along one long side of the rectangle. These dimensions required students to sit in three long rows of desks spread along the length of the room.

Students also met in the Writing Center, a small, windowless room in the basement of the same building as the classrooms. Eight computers and two printers, as well as several file cabinets and a small table line three of the walls. The center of the room contains a large table. This room made for a somewhat crowded environment when an entire class met in the Writing Center, although that problem was mitigated somewhat when students gathered in small groups at the computers.

2.3 DATA COLLECTION

Information about the Internet Emphasis English courses was collected using several methods. I took
detailed notes concerning my observations of all classroom and group activities, although I also videotaped and audiotaped three group sessions (described below) in each class. In addition, students responded to questionnaires, and all case study participants allowed me to interview them, both individually and in small groups several times during their work on the Decision-Making Kit assignment and again at the end of the unit. I also read all e-mail associated with this course. Finally, I collected and analyzed all essays from both classes, as well as the research material that students gathered from all sources.

**Questionnaires**

There is a long history of the use of questionnaires in composition research (see Paradis, Dobrin, and Miller, 1985; Bamberg, 1981; Eblen, 1983). The questionnaires in the present study were designed to gain information regarding students' familiarity with and attitudes regarding computers and networking technology. In addition, questionnaires were used to elicit information concerning the reason students enrolled in an Internet Emphasis course, and what they hoped to gain from such a course. Later questionnaires were designed to allow students to assess their original goals with the outcome they experienced in the course. To ensure that results
were not anomalous in the case study groups, I distributed questionnaires to all students in each class.

**Audiotaping and Videotaping**

During the three-and-one-half weeks that I observed the two classes, I took detailed notes on each class session. In addition, when work began on the collaborative unit which would comprise the major part of my research, I videotaped and audiotaped both case study groups so that I could later analyze student and group behavior in detail. Students took part in an initial planning stage in the classroom which I video- and audiotaped, but spent the next two class sessions using the computers in the Writing Center. I also videotaped and audiotaped these sessions. I implemented redundant taping systems in case there were any technical difficulties, but the videotapes also helped me to keep track of locations case study participants visited on the Internet, since the computer screen was also visible to the video camera.

I later transcribed the videotapes and audiotapes. The redundant systems helped in this respect since there were times that one or the other of the tape systems did not adequately capture student voices. When this happened, it was usually a simple matter to refer to the other tape system to aid in transcription. However, there are a few
very short gaps in the transcript where neither device was able to record voices adequately.

Audiotaping and videotaping provided a clear and verbatim record of student work which I could later analyze to determine what students actually talked about and did during their meetings and their sessions together using a computer. Moreover, since the computer screen was visible to the video camera, the video recordings had the important advantage that they could record how students used the Internet and the World Wide Web sites they visited as they planned and researched their prospective essay topics. This allowed me later to reconstruct and report upon collaborative planning and research sessions. Recording student work has many precedents in the field of Composition Studies (for example, Doheny-Farina, 1986; Emig, 1971; Flower and Hayes, 1981; Pianko, 1981; Florio and Clark, 1982).

E-mail

Since much communication among students and between students and Ms. Caprio took the form of e-mail, I was included on the address list (also known as a "distribution list") of all students in both classes. The address list ensured that I would receive copies of any e-mail that students sent to one another or to their teacher. Of course, students still could send private e-mail messages
directly to their teacher if they had a private issue to address. In addition, Ms. Caprio included me on the e-mail distribution lists for both classes so I could receive any e-mail messages she sent to students. During the semester, I received well over one-hundred e-mail messages from each of the address lists in both classes.

**Student Logs**

All students, not just the case study participants, kept logs during the time they worked on the unit under study (Appendices E, F, and G). There were three logs for the unit, each of which asked students to describe their experiences with the assignment during the previous week. The logs allowed students to report on such things as the time spent working on various phases of the assignment (planning, researching, writing, and revising, for example). Students completed the logs as they were working on the assignment and submitted their logs to me at the first class meeting the following week.

**Interviews**

Although I had an opportunity to speak with many students at length before, during, and after the unit under study, I formally interviewed only the case study participants. The first interview was with individual students, and often took place as they were walking to the next class or as we waited for class to begin. This
The interview was always very short — less than ten minutes, and took place after students had begun the planning stage, but before they began to conduct research or to write their essays. This interview was designed to gauge students' initial impressions of and experiences with technology as they planned their work on the Decision-Making Kit assignment, and to determine how technology influenced their planning decisions.

The second interview took place approximately mid-way through the assignment, after students had completed the first research session. Again, for most students, this interview was short — around ten minutes or so. This interview took place in the Writing Center and involved one student at a time in a private conversation. The focus of this interview was to determine how technology influenced students as they conducted research for the Decision-Making Kit assignment.

Another interview took place after students had completed substantially all of their assignment and were ready to turn in the final draft. This interview took place in the Writing Center, and involved all the students in each case study group. I allowed the students to remain in a group during the interview so they could receive feedback from other students that might encourage them to talk about topics that concerned the group. The subject of
this interview involved computer and electronic communications technology, and how students had used these technologies to complete the assignment, along with any problems or successes students had with technology in the context of this single assignment.

The final set of interviews took place at various times and places (depending upon the students' convenience) during the two weeks following completion of the assignment, and involved only the researcher and individual case study participants. The topics we discussed continued to be the students' experiences with technology, but expanded to include their experiences with the collaborative assignment, and their perceptions of the social dimension of the use of technology in the classroom.

Interviews were used to supplement data collected in other ways, and to encourage students to talk at length about their experiences with technology. They allowed students to express their concerns as well as their triumphs as they worked on the Decision-Making Kit. Researchers in Composition Studies frequently use interviews as a way to collect data from study participants (see, for example, Paradis, Dobrin, and Miller, 1985; Doheny-Farina, 1986; Odell and Goswami, 1982; Emig, 1971, Graves, 1975).
Collection of Completed Assignments

Finally, as described above, I collected from Ms. Caprio the completed essays at the end of the unit (included as Appendices H and I). Since students were also required to make printouts and copies of any research material they used in their papers, I collected those as well. Eleven collaborative groups of students turned in more than two-hundred-fifty pages of essay text and research material.

2.4 SUMMARY

The methods used to randomly select students for this study from three skill-level groups were designed to represent student familiarity with computers and network technologies at Louisiana State University. Therefore, students were not randomized according to the population in each composition class, but according to skill levels in each class. This helped to ensure that a case study group would not consist entirely of students who were experts or entirely novices. Such a research population would likely cause unusual results since they would represent an unusual population.

The multiple methods used to collect data have precedent in Composition Studies research (most of the studies cited in this section used multiple methods of data collection) and are in keeping with an effort to gain as
much information from students as possible. Using one method of data collection, for example, questionnaires, could not provide the depth of information needed in the present study. Questionnaires are effective as tools to gain simple information from students, although they would be much less effective when used to gain information about complex operations such as essay planning and research.

At the same time, personal interviews are effective as tools that let study participants talk at length about their experiences while this is something they may not do on a questionnaire form. Finally, observations of students at work on the assignment were important sources of data; not only did the observations provide the content for a description and analysis of student behavior that will appear in the next chapter, it also provided this researcher with a list of questions to ask students during the interviews. The reasons for multiple methods of data collection methods will become more apparent in the following chapter.
CHAPTER 3: RESULTS

3.0 OVERVIEW

The results of this study show that case study students overcame unfamiliarity with technology and used the Internet to plan and conduct effective research for their assignments. Moreover, while significant problems with using technology in the classroom do exist, the results show that, while most students were initially challenged by their unfamiliarity with network-based communication, students in the study generally developed positive attitudes regarding the use of this technology for academic research. Technology also proved to be useful for student communication with one another and with their teacher. Finally, the use of technology enhanced Ms. Caprio’s ability to emphasize many important pedagogical goals for her composition courses.

This chapter describes and analyzes the ways study participants planned their responses to the Decision-Making Kit assignment, and as they worked at computer terminals to conduct research for the assignment. This chapter also analyzes student responses to the interviews conducted during the semester, as well as to questionnaires distributed throughout the semester. Finally, this chapter
provides Ms. Caprio's perceptions of the use of technology in the writing classroom.

3.1 THE INFLUENCE OF TECHNOLOGY ON PLANNING

Description of Student Planning

One class meeting before students were to convene in the Writing Center to begin research for their Decision-Making Kit assignments, they met in small groups in the regular classroom to plan for the assignment. Their goals for this meeting were to choose a group chairperson, exchange contact information such as telephone numbers and e-mail addresses, decide on a preliminary division of labor for the assignment, and choose a topic for their essays. Students in both the 9:00 and the 12:00 classes accomplished the first three of these goals, although they had problems with the fourth.

Students in the study groups for both the 9:00 and the 12:00 classes faced difficulty in planning the assignment because, even though several students were somewhat familiar with the Internet and had used the World Wide Web and Usenet News for entertainment, none had any experience using the network to conduct serious research for an assignment. In previous class meetings, Ms. Caprio had proposed and discussed with her students many possible topics for the assignment, though students were encouraged to develop topics of their own. Initially, students in
both case study groups began discussing these topics, as well as some that had not been discussed in class, though the group members did not come to consensus on which topic to choose.

Part of the reason that students could not agree on a topic was because they did not know what kind of resources would be available to them on the Internet. Since the assignment required that students cite at least three Internet resources in their completed essays, both case study groups discussed the importance of doing preliminary research before they settled on a topic. Although both groups made this decision independently, each group resolved the issue differently.

After choosing Mr. Ahern as the chairperson, the 9:00 group was unable to decide between topics involving corporal punishment in middle and high schools and another involving gambling in Louisiana. However, since none of the students was sure what kind of information would be available, they decided to do some preliminary individual research before the next class meeting. The purpose of this research was to enable each student to report to the group the amount and quality of information they could find on these, or any other potentially promising topics.

After discussing several potential topics, the 12:00 group was interested in physician-assisted suicide as a
possible topic, though one student preferred to discuss an amendment to the Constitution that would outlaw flag burning. Students in the 12:00 class did not discuss the possibility of doing individual research before the next class meeting; instead, they decided to conduct preliminary research on the Internet together at the next class meeting. Like the students in the 9:00 class, they wanted to discover the availability of useful information on the Internet concerning potential topics before they committed to a final topic for their Decision-Making Kit essays.

**Student Attitudes Concerning Difficulties in Planning**

When individual students met with this researcher for short interviews after they had completed the initial planning session, I asked about the problems they faced as they planned essays for the Decision-Making Kit assignment. Mr. Ahern and Ms. Lasky, both from the 9:00 class, and Ms. Crawford from the 12:00 class all described feeling very uncomfortable with the idea of conducting research on the Internet. Mr. Ahern and Ms. Lasky were both very experienced computer and Internet users, but both had used the Internet strictly for entertainment, and, in a few cases, to research products that they intended to purchase.

These two students were confident that they could find information on almost any topic using traditional library-based resources, but did not know what to expect when using
the Internet. Using a large network to conduct research was an entirely new concept to these students; indeed, using the network for any academic pursuit was clearly intimidating even for these experienced computer and Internet users.

Ms. Crawford expressed a deep concern about the early stages of the assignment because she knew very little about computers or the Internet. She typically used a word processor to type assignments for her classes, but she had never seen a web page, though she had heard about them. Ms. Crawford was worried that her classmates would find her to be “dumb” because she was not familiar with the Internet, and she was very fearful that she could not contribute anything meaningful to her group.

At the initial interview, Ms. Crawford confided that she was sure that she would be expelled from the group simply because she did not know anything about the Internet. Ms. Crawford was also concerned that her writing skills were not as well-developed as those of her classmates and that the group would discover her lack of competence as soon as she wrote something for the Decision-Making Kit assignment. Ms. Crawford did not know enough about the Internet to know if research was possible, although she was clearly dismayed at the entire Decision-
Making Kit assignment and the collaborative work that it required.

Most other students from both groups expressed some concern when questioned about the planning stage during our first short interview. Again, the primary theme was one of unfamiliarity with the technology required for the assignment, although some students were also confused about the writing process they would use to compose a collaborative essay since they had no previous experience with group writing. It should be noted that a few of the students had some earlier experience working with peer reviewers in their high school courses.

On the other hand, most of the students expected they could complete the assignment because their teacher had previously assured them that the Internet was an excellent resource for conducting research. As Ms. Curry, from the 12:00 class put it in the final, post-semester interview: "I didn't think that Ms. Caprio would tell us to find facts on the computer if she knew we couldn't find them. I trusted her, and I knew if she said we could find information there, we would."

Availability of Equipment as an Influence on Planning

The availability of computers and printers to students also played a part in the division of labor to which they agreed. For example, two students in the 9:00 class and
one student in the 12:00 class had computers and printers in their dorm rooms or at home. As students discussed what their individual responsibilities would be during the planning session, those who had ready access to a computer either volunteered or were selected by the other group members to perform tasks that required a computer. In the 9:00 class, for example, Ms. Lasky was selected as editor not because she claimed to have any inherent editorial skills but because she had a computer and a printer. While Ms. Lasky was excited to serve as editor, the choice seemed to be made almost by default and was based upon equipment availability rather than any combination of experience or skill.

The 12:00 class did not choose an editor during the planning stages, and, as it turned out, they did not need one because each student wrote individual sections of the essay which were later assembled in an almost "building block" fashion with no concern for a unified editorial style. However, the person who had a computer at home, Ms. McCracken, was selected as the group chairperson and also volunteered to conduct additional research as needed via her AmericaOnline account on the computer she shared with her husband at home.

While all students would participate in the research sessions in the Writing Center over the next two class
periods, Ms. McCracken thought it likely, and the others agreed, that some additional research would be necessary as students continued their work on the Decision-Making Kit assignment, and it made sense to her and to the others in her group that she would do it since she had convenient access to the Internet on her home computer. In addition, for both classes, those students who were most familiar with technology became, almost by default, the leaders in the entire collaborative process.

**Summary of the Planning Stage**

Since using technology to conduct academic research was so new to all students, it is not surprising to find that many of them were uncertain about what they could expect as they tried to plan their work on the assignment. While all students were experienced library users, the Internet was uncharted territory. This made the initial stages of their work especially difficult. Students in both study groups made the logical decision to conduct preliminary research before they settled on a topic, and, while that was probably a wise choice, it has broad implications which I will discuss in the final chapter.

Those students who were very unfamiliar with computers were also concerned about how that unfamiliarity would make them appear to their classmates. One student was initially very uncomfortable, although she was more concerned that
her classmates would notice her (self-reported) writing deficits. The latter fear would probably have been just as intense in any collaborative writing setting.

Finally, it is especially significant that much of the "division of labor" was based almost solely on the availability of computers, computer peripherals, and network connections. Again, this has important implications which will be discussed more fully in the final chapter.

3.2 THE INTERNET AS A RESOURCE FOR STUDENT RESEARCH

Description of Student Research Processes

After the initial in-class planning stage, students in both classes met in the Writing Center during the next two class sessions so they could use the Writing Center's computers to conduct research. For both case study groups, part of the first of these research sessions was, in effect, an extension to the planning stage since both groups still had to agree upon a writing topic. Because these two research sessions were longer and more complex than the short in-class planning meeting, they will be described separately below.

First Research Session -- 9:00 Class

Students in the 9:00 research group gathered around a networked computer terminal in the Writing Center. At first, none of the students took control of the keyboard.
The four students talked about who should control the keyboard until Ms. Lasky volunteered. Ms. Lasky had considerable familiarity with computers and the Internet, so her group agreed that she should type information into the computer.

Before the students began to use the computer, they discussed the results of the preliminary research that each had done after the first planning meeting. Ms. Lasky and Mr. Ahern had both looked for information on the Internet that involved gambling in Louisiana and corporal punishment. Ms. Lasky reported that she had found some information on both topics, but was not confident that it would be suitable, in either quantity or quality, for the assignment. Mr. Ahern agreed and mentioned that the group could probably find information on the Internet, though it might be a rather tedious process.

Mr. Ahern went on to describe his preliminary research that involved the topic of unrestricted genetic research, a topic with which he was not especially familiar, though it held both a personal and a professional interest for him. Mr. Ahern told his classmates that this was an interesting topic of international import, and that he had discovered a great deal of readily-accessible information on the Internet regarding that topic. This met with a favorable reception by the entire group, and it was decided that they
would spend the next few minutes seeing what information they could find. Of course, since three out of the four students in this group were interested in fields such as biology, chemistry and pre-med, such a topic may have also appealed to their academic interests. Mr. Hellwig was the only student who had interests in another area (electrical engineering).

Mr. Ahern suggested that they visit the About Biotech site on the World Wide Web, a site with which he was already familiar. He provided the address to Ms. Lasky who typed it into Netscape’s “Location” window. Once at the site, students could see that there were many categories of interest such as “Issues and Ethics” and “Principles of Genetic Engineering.” Included under these categories were such titles as “Ethical Issues of the Human Genome Project,” “Biotechnology’s Impact on Society,” “Whose Genome is it, Anyway?,” and “Challenges to Public Policy.”

As students explored these documents, they realized that they had discovered an important resource, although most of the documents were rather long and the group did not want to spend their entire research time reading them from the computer monitor. Instead, they copied these documents to disk so they could read them later.

While reading the documents, Mr. Hellwig discovered that the Biotech site also advertises scientific
instruments that Biotech sells. He wondered, along the lines of a previous in-class discussion, if the other students thought this fact would undermine the credibility of the information they found there, since Biotech obviously had a motive to present information in support of unrestricted genetic research. Mr. Ahern pointed out that a cursory examination of the documents at the Biotech site seemed to explore many pros and cons of unrestricted genetic research, and that, even though Biotech sold scientific equipment, it did not necessarily follow that the company would support unrestricted genetic research.

In fact, some documents on the Biotech site presented arguments for both voluntary and legal limitations on genetic research, as well as documents that discussed the moral, ethical, and additional legal aspects of genetic research. However, all students agreed that they would have to keep in mind the source of the information as they later read the documents more carefully.

Since the Biotech site did not contain a substantial number of links to other sites, Ms. Lasky suggested they try to conduct a search of the World Wide Web using a search engine. The others agreed, and Ms. Lasky accessed InfoSeek, typing in the search term "genetic engineering." Students watched in some dismay as InfoSeek returned some
one-hundred-thousand hits, many of which seemed to have nothing at all to do with genetic engineering.

In fact, InfoSeek returned information regarding sites devoted to mechanical engineering, petrochemical engineering, and other kinds of engineering. Since Ms. Lasky had entered the term "genetic engineering" without the Boolean operator "and," (when using InfoSeek, one would actually have to enter the term surrounded by brackets and quotation marks to indicate this Boolean operator), she was telling the search engine to provide information on any web page the contains the word "genetic" or the word "engineering." Undoubtedly, there were links to genetic engineering sites buried somewhere within the huge number of links returned by InfoSeek, but students did not know how to easily find them in so vast a list.

Rather than attempting to refine the search to focus on the narrow topic of genetic engineering, Mr. Ahern suggested they try to use Yahoo, his favorite search engine. Like InfoSeek, Yahoo returned a very large number of hits. However, since Yahoo catalogues web information in a different way than InfoSeek, (Yahoo is actually a World Wide Web index, while InfoSeek is a constantly-updated database of web sites), students in the case study group were fortunate to find several pertinent hits near
the top of the list. Students visited these sites and again stored several documents on disk to read later.

While visiting these sites, Mr. Hellwig remarked that almost everything they had seen seemed to be written by and for scientists. Both Ms. Lasky and Ms. Smith agreed. Mr. Hellwig also remarked that most of what they had uncovered dealt primarily with the Human Genome Project, and that other important aspects of genetic engineering should also be included in the essay. This was an important insight and helped the other students focus on links that might contain information concerning additional aspects of genetic engineering, one that might be more suitable for an audience not acquainted with the technical aspects of genetic research and engineering. As students continued the search, they found sites that dealt with both plant and animal genetic engineering and research, cloning, and other interesting subjects.

At one point, students discovered a site that contained a wealth of information regarding the possibility that homosexuality may be a gene-linked trait. This caused a great deal of discussion as students considered that they might change their topic to deal with this idea. However, Mr. Ahern pointed out that the class was nearing an end, that the group had already collected quite a bit of information on unrestricted genetic engineering, and that
changing the topic would require them to start "from scratch" to find more information. Apparently, students agreed with Mr. Ahern, and they returned to their previous discussion of genetic research.

With approximately ten minutes left in the class, students in the group began to discuss what they would do next, although Ms. Lasky continued to browse through web sites as other students looked on from time to time. Mr. Ahern printed out several of the documents that had been saved to disk so that other group members could take them home to read. He also created another floppy disk with all of the documents so that he and Ms. Lasky, both of whom had their own personal computers, could read some of the documents later. Mr. Hellwig and Ms. Smith both volunteered to conduct library research to see what information on unrestricted genetic research was available. Both Ms. Smith and Mr. Hellwig also had several of the documents that Mr. Ahern printed, so they agreed to read them over the weekend.

Second Research Session -- 9:00 Class

At the start of the next research session in the Writing Center, students in the study group again took places in exactly the same formation as they had during the previous session, with Ms. Lasky at the keyboard. Before they began, students spent approximately ten minutes
discussing what they had found over the weekend. Ms. Smith showed the book *Medical Ethics* from the library and briefly discussed some information contained therein. Ms. Smith brought in and discussed two other library books and an article from a 1994 issue of *The Washington Post*.

Mr. Hellwig and Ms. Smith also presented brief oral reports that covered the printed material they had read from the first research session. Ms. Lasky and Mr. Ahern likewise reported on material they had read from the previous research session. Because most of the information they had read was fairly technical, all of the students were unsure how they could use the information in their essays. Ms. Lasky mentioned that she was unsure who the audience was supposed to be, and that their choice of material would depend in large part upon the audience to which the essay would be directed.

Two students took out their assignment sheets and saw that the assigned audience was "a reader who will have to take a stand on the issue and write a paper supporting that stand..." (See Appendix D). Mr. Ahern advanced the idea that it made sense to direct the essay to their classmates, all of whom were intelligent, but none of whom had a background or any specific interest in the area of genetic engineering. As Mr. Hellwig put it, the audience for the essay would be "normal people" and not "dweebs."
Once students had established an audience, they were ready to return to research. Ms. Lasky again went to the Yahoo search engine site, although this time she simply typed in the word “gene” as her search term. This term brought far fewer hits than any of the previous searches, but they were hits that were much more pertinent to the students’ research interests. One such hit took students to the Australian Biotechnology Page. This page presented straightforward information regarding genetic engineering that caused considerable excitement among the students. This page also contained a number of links to other documents and web sites, and Ms. Smith, a student who had remained rather quiet during previous group sessions, suggested that they follow a few of those links. After saving the original page to disk and printing out one copy, Ms. Lasky took that advice and followed several other links. However, most of these links led students to sites that were either extremely technical or contained information that students had already discovered.

Two links led students to Usenet Newsgroups that interested them. For several minutes, students read messages on the alt.folklore.science and the sci.bio.misc (science-biology-miscellaneous) newsgroups. Students found and copied several discussions that were of interest to them. They were especially excited by the wealth of
information in a treatise on human rights in genetic research that appeared on the sci.bio.misc newsgroup.

After spending an additional ten minutes exploring hyperlinks on the Australian Biotechnology Page, Ms. Smith suggested that Ms. Lasky press Netscape's "Back" button a number of times to return to the Yahoo search engine page. Once at the page of hits that had been listed when students began the search, she pointed out a link to a site at The University of California, Berkeley that she had noticed earlier. Once at this site, Ms. Lasky and the other students used the titles of linked documents to help them determine whether or not they wanted to spend time reading the attached document.

Although they encountered several "dead ends," the group eventually linked to a document entitled "The Dog Genome Project." This document provided a brief history of genetic research, together with an elementary but extremely lucid description of the influence of Charles Darwin and Gregor Mendel on the field of genetic engineering. Students in the group remarked that information contained in this document would be especially helpful to them as they tried to explain basic principles of genetic engineering to a lay audience.

Mr. Hellwig remarked that the entire Dog Genome Project site would be ideal for the assignment because it
was written for "ordinary people," and it explored important legal, ethical, and moral issues regarding genetic research from a viewpoint that did not specifically involve research on humans, though the conceptual framework of the document could apply to almost any aspect of genetic research. As with the earlier Australian web site, Ms. Lasky saved this web site to disk and printed out one copy.

Although students in the group had not yet used a search engine to conduct a sophisticated Boolean search of the World Wide Web, they were finding web sites and documents that, based upon their commentary, they found useful. As students went from site to site and document to document, they very quickly determined whether the site or document would be helpful for their research. Frequently, one of the students would remark "No, too technical," or, "We've already seen that," or simply "Forget it," after reading a web site for less than a minute. At times, Ms. Lasky would simply place the mouse cursor on Netscape's "Back" button or on another link, and one or two other students would say "Go ahead," or "Yeah," indicating that they agreed to abandon the current site or document and move on to something else. Often, however, students found sites that were many layers deep and contained links to still other sites which they explored.
During a short interview session at the end of the class period, students were asked how they could so quickly determine whether a website was suitable for further study. Ms. Lasky responded, "We just knew," while Mr. Hellwig said it was easy to eliminate some sites because it took a very short amount of time to determine whether the site contained information that a "non-scientist" could understand. In addition, he said some sites looked like they had been designed by "children," and that they could immediately dismiss those sites.

At the end of the second research session, students decided they wanted to have one more session with the computers in the Writing Center. Therefore, I agreed to make the room available to all groups, one group at a time. This would allow each of the students in the group to use individual computers for researching, drafting, or any other activity they would find useful. I passed around a sign-up sheet and allowed each group to specify the time they would come to the Writing Center during the next week. I passed around a similar sign-up sheet for students in the 12:00 class after those students completed their second research session. Many groups signed up for late afternoon or early evening appointments when group members did not have conflicting classes or responsibilities. A detailed description of the supplemental sessions will follow a
description of the first two research sessions conducted by the 12:00 class.

First Research Session -- 12:00 Class

As soon as the first research session for the 12:00 class began, Ms. McCracken announced that she had spent some time at home exploring the two prospective topics for the Decision-Making Kit assignment, a flag-burning amendment and physician-assisted suicide. Ms. McCracken stated that she had found some information on flag-burning, but that a great deal of it was located on reactionary web sites that she described as "perverted," and that there was a paucity of information on that topic elsewhere. In a short, after-class interview, Ms. McCracken clarified her description of "perverted" to indicate that the pages she had visited contained an extreme right-wing bias on topics as diverse as gun control, race relations, and abortion. She claimed to have conducted a conscientious search for informative, unbiased information, but she simply could not find very much on that topic: "If it's there, I couldn't find any of it."

On the other hand, Ms. McCracken reported to her group that she had found some preliminary information regarding physician-assisted suicide, but that there was so much information that she had been unable to examine more than a small portion. She reported that she obtained "thousands"
of hits using a search engine via her AmericaOnline account, and had written down the Uniform Resource Locator (URL) addresses. The other students accepted her at her word that she had been unable to find much information on flag-burning, although only one student had been enthusiastic to explore that topic. The other students in her group appeared to be grateful that she had done so much work on her own, and accepted her leadership in helping them to avoid a potential dead end in their Internet research. However, like the 9:00 group, most of the students in the 12:00 group had academic interests and work experience in some area of the medical field, and this may have influenced their choice of topics. Only Ms. Anderson did not report a specific interest or experience in a health-related field.

As already mentioned, Ms. McCracken was the only student in the 12:00 group who had substantial experience with both computers and Internet technologies. The fact that most students wanted to choose physician-assisted suicide as their topic for the Decision-Making Kit undoubtedly contributed to their willingness to accept her explanations, as did their unfamiliarity with the World Wide Web as a resource for research.

Ms. McCracken seated herself at the computer terminal and immediately took control of the keyboard. The other
students gathered around her as she told them that she would take them to a World Wide Web site that looked "really good" as a resource for information on physician-assisted suicide. This site was entitled, *Kearl’s Guide to the Sociology of Death: Moral Debates of Our Times*. Ms. McCracken explained to the group that the site was obviously against the practice of physician-assisted suicide (the site is decidedly pro-life on other topics such as abortion), but that the authors of the documents contained on the site looked at both sides of the issue. Furthermore, authors cited current research studies and other references within their documents. Ms. McCracken explained that many of these references were actually hyper-linked to the original sources, so students in her group could follow these links to other reference material.

For the following twenty minutes, Ms. McCracken and the other students followed the links from this central page and found information they considered to be useful. When Ms. McCracken asked me if she could print everything they found, I informed her that she could print what she wanted, but that the Writing Center’s printer was rather slow, and it was likely that there would not be time to print everything her group found (some of the documents were very lengthy and would have taken many minutes to print in their entirety). Instead, I suggested that her
group print what they considered to be the most important documents and save the rest to disk for later examination, and, if desired, printing. The group agreed to this, and Ms. McCracken saved many documents to disk.

After twenty minutes had passed, Ms. Anderson acknowledged that the group had found some information in support of physician-assisted suicide, but observed that the group had collected as much information on the contrary side of physician-assisted suicide as they would need and wondered how to go about finding sources of additional information that might argue for physician-assisted suicide.

Ms. McCracken responded that they could "search the net," and proceeded to click on Netscape's "Net Search" button. At the time this research was conducted, Netscape's "Net Search" button took the user to a web site that opens one search engine at random while it lists many of the other popular search engines for easy access. However, it should be noted that Netscape's "Net Search" button no longer behaves in this fashion. As of this writing, the "Net Search" button takes the user directly to InfoSeek, Netscape's own, proprietary search engine, and does not list alternative search engines. At that time, however, the search engine that started was Lycos, and Ms.
McCracken immediately typed the phrase, "physician assisted suicide" into the query window.

Although Ms. McCracken was familiar with the Internet, this was a fairly unsophisticated search, since the search engine would return hits on all instances of the word "physician," all instances of the word "assisted," and all instances of the word "suicide" on the World Wide Web. Like the 9:00 group earlier on the same day, this search produced more than one-hundred-thousand hits. There were links to doctors' offices, hospitals, psychiatric and geriatric care facilities, and suicide hotlines, but no recognizable hits on the topic that interested the students. Realizing that her search had been unproductive (or rather, too productive), Ms. McCracken returned to the Lycos page and retyped her search with a hyphen between "physician" and "assisted."

Although this search was still problematic, it did return several hits near the top of a list that contained several thousand hyperlinks. This is probably due to the introduction of the hyphen which caused the search engine to look for all instances of "physician" and "assisted," rather than "physician" or "assisted." Since physician-assisted suicide is a topic that has been prominent in the news in recent years, such a search -- faulty as it was
because of improper search syntax — still yielded results pertinent to the students' Decision-Making Kit topic.

As Ms. McCracken and the other students viewed the list of hits returned by Lycos, they remarked on the titles and brief descriptions, and classified each location as either "possible" or "a waste." After the group explored several pages of Lycos-generated hits, they began to encounter subjects that had nothing to do with physician-assisted suicide, so Ms. McCracken used the "Back" button to return to the first page of search results.

On the first page was the macabre-named Deathnet home page, a site that, based upon its brief description, students had earlier classified as a "strong possibility." After clicking on this hyperlink, students found a great deal of information on their topic of choice, as well as other topics such as capital punishment, abortion, and euthanasia. Based upon student commentary while viewing this site, the information contained on the Deathnet page appeared to them to be unbiased and provided a more balanced discussion than much of the material they had previously found. As Ms. Anderson said after viewing part of the contents of the Deathnet page, "Where were you a half-hour ago?" In addition to documents that provided a large number of external references, this page also contained a reading list of books, magazine articles, and
newspaper articles. Ms. McCracken printed this list and also saved several other Deathnet documents to disk.

After the group studied the information on the Deathnet page for approximately fifteen minutes, Ms. Curry mentioned that the topic was a good deal more complicated than she had at first thought. The rest of the group agreed with her as she expressed some worry that their chosen topic was so complex that it might be difficult to write an essay that was fair to the subject. Ms. Curry suggested that the group might write an impromptu outline based upon what they had already discovered. This outline could, Ms. Curry suggested, help the group to categorize information as they continued their research.

For the next twenty-minutes, the group discussed how they wanted to handle the topic and advanced ideas on potential sub-topics that should be placed on the outline. During this time, group members engaged in a lively debate over the difference between the terms "euthanasia," "voluntary euthanasia," and "physician-assisted suicide." Eventually, students developed a tentative outline that included a section involving the historical development of physician-assisted suicide, as well as a section regarding religion and euthanasia. It was apparent that the group had not yet settled the debate between the terms "euthanasia" and "assisted suicide," and they used these
two terms interchangeably throughout the outline. Also included in the outline were pro and con sections regarding physician-assisted suicide, and a generic “introduction” and “conclusion,” though students in the group did not discuss what information these sections might contain.

While none of the students in the 12:00 class specifically mentioned the word “audience,” their concern for audience was implicit as the group developed the outline. Ms. Anderson referred several times to what “they” needed to know as group members discussed various elements that might be added to the outline, without ever specifying exactly who “they” were. Moreover, the other students in her group agreed with her analysis on several occasions, so it appeared the group was working together on a shared, though never verbalized, notion of who their audience was to be.

For example, when group members were discussing the need for a section that explained in detail the various methods one could use to commit suicide, Ms. Anderson explained that “everyone already knows how to do it because of “Dr. Death,” referring to the frequent news reports about Dr. Jack Kervorkian. The group members agreed that readers would not need a detailed report that explained how one can commit suicide with the help of a doctor, although
Ms. Crawford proposed that some mention of this might be made during the body of the essay.

After the outline was complete, the class was nearing an end so most of the students left the Writing Center. Before they left, however, three students agreed to meet in the library the following day so they could look for some books and magazine articles mentioned on the Deathnet reading list. Ms. Anderson had a late afternoon class the following day, so the group members excused her from the meeting after trying unsuccessfully to determine another time when all students could meet together. Ms. Anderson did agree to do some additional library research on her own at a time one day later when she was free.

Second Research Meeting -- 12:00 Class

At the second research meeting in the Writing Center, Ms. Curry and Ms. Anderson brought several books to class. Ms. Curry also brought photocopies of several magazine articles. Since Ms. Anderson had completed her library research earlier that morning, she had not had time to photocopy magazine articles, but she did bring a list from InfoTrac which contained a list with abstracts of many articles regarding assisted suicide that had been published between 1993 and 1996. In addition, the list contained a much smaller collection of articles regarding euthanasia.
Before students began to work on the computers, the group studied this list, crossing out many articles that all agreed were unsuitable for the outline they had created. When students agreed that an article seemed pertinent to their essay, Ms. Anderson placed a check mark beside the abstract so that she could retrieve the article later. Because the list was quite long, it took the group approximately fifteen minutes to decide which articles would be useful to them and which would not.

Students in the group next decided that each person would be responsible for individual parts of the essay that appeared on the outline, although none of the students took responsibility for the introduction or conclusion at the beginning of the class. Since there were four sections on the outline, not counting the introduction and conclusion, each student had responsibility for one sub-topic.

At the end of this discussion, the group took the same positions around the computer as they had during the previous meeting in the Writing Center, with Ms. McCracken at the keyboard. Ms. McCracken's responsibility involved a historical discussion, and she explained that the group had already gained a great deal of information on the subject at their previous meeting, together with some library information that three students had gathered. However, Ms. Crawford explained that she needed more information
Regarding religious views on euthanasia (students were still using this term interchangeably with physician-assisted suicide).

Ms. McCracken again used Netscape's "Net Search" button to bring up the page of Internet search engines. The default search engine that appeared was Magellan, and Ms. McCracken immediately typed in the search phrase "euthanasia and religion." This search term returned more than eight thousand hits, although the only ones that appeared pertinent were on the first page of hyperlinks. The first of these was a summary of Pope John Paul II's catechesis on Original Sin as given at his papal audiences in 1986. When the group visited this site, they were met with an extremely difficult text that apparently did not address their interests directly. Amid some laughter from the group, (apparently at the extreme complexity of the document), Ms. McCracken proposed that "we can forget about this," and clicked on Netscape's "Back" button to return to Magellan's list of hyperlinks.

The only other hyperlink that appeared related to the topic was a "Frequently Asked Questions" (FAQ) page regarding euthanasia. Ms. McCracken attempted to link to this site, but was met with the following announcement: "Error 404 Requested Object Not Found." To experienced Internet users, this message indicates that the requested
page is either permanently or temporarily unavailable. The page may have been permanently deleted from the remote server, or the remote server may simply be experiencing temporary difficulties. Although Ms. McCracken had considerable experience with the Internet, she had apparently never encountered the message and did not know its meaning.

Ms. McCracken copied the URL address and manually entered that address into Netscape’s "Location" window, but met with the same result. She shortened the URL by omitting the file location specification and managed to reach a page on the Internet, but could find no link that would take her to the location she wanted. It was obvious that Ms. McCracken was confused by the error message she had encountered. Within a minute or two, she returned to the Magellan site and again attempted to access the page without success.

The students began to wonder if the computer they were using was malfunctioning, so Ms. McCracken called out to another student in another group and asked him if he knew what was wrong with the computer. The student came to the machine and told the group that he didn’t know what that message meant, but that it didn’t look like there was anything wrong with the computer they were using. Finally, Ms. McCracken turned to me and asked what the problem could
be. Since I had previously told students that I could not provide them with advice while I was observing their sessions, I asked another Writing Center staff member who I knew was familiar with that error message to explain it to the group.

At this time, Ms. Crawford told the rest of the group to search for supporting material for their sub-topics, and that she would remain on the lookout for discussions regarding the religious dimension of euthanasia as they searched. Since students had already found many arguments against physician-assisted suicide (Ms. Anderson's sub-topic), the group decided to search for arguments in favor of physician-assisted suicide. Ms. Curry recalled that there had been additional information on the Deathnet site, so she suggested they try to return to that site for another look.

Ms. McCracken had recorded the URL of the Deathnet site, so she typed that information directly into Netscape's "Location" window and the Deathnet main page appeared. The group discussed the many links that appeared on that site, but decided to go to the "Frequently Asked Questions" which was listed among the links. This was not the same FAQ that students had been searching for earlier, but it did provide the group with a great deal of
information. The page also listed many links to other pages where users could find additional information.

As the group was reading the FAQ page and related links, Ms. Crawford noticed that the opinions of many physicians were quoted within the texts they were reading. She suggested that, since the search for religious views regarding euthanasia had been only marginally successful, she could be responsible for presenting an additional discussion concerning physicians' views in the essay. The rest of the group agreed, and they inserted a section in the outline just before the conclusion.

Students spent the remainder of the class period searching the Deathnet site and related links. The group found several pertinent documents, including one that contained a comprehensive description of the legal precedents concerning physician-assisted suicide that had been established in federal and state courts. As in the previous session, Ms. McCracken printed a number of these documents and saved the rest to a floppy disk.

Near the end of the hour, I announced that I would pass around a sign-up sheet so students could reserve the Writing Center for more in-depth work on any aspect of their essays. Students discussed times they could meet, and then signed and returned the sheet to me. All of the
groups signed up for additional time to work on their essays.

**Supplemental Meeting -- 9:00 Class**

The 9:00 class met in the Writing Center several days after their second research session. This session lasted for two hours, but it took place in the early evening when all of the students were free to spend as much time as they wanted on their assignment. When the supplemental meeting began, students sat at the table in the middle of the room to compare notes on what each had accomplished, what remained to be done, and how they could best use the computers during the current session in the Writing Center.

Mr. Ahern produced a handwritten first draft that he had completed earlier that day. For the first twenty-five minutes of the session, students discussed this draft. The entire discussion was devoted to the content of the draft, and nothing was said about grammar or mechanics. Students were probably aware that this draft would undergo substantial revision later, and it would be pointless to spend time on grammar and mechanics at this stage in the collaborative writing process.

The students seemed impressed with the draft, although many of them offered opinions as to sections that could be bolstered with outside support. In addition, there were suggestions on how the organization of the essay could be
revised. Mr. Hellwig mentioned that they had found a great deal of information from people who were opposed to any genetic research at all and wondered if it made sense to include those ideas in the essay. Mr. Ahern pointed out that the topic of the paper did not involve an outright ban on genetic research and engineering, but instead was an examination of whether the practice should be restricted. The debate that followed was friendly and lively, although students did not reach consensus.

Instead, Ms. Lasky suggested that the group type the essay and find additional sources of information. Mr. Ahern stated that the group needed to find more information regarding ways in which genetic engineering is currently used, and Ms. Lasky agreed to search the World Wide Web for more information. While Ms. Lasky conducted a search for additional information, the other students began to revise the first draft. Students placed in the center of the table all of the research material they had gathered, and Mr. Ahern inserted the floppy disk with additional material into a computer and called a document to the screen using a word processor. In addition, he had several books on genetic engineering that Mr. Hellwig and Ms. Smith had brought with them.

Students were voluntarily dividing the labor between them during this session, without much discussion.
concerning who would do what. Ms. Smith and Mr. Hellwig together began to reread and revise Mr. Ahern's first draft, making comments in the margins where changes could be made. At one point, Mr. Hellwig went to a computer, and, after asking Ms. Lasky to assist him in starting a word processor (he had, without knowing it, sat down at a computer running Windows 95, an operating system with which he was unfamiliar), began to type a revision that he and Ms. Smith wanted to propose to the group. While he typed, Ms. Smith continued to revise, although she asked Mr. Ahern to clarify elements of the draft from time to time.

During this activity, Ms. Lasky was still at a computer conducting additional research. At one point, she called the group over to her computer to show them a site she had found using a search engine. The site had led her to a document entitled, "Regulation of Genetic Engineering," which contained a great deal of additional information regarding federal and state laws dealing with various aspects of genetic research and engineering. The group was impressed with this find, apparently recognizing that they could use some of the information to help them revise the first draft, and they immediately printed a copy.

Ms. Lasky also showed the group a site entitled Gene Therapy and the Concept of Genetic Disease (which appears
to be a site created by a graduate student at The University of Pennsylvania). Students were almost as impressed with this home page as they were with the previous find, and again realized that they could use some of the information to aid revision. Ms. Lasky again printed a copy of the site, and gave it to Ms. Smith.

During the two hours that the students worked on their essay, all used the Internet to conduct additional research. At one point, Ms. Lasky announced that she was tired of looking at a computer, and wanted to help with the revision. Ms. Smith took her place at the computer, and, although she had little experience with computers or the Internet, she was able to start a search engine and conduct additional research with very little help from the other students. The other three students continued to work on the revision. While Ms. Lasky and Mr. Ahern discussed possible changes to the first draft and to the alternatives proposed by Ms. Smith and Mr. Hellwig, Mr. Hellwig was at a computer typing changes that had been approved by the rest of the group.

Although students began to grow weary after the first hour-and-a-half, they continued because their revision of the first draft was nearing an end. The group had incorporated references they had just gathered from the Internet, as well as references from the books that Mr.
Hellwig and Ms. Smith brought to class. As this work progressed, and the group gained a better understanding of where their essay was heading, Ms. Smith volunteered to begin work on a conclusion. She sat at the same computer Mr. Hellwig had used and began to type. Ms. Lasky also provided some insight into how the paper might conclude, and the two students spent several minutes working together.

By the end of two hours, students had created a draft that they agreed represented their best efforts. All of the students were dissatisfied with the introduction, so Ms. Lasky agreed to try to do some additional work on it before she edited and printed the final draft of their work. However, she asked to do the work at home, since she was, like most of the other students, tired. All students agreed, and the session ended.

**Supplemental Meeting -- 12:00 Class**

The supplemental meeting for the 12:00 class was fairly short -- a bit more than an hour. Students began by reporting to each other what they had accomplished in their first drafts, and then exchanged drafts with one another for comparison. Students also brought along the same books and magazine articles that they had used in the earlier session. In addition, Ms. Anderson brought several new photocopies of magazine articles she had collected based
upon the InfoTrac printout. She distributed these articles to students who would find them most useful, depending upon which sub-topic a particular student was responsible for.

The students sat at separate computer terminals during the remainder of the session. Ms. McCracken helped both Ms. Crawford and Ms. Curry start word processors so they could begin typing their handwritten drafts. Ms. McCracken then sat at a machine so that she could add some additional information to her first draft. Ms. Anderson already had her draft started on a machine since she brought her copy on disk and the other students had earlier gathered around her computer so they could read and comment on her document.

Ms. Anderson said she was unhappy with the quality of the sources she had quoted in her text and asked for advice on how to access a search engine. Although Ms. McCracken may have been the logical person who could help, Ms. Curry came to her machine and started Netscape, and then clicked on the "Net Search" button to access a search engine. While Ms. Curry had started the semester with very little computer and Internet experience, she had learned some of the basics simply by watching Ms. McCracken and observing how she navigated through the screens. Likewise, once Ms. Anderson accessed a search engine, she was able to navigate
quickly and apparently confidently through the various screens.

Ms. Anderson was also the only student I observed in either study group who actually conducted a well-designed search using an Internet search engine. Perhaps it was because she was inexperienced that Ms. Anderson opened the "Search Tips" help page from within the InfoSeek search engine and learned and then used the appropriate search syntax for that search engine. Although Ms. Anderson was one of the novice computer users, she conducted the best search during the time students were preparing to write their essays. When she entered the term "["physician-assisted"] +suicide euthanasia," Ms. Anderson received several important hits that none of the more experienced users had uncovered, many of which would be useful to her as she completed a revision of the first draft of her section of the essay.

Ms. Anderson's web search was extremely fast and efficient; she found and printed out several short World Wide Web documents in less than fifteen minutes. At the end of that time, she opened a word processor and began to work on her draft, just as the other students were doing at the time.

Near the end of the hour, Ms. McCracken asked if everyone was nearly finished. All of the group members
responded that they were, and Ms. McCracken asked the others to all save their documents on her floppy disk so she could take them home, assemble them, and print them in final form for submission to Ms. Caprio. Students did not compare final drafts; apparently since they had discussed the drafts at the beginning of the session, students felt it unnecessary to critique the final drafts. During the next ten minutes, students saved their work to Ms. McCracken’s disk, which was passed around from student to student. Ms. McCracken and Ms. Anderson had to help both Ms. Crawford and Ms. Curry save their documents to the disk, since they were both unsure how to do this when using word processors that were somewhat unfamiliar to them.

**Summary of Student Research Processes**

Although students were unfamiliar with the advanced features of modern search engines, they found a great deal of useful information. Nevertheless, there is no way to determine how much easier or more effective their research could have been had they used some very simple search operators as Ms. Anderson did during the supplemental session. The Internet contains a vast amount of information, and students must use fairly sophisticated (though very easy) search criteria to uncover it.

The inability to print documents influenced students as they conducted their research. As already mentioned,
the printers to which students had access were very old and slow and could not keep up with even the moderate demand placed on them. Students had to make quick decisions as to the most important documents that they would print; they also saved these, and other less important documents to disk.

Of course, there are advantages to saving documents on disk. For example, students can easily cut and paste quotations or short selections of text from the source to their own documents. In addition, students can easily copy disks for all to share. Students can later determine which documents are the most important, thus conserving paper and ink. Nevertheless, it is important that students be allowed the flexibility to make decisions concerning what they should print.

Students did not confine themselves only to information they obtained via the Internet; they continued to use traditional library resources to supplement the information they found on the network. Although the Internet provided students with useful lists of books, they also continued to use resources like InfoTrac to lead them to additional information. Students seemed to have an intuitive notion that it is important to balance information derived from the Internet with more traditional library-based resources.
Also extremely significant is the way in which the Internet-based resources helped students to shape and discuss their ideas for the assignment. In the 9:00 group, Internet-based research led students to an important discussion regarding the audience for their finished essay. This, in turn, led the students to additional research that was based on their discussion.

The same recursive process occurred in the 12:00 class, although the initial Internet research led not to a discussion of audience, but instead to the creation of an outline. This outline, in turn, provided students with an important foundation upon which to conduct additional research.

3.3 STUDENT ATTITUDES REGARDING TECHNOLOGY IN THE CLASSROOM

At the outset, it is interesting to note that many of the students who enrolled in the two Internet Emphasis English courses did not know that the courses carried the Internet Emphasis designation. Although Louisiana State University’s Catalogue of Courses clearly publishes the Internet Emphasis designation in the course description, of the thirty-one originally-enrolled students, twelve students, or 39% indicated on the first questionnaire (see Appendix B) that they were unaware they were enrolling in an Internet Emphasis course when they completed registration. Two of the eight (25%) randomly-selected
students who participated in the case study group were not aware that they were enrolling in an Internet Emphasis English course at the time they registered.

Nevertheless, all students in both sections responded on the first questionnaire that they believed colleges should train students to use computers. Students offered many compelling reasons for this belief, among the most interesting was: "Why not? It is the world!! If you don’t know computers, you are NO ONE in the world." Although only five (16%) of the students indicated that they believed computers would be important during the rest of their college years, fourteen students (45%) of the responses indicated students' belief that computers will be important in their professions.

Many other students, though they did not mention school or work specifically, responded in positive, although more general, terms to this question. For example, the quotation above might be interpreted to indicate that the student believes a knowledge of computers is important in school and in a professional context, although I did not include it in either category since he did not specifically mention either of these possibilities.

The same could be said of the following representative quotations: "The capabilities of computers can do so much and can do it easily that this knowledge could be a great
asset later in life," and: "I feel that technology is so advanced these days, that it seems that everything we use involves computers." If we cannot conclude that all of the students enthusiastically support the use of computers in college, it appears that many of them recognize a kind of social imperative concerning the widespread use and importance of computers. While many students did not enroll in the Internet Emphasis English courses because the courses required the use of network-based communication, every student in both sections responded on the initial questionnaire that colleges should train students to use the Internet and other forms of electronic communication. Students based their responses on a number of criteria, but the most common involved the fact that electronic communication is important today, and will undoubtedly become even more important in the future.

Students also report to Ms. Caprio that the use of technology is helpful, and that they will continue to use it in the future. Of the forty-five students who completed Ms. Caprio’s Internet Emphasis courses during the semester preceding this study, all except one student reported on the final course evaluation that they would continue to use the Internet to conduct research and to communicate using e-mail.
Likewise, during post-semester interviews with study participants, all students reported that, while they were initially challenged by the network-based technology, they found the technology useful. Furthermore, once they became familiar with it, technology made their work easier and more effective. All students also said that, based on experiences in the Internet Emphasis English courses, they would continue to use e-mail to communicate with others and to conduct research for future classes. In addition, all students reported that they continued to use the Internet to conduct research for other assignments in their later Internet Emphasis English courses, and for other courses in which they were enrolled, even when Internet research was not a required part of those assignments.

I asked case study participants about these topics at the third (group) interview in the Writing Center. All of the students were surprised at the depth and quality of the information they found on the World Wide Web, and at the relative ease with which they gathered information. For example, Ms. McCracken said:

I have had to do a lot of research in the library at my high school. I never minded it too much, but it gets tedious after a while. You have to go from book to book and magazine to magazine, and even then you can’t find what you’re looking for half the time. It’s even harder here because the library is so big and disorganized. We [her group members] got lost on the Internet a lot, but we could always find something that we needed without spending forever. And we even
found stuff on the Internet that told us what books and magazines to look for in the library without having to research it in the library.

As Ms. McCracken was speaking, the other students chuckled empathetically at her description of getting "lost on the Internet," but they nodded approval as she contrasted library research with Internet research. Ms. Anderson continued:

Yeah, the Internet is easier than I thought. You still have to go to the library, but this makes it easier to find sources there. I think the facts we have found are pretty good, too. It's not like we are taking an unfair shortcut. A lot of my friends use this [the Internet], and I always thought they were crazy, but now I see why they did it. I know I'm going to use it in my other classes when I need to do more research.

This theme was common throughout the various interview sessions, both group and individual, that I held with students. Students claimed that the Internet enabled them to find a large quantity of useful information in a timely fashion. Moreover, they believed that the information they chose to use in their essays was current and relatively unbiased. Students complained that they had to "wade" through a great deal of information that was obviously biased, out-of-date, or very hard to understand, but they also acknowledged that they could quickly abandon these sites and could move on to a different web site or document.
Student Experiences with Network Instability

At the final interview, and on the post-semester questionnaire, many students complained about the slowness of LSU's network. At the beginning of their work, the network was relatively fast, but as the days passed, the network became progressively slower. Finally, the day before the Decision-Making Kit essays were due, the network began to crawl. It was still usable, but students were forced to wait for minutes at a time as they moved from web site to web site. Interestingly, the network went down completely the day after students turned in their essays to Ms. Caprio, and it stayed down for more than a week-and-a-half.

After repairs were made, the network operated correctly, and with some of its previous speed, but it failed two other times during the semester, after research for this study (except for the final interviews) was largely completed. One of these network failures took place while the Internet Emphasis students were in the middle of an ongoing electronic discussion involving two assigned essays that students had posted on their e-mail distribution lists. After this network failure, Ms. Caprio asked students who had not been able to post their responses on the discussion lists to bring them to class instead. Of course, this disrupted Ms. Caprio's plans, but
there may have been no other realistic alternative that would have allowed all students to complete the assignment.

Student Experiences with E-mail Communication

During our interviews, students also claimed to find useful the accessibility of Ms. Caprio via e-mail. Many students discussed problems with assignments with Ms. Caprio over e-mail, and several also reported discussing with their teacher personal concerns that affected their classroom performance. Since Ms. Caprio checked her e-mail twice daily and responded promptly to student mail, students were almost always assured of a rapid response to questions. As Ms. Lasky reported during our final interview:

Problems don’t always just come up right before or during class. A lot of times problems come up when I am working on my assignments at home. I don’t want to wait for two or three days to get an answer to my question, but I don’t want to call Ms. Caprio every time I have a question, either. I try to put all my questions in an e-mail and let her answer them when she has the time. And she always got back to me quick, so I wasn’t left hanging.

The following is just one example of an e-mail exchange regarding a concern one student had with a class assignment:

Date: Thu, 10 Oct 1996 11:45:00 -0500 (CDT)  
From: Gina Campbell <gcamplll@tiger.lsu.edu>  
To: jcaprio@unix1.sncc.lsu.edu  
Subject: Rogerian argument paper

I am rather insecure about my paper topic. After evaluating all those student papers and discussing
them in class, I find that my topic might not fit the initial requirements. In short, I can't really find concrete aspects that I could actually compromise on. My thesis basically says that religion as an organized system of faith and worship does not benefit its adherents substantially (sic). I then develop four aspects of religion, mainly church, worship, doctrine, and faith (and I do define each very carefully) pointing out the positive and negative impacts of each, which as a whole determines what is implied by "substantial (sic) benefits".

I am confident of the quality and substance of the paper, but I am worried that it might not truly respond to the assignment. I guess that what I am really asking is: do I need to come up with a solution or even an answer to the question I pose? I know that I don't need to find a concrete manner of going about solving the problem in philosophy, but do I need to in English 1003? And does the rogerian (sic) argument assignment call for that kind of an answer?

If it does, please let me know soon as I will write another paper. I do have a more down-to-earth alternative subject, but it just strikes me as having so little importance and so few implications.

I guess it might be easier to discuss (sic) this in person, hence if you agree, and if it is convenient for you, I could meet you anytime tomorrow.

I hope that you can clarify the assignment for me. In the meantime, I will be thinking about this some more and I might even come up with a solution to my problem.

I thank you for your time and I will see you next Tuesday,

Gina Campbell

The first message in this exchange contains several very thoughtful questions posed by a concerned student, although one cannot definitively determine whether the questions are more carefully-considered than the same
student might have presented orally. Nevertheless, it is
important to point out that the question was composed just
before midnight on a Thursday. The student obviously
needed a response which she might not otherwise have
received until the following Tuesday. In the next message,
the student answers her own questions, but also explains
how she arrived at the answer. Implicit in this message is
the expectation that Ms. Caprio will respond to her
concerns and provide additional feedback if it is required:

Date: Fri, 11 Oct 1996 09:16:05 -0500 (CDT)
From: Gina Campbell <gcamp111@tiger.lsu.edu>
To: jcaprio@unix1.sncc.lsu.edu
Subject: nevermind

I might have seemed alarmed in my previous message,
but as it turns out it was mostly insecurity from the
conclusions reached after the evaluation exercise in
class. After typing my paper yesterday, editing it at
the same time, I found that it does fulfill the
requirements.

Hence please ignore my previous message as I will
stick to my original topic of religion.

Sorry about that,
Gina Campbell

The following message is Ms. Caprio’s response to this
message thread:

Date: Fri, 11 Oct 1996 12:40:12 -0500 (CDT)
From: Judith G Caprio <jcaprio@unix1.sncc.lsu.edu>
To: Gina Campbell <gcamp111@tiger.lsu.edu>

Subject: Re: nevermind

Hi Genevieve...Well, I'm sorry that I hadn't gotten
back to you earlier, but you've solved the "problem"
anyway. What I had planned to say in my response was
to tell you to do exactly what you are doing--stick
with your topic. In a broad sense, it does *not* fit the parameters of the assignment; it exceeds the requirements in terms of difficulty of topic.

One reason I specify "local issue" in the assignment is to keep students from attempting to write about huge, complicated topics they know nothing about. Your topic is large and complicated, but your academic background suggests that you will be fine with it. Have a restful weekend and enjoy this glorious weather. See you on Tuesday.

JC

caprio@unix1.sncc.lsue.edu

Although Ms. Caprio apologizes for not responding earlier, it is important to note that only a bit over twelve hours elapsed from the time the original question was posted until the time Ms. Caprio responds. The entire exchange is obviously helpful to the student since she receives a rapid and thoughtful affirmation of her perception of the assignment which she must turn in the following Tuesday. Again, it is important to note that the data collected during this research contains other examples of this kind of exchange between students and teacher.

This kind of exchange is also helpful for the teacher. The two e-mails from the student allowed Ms. Caprio to gain insight concerning what the student learned from the evaluation sessions, as well as the way she struggled with and resolved a common writing problem.
Student Experiences with E-mail Assignments

During the final interview, students were also asked to comment on their experiences with e-mail assignments and their perception of Ms. Caprio's influence on student responses to those assignments. Although one of the case study students did not participate in e-mail assignments, the other seven did participate, and reported that their experience was largely positive, although most reported becoming frustrated at the periodic network malfunctions which prevented them from accessing their e-mail accounts. Each of the seven students claimed that Ms. Caprio participated in the assignment, but that she did not have all the answers. Mr. Ahern comments:

I liked the e-mail discussions when the network worked. I felt I got as much input from the other students as I did from Ms. Caprio. She had some really good ideas, but so did everybody else. And there were times when she just didn’t know or she was wrong and we could tell her that we disagreed with her or agreed with somebody else [another student].

Ms. Curry echoes these ideas:

The e-mail discussions were kind of hard to get into, but once I started, I didn’t want to stop. That’s the biggest thing about this class I’m going to miss. So many people had different points that were just as good as Ms. Caprio’s, and sometimes better. When they did, Ms. Caprio said so and complimented them. Everybody got to say what they wanted to say and it usually didn’t seem like we were arguing... Well, OK, a couple of times it was like an argument, but then usually because someone made a rude comment or criticized someone else’s paper too hard. But that never lasted for long. Ms. Caprio asked some good questions, but she didn’t tell us we were wrong or we...
were right; we all had a right to our own opinions and we got to say what they were.

Ms. Curry’s response indicates that there were times that students were rude or overly critical of one another’s work, although she minimizes the impact of these exchanges. In reviewing the e-mail messages for the two classes, I found only one example where two students provided comments that could be considered harsh as they critiqued an essay that one of their classmates had posted online. Comments appear in uppercase because this was the manner by which students could easily distinguish material that they inserted into the original text:

I DID NOT UNDERSTAND MOST OF YOUR PAPER. PERHAPS IT IS BECAUSE I HAVE A SMALL VOCABULARY. IDIDN'T (sic) UNDERSTAND WHY YOU USED SOME REFERENCES (ESP. IN CONCLUSION). I WAS LOST IN THE LENGTH OF THE PAPER AND THE BIG WORDS, SO I CAN'T OFFER TOO MANY SUGGESTIONS. I DON'T KNOW WHO YOUR AUDIENCE IS. MAYBE YOUR AUDIENCE WILL UNDERSTAND THE PAPER PERFECTLY. I DO KNOW YOUR POSITION, THOUGH, AND YOU SUPPORTED IT WELL. YOU ALSO REFUTED THE OPPOSITION WITH A NEUTRAL TONE. GOOD JOB. I'M SORRY THAT I COULD NOT UNDERSTAND YOU, THOUGH.

And the second example:

I'D HARDLY CALL LOSING A PATIENT TO HIS ILLNESS "KILLING" HIM. THAT IS A HORRIBLE WAY TO LOOK AT DOCTORS WHO TRY AS HARD AS THEY CAN TO SAVE THE PATIENT YET ARE UNABLE TO SUCCEED.

YOU NEED TO GET OVER THE FRUSTRATIONS WITH THE GOVERNMENT SO THAT YOU CAN PRESENT AN ARGUMENT THAT TAKES A GLANCE AT THE OPPOSITION’S SIDE, FINDS FAULTS IN IT, THEN MOVES ON TO SHOW WHY YOUR SIDE IS BETTER. THERE ARE TOO MANY QUESTIONS WITH NO ANSWERS, AND FEW CONCRETE REASONS FOR YOUR OPINION.
While these comments are somewhat forceful, they appear at the end of each reviewer's analysis. The earlier commentary they provided was generally more measured and a good deal more positive. The earlier comment led to an e-mail discussion that discussed the tone and vocabulary used by the original essay's author, and that included ideas from many students.

Although the comments above could be described as harsh, they do not approach the level of flaming described by Miller, and reported in Chapter One of this study. Furthermore, as harsh as these comments were, they appeared in a context that was not completely negative. Finally, the comments led to a discussion of the merits of the original essay that the author found helpful as she revised her work.

**Student Attitudes Regarding Collaboration**

Students generally reported feeling comfortable with their groups, and believed working on a collaborative assignment was useful, although all of the case study participants admitted to initial misgivings about working together with three other students to create an academic essay. Students reported that e-mail promoted frequent input and rapid feedback from the others in the group, and they believed this made for a better final essay.
In addition, all of the students reported feeling less intimidated by the computers and by the Internet because they were all learning elements of a technology that was new to everyone in their group. Even students who came into the course with considerable computer and Internet expertise claimed that the collaborative assignment allowed them to use Internet resources in ways they had never considered before.

Ms. Lasky had problems with some of the collaborative aspects of the assignment, although these are problems that might be associated with any collaborative effort and are certainly not unique to an Internet Emphasis English class. The e-mail message that outlines Ms. Lasky’s concerns is reproduced below (all of the names of additional, non-case study participants have been changed):

Date: Tue, 29 Oct 1996 20:05:40 -0600 (CST)
From: Ms. Lasky <mlaskyXXX@tiger.lsu.edu>
To: "J. Caprio" <jcaprio@unix1.sncc.lsu.edu>
Subject: paper problems

Dear Mrs. Caprio,
When we researched our topic for the decision making kit, we found several interesting genetic engineering home pages. We printed them out in order to help us with our paper. We underlined key phrases and boxed in important paragraphs. Now, I realize that some of those pages might help the reader to formulate an opinion. Should I try to print out those home pages again, or may I use the papers which we wrote on? I would like to include them in the packet.

Also, Mr. Ahern attended a youth forum on medicine this summer. He has a really interesting booklet with
information on genetic engineering. We used a definition from this booklet in our paper. Unfortunately, there is no author or editor given for the pamphlet. How do we document our quote?

Next, we have organized our paper into three different sets of arguments: arguments for unrestricted genetic engineering, arguments against genetic engineering, and arguments for restricted genetic engineering. Is it okay to present those three sides instead of just two?

Finally, I think that our group was a little too diverse. Mr. Ahern and I seem to take over and Ms. Smith and Mr. Hellwig just go along with us. This wouldn't be a problem if Mr. Ahern and I could agree on anything. We have totally different writing styles. I want an interesting paper, free from repetition and clichéd phrases. Mr. Ahern likes papers organized in a tradition way (topic sentence, supporting detail, supporting detail, concluding sentence). He also likes clichéd phrases and really big words. It seems as though Mr. Ahern and I argue over what to write. Mr. Hellwig takes Mr. Ahern's side, and Ms. Smith takes mine. I'm just glad that Mr. Ahern is nice and he doesn't take my criticism too harshly.

I realize that in the future, I may work with some people who I find difficult to get along with. But, I still would like to get a chance to work with people that I choose. Would you consider letting us pick our own groups once this semester? I want a chance to work with Janet, with Mary, with Tanya (older), and with that girl who hasn't decided how to pronounce her middle name yet. After this class, I may never again get a chance to do so. Those people really interest me. Please?

MS. LASKY *(::-)

When I spoke to Ms. Lasky about her concerns for the group project at the end of the semester interview, she made clear the fact that composing the essay was the most difficult part of the process, and that none of the
students in her group were accustomed to having to negotiate a paper with others. Ms. Lasky told me that all of the disagreements were friendly, and all of them concerned matters of style. The compromise that the group eventually worked out was that she could use her editorial powers to organize and present information in any way she wished. After she finished with this, she was to submit her paper to the group so they could provide feedback.

According to Ms. Lasky, this process worked very well. Although the other students in the group did make several important suggestions when they read her final draft, Ms. Lasky believed that most of these suggestions were valid and helped her to solve some problems she saw in her own work. At the final interview, Ms. Lasky reported:

I had problems writing the paper with the other students. I was not used to doing that, and I have my own ideas about how a paper should be written. I wrote that e-mail shortly after we started on the paper and I still feel it has some good points. What I didn’t know at the time is that I’m not always right and that Mr. Ahern had some good points. After we worked on the paper for a week, I learned what he wanted and he learned what I wanted. That made the rest of it a lot easier. It was hard working with other students that I didn’t know that well, but that was probably what the assignment was about. Anyway, I think we were all happy with the paper, and that’s what’s important.

These issues are issues that many students face when they work on a collaborative project for the first time, and are not unique to an Internet Emphasis English course.
Nevertheless, students in the 9:00 group were able to resolve these difficulties without any intervention by Ms. Caprio.

3.4 TEACHER PERCEPTIONS OF TECHNOLOGY IN THE CLASSROOM

Ms. Caprio and I discussed the two Internet Emphasis English courses almost daily. In addition, I conducted a lengthy post-semester interview with her to determine what her ideas were concerning Internet Emphasis English courses in general, and these two courses specifically. I was particularly interested in discovering if a course that emphasized technology caused Ms. Caprio to sacrifice some of her more traditional course goals so that she had time to spend in teaching a new technology to students or if the technology aided and supplemented her traditional goals. In addition, I wanted to know Ms. Caprio’s perceptions of the way technology changed, if it did, the class relationships between students, and between students and Ms. Caprio.

As already mentioned in Chapter Two, Ms. Caprio’s Internet Emphasis English courses are, in most ways, traditional second-semester composition courses. Ms. Caprio works with students in a process approach that is typical of many first-year composition courses in that she discusses with her students the continually recursive
prewriting, writing, revising, and editing processes throughout the semester.

Among the traditional rhetorical goals Ms. Caprio sets for her courses include the requirement that students think critically about the subjects of their papers, along with the supporting evidence they supply in their arguments. Ms. Caprio encourages her students to consider carefully their audiences and the ethical dimension of the relationship between writer and reader, as well as the importance of acknowledging other points of view as a persuasive tool. Ms. Caprio also expects, as is true for most composition teachers at LSU, her students to write papers that are free of major grammatical or mechanical errors.

So that she can foster students' understanding of these goals, Ms. Caprio believes it is important to establish a sense of community within the classroom. This allows her students to learn from one another, as well as from her. It also encourages students to share diverse points of view as they discuss issues during class sessions, and as they respond, both orally and in writing, to essays written by class members. According to Ms. Caprio, the use of technology in the classroom is an ideal way to draw students together into a cohesive group with
shared goals. Part of the reason is that, as Ms. Caprio says, "We are all learning the technology together."

While the common view of computers and electronic communication is that they are technologies that alienate people from one another, Ms. Caprio sees these technologies as unifying elements in her courses. Students are excited by the technology, and they enjoy using it. However, in Ms. Caprio's experience, it takes some time for her students to become confident using computers and electronic forms of communication. Nevertheless, students help each other during this process, and it is partly this shared goal that unifies the class. As Ms. Caprio says:

Just in terms of building a sense of community, that was the surprising thing for me... because people talk about how technology is so isolating and how it draws people apart, and I see it as extending a sense of community. It's a cybercommunity, which is not the same thing as face-to-face, but they really do interact with each other... I'm going to bet you that the fact that students have to rely on each other [as they learn to use technology] has a lot to do with that sense of community. They do help each other, and they're not offended by somebody who isn't familiar with the technology.

If this sense of cooperation that develops as students learn a new technology translates into a heightened sense of cooperation in the classroom, it is important to know the attendant costs to learning this technology. For example, if Ms. Caprio must give short shrift to discussions involving critical analysis of evidence so that
she can spend time training her students to use technology, the trade-off may not be to her students' benefit.

During our post-semester interview, Ms. Caprio explained that computer technology and the Internet actually make teaching these pedagogical goals more effective. In terms of the critical-thinking skills just mentioned, Ms. Caprio uses writing samples from the Internet that her students bring to class to discuss important issues like biases, incomplete or misleading information, and logical fallacies. While the Internet is a rich source of useful, well-written and well-researched information, it is also full of writing that contains one or more of the faults described above. Ms. Caprio believes it is more realistic to allow her students to examine these issues in a real context, rather than in the more typical and artificial examples from textbooks. Of course, students in the Internet Emphasis English courses still use textbooks, but the Internet allows them to readily find applications of textbook material in a genuine communicative setting that takes place outside the classroom.

According to Ms. Caprio, computer and Internet technology is now much easier to use than it was just a couple of years ago, so it is not necessary for her to spend many hours teaching the technology to her students.
Students can learn the basics of e-mail in one fifty-minute session, and they can learn to conduct effective World Wide Web searches in about the same amount of time. While it is unlikely that students will become expert computer or Internet users during a one semester Internet Emphasis English course, they can become familiar enough with the technologies to put them to good use for communication and research.

Ms. Caprio also reported that these technologies provide the means by which students can easily share drafts with their classmates and can critique drafts posted by other students, two things they are required to do regularly in Internet Emphasis English courses. According to Ms. Caprio, this helps to heighten the students’ sense of audience because they are writing for their classmates rather than just for her, and because other students provide almost immediate feedback:

I know I can’t back this up, and I should try to come up with a way to measure this, but I think it [technology] increases their writing ability, if only because they’re having to write in a more text-based environment. I know they have a real sense of audience when they are using e-mail to write to each other, and a real sense of audience when they are posting a draft that they might not have when they think they are writing to me. It doesn’t matter what kind of purpose or situation I describe, ultimately a lot of students still think they’re writing to me. At least they are writing to their peers and others and they can get me out of it.
Since encouraging students to write for a real audience and not just the teacher is sometimes difficult to do in the traditional composition classroom, the advantage Ms. Caprio describes may prove to be an important justification for the use of technology in first-year college writing courses.

**Summary of Teacher Perceptions**

Although Ms. Caprio is disturbed by the occasional network instability her Internet Emphasis classes have experienced, she reported that the use of technology generally allowed her to communicate rapidly and effectively with many of her students.

Network technologies also facilitated Ms. Caprio's attempts to achieve important pedagogical goals such as establishing a classroom community of writers and helping students to understand the importance of critical analysis of evidence as they evaluate outside source material. In addition, Ms. Caprio used the network to encourage students to write for an audience that extends beyond the teacher, another important pedagogical goal that is often difficult to attain.

Finally, Ms. Caprio reports that network technologies have become so easy to use that she is not forced to spend a great deal of time teaching technology, but instead can focus upon how students can use the network in ways that
are useful to them. This is evidenced by the fact that students tend to use the technology after they learn it, and for purposes that go beyond the composition classroom.

3.5 SUMMARY OF RESULTS

The results show that students can use computers and the Internet to conduct effective research in a well-designed college composition course. Moreover, students and teachers alike enjoy using these technologies, even though enjoyment alone is certainly not a justification for continued use of technology. More important is the fact that computers and electronic communication can supplement traditional classroom tools such as textbooks and handouts. In addition, technology can make the sharing of written drafts to a genuine audience much easier than it is in most traditional classrooms, and can result in more immediate and more authentic feedback.

Of great additional significance is the finding that technology in the college composition classroom can also contribute to a heightened sense of community and a spirit of cooperation between students.
CHAPTER 4: DISCUSSION/IMPLICATIONS OF THE RESULTS

4.0 OVERVIEW

In this study, students used computers and the Internet to aid them as they planned their responses to a collaborative assignment and as they conducted research and collected reference material and outside evidence required for this assignment. In addition, they frequently used Louisiana State University’s asynchronous e-mail network to communicate with one another and with their teacher in a way that is very similar to that described by Batson and others involved with the early ENFI experiments. Students reported that they found the use of electronic technologies helpful as they prepared their Decision-Making Kit assignments and many of them report that they have continued to use these resources, even though Internet research was not a required component of the other courses in which they were enrolled.

Although the use of network technologies in the composition classroom can present significant problems which will be discussed below, this study found that the influence of technology on student planning and research is generally positive. For example, as this research shows, the use of network resources can actually help students to shape their essays in important new ways. In addition, the
network encouraged students to carefully consider the effectiveness of outside reference material as they analyzed evidence for their essays.

This chapter specifically addresses the research questions presented in Chapter One in light of the results of this study.

4.1 INFLUENCE OF THE INTERNET ON PLANNING AND RESEARCH

The first research question explores the influence of the Internet on students as they participated in prewriting activities involving planning and research for their Decision-Making Kit assignments.

1) How does the required use of the Internet influence students as they a) plan and prepare a response to an assignment, and; b) as they conduct research for the assignment?

Planning

Perhaps the most surprising result of this study is the effect the Internet had on students as they planned their responses to the Decision-Making Kit assignment. Students in both study groups conducted initial network-based research sessions before they chose topics for their essays. Even though both groups initially had favorite topics, they decided to first conduct a cursory examination of the World Wide Web to ensure that their topics were such that they would be able to find evidence that would be required by the assignment to support their writing.
Because none of the students had prior experience using the Internet to conduct research for high school or college courses, they did not know exactly what to expect as they would, for example, if they used the library exclusively. If computer networks can expand the sites of literacy and change ways in which students gather information as Costanzo and Eldred propose, students approach this technology cautiously, and seem to keep the requirements of the specific assignment uppermost in their minds.

Rather than choosing a topic that might have been difficult to complete, given the requirements of the assignment, students first made sure that an adequate body of useful information existed on the Internet before they chose their topics. Students avoided topics like flag-burning, for example, because most of the reference material they found regarding these topics appeared on World Wide Web pages that could best be described as biased and reactionary. In this case, students were thinking carefully about the quality of the evidence they found, and how that evidence could influence their further work on the Decision-Making Kit essays.

The Decision-Making Kit collaborative assignment required students to use at least three references from the Internet in their final papers, and this element of the assignment played an important role in topic selection.
Where Internet-based information was unavailable or biased, students chose to move to other topics. Of course, this is rather easy to do when only one student in a group of four strongly advocates the topic, and the other three students prefer to discuss another topic. Given the time constraints and requirements of this assignment, however, students in the current study acted appropriately, and in the best interests of their groups. Furthermore, a major goal of the assignment was to help students learn to conduct research using the Internet.

Limitations of Network-based Research

On the other hand, it is also important to discuss the negative implications of this result, and how they apply to Internet-based English composition courses. As mentioned in Chapter Three, students in the current study proposed several topics for which few appropriate resources were available on the World Wide Web. Nevertheless, topics like flag-burning, gambling, and corporal punishment in middle and high schools remain important social issues that one hopes our students will be allowed to explore in the essays they write. The World Wide Web can be a helpful resource, but, as large as it is, it does not provide useful information on every topic. If students are restricted to only Internet-based research sources in a first-year
composition course, they may be unable to explore other very important issues in their writing.

The two courses in the present study required students to use Internet-based research in only one assignment, although many course descriptions and syllabi that appear on Rhetoric and Composition web pages make clear that students at some campuses are required to use Internet-based research in all of their written work. It is difficult to know how this requirement might affect students who enroll in these courses, but it is important for teachers to consider the limitations of the Internet as they design and plan composition courses. While it is probably reasonable to require Internet-based evidence in one or two assignments, it may be unfair to students to ask them to conduct Internet research for all of their assignments. To do so restricts students to only certain topics. While the sites of literacy may be changing and expanding, this study points out that there are some uses for which the Internet is inappropriate or ineffective.

**Availability of Equipment May Impose Unfair Practices**

In light of the results from the present study, it is important that teachers implement strategies to guard against the involuntary "conscription" of students who have access to computers into performing tasks they might not want to do. While this did not appear to happen in either
study group I observed, there may be some risk that this could occur, since students in the study groups were frequently chosen to accomplish certain tasks simply because they owned computers. If technology can provide the kind of “leveling” classroom influence described by Barker and Kemp, Spitzer, and Hill Duin, it is important that teachers guard against substituting one kind of privilege or identification for another that is based upon access to technology.

In the present study, Ms. Lasky appeared to be thrilled at being selected as editor, and Ms. McCracken and Mr. Ahern seemed to be happy to perform additional research while other students performed different tasks. Nevertheless, access to computer technology should not automatically mean that a particular student must be required to perform a specific task or be prevented from performing others. This kind of “selection by default” can be at once onerous and elitist.

One must also consider this from the viewpoint of students who do not own computers: these students should not be prohibited from performing certain tasks simply because they do not own their own computers. For example, a student who wants to participate in the editorial process should not be prevented from doing so merely because he or she does not own a computer. If a computer is required,
the student may prefer to use a terminal on campus or at another location.

**Research**

Students in the present study were able to collect a large amount of pertinent and useful information very quickly using the Internet as a resource. While students encountered much information that they recognized as biased, out-of-date, poorly-researched, or inappropriate for other reasons, they were able to move on quickly to other World Wide Web sites and documents that better served their needs. The Internet also provided useful information and lists of books and articles for students who wanted to continue research in the library.

**Networks Support Critical Evaluation of Resources**

Because the amount of information on the Internet is so vast, students were exposed to many different viewpoints as they conducted research. This exposure allowed students to think carefully about the content and structure of their own essays, and in several cases, encouraged students to create and then adjust their outlines or drafts to encompass important issues they had not considered during their initial planning stages. Students in the study groups were not impressed by the quantity of information they found on the Internet; if quantity was their goal, they could have met that goal in as little as fifteen
minutes. Instead, students searched for information that met their requirements for quality, even though, for both groups, this took substantially longer to accomplish.

In addition, students in the Internet Emphasis English courses were able to evaluate source material for biases, logical fallacies, and other rhetorical problems. Students brought to class many examples of World Wide Web documents that they had found online, and then discussed these documents during class sessions. Of course, teachers can always bring in examples of these kinds of documents; however, it may be more effective when students discover the material themselves and discuss potential problems with group members. The World Wide Web provides a fertile ground for collecting examples of problematic writing. This requires students to be ever-vigilant in the material they read on the Web, and to think very critically about research they intend to use in their own papers. The Web also allows students to quickly contextualize problematic material they find online, which is something very difficult to do in many textbook examples.

**Need for Search Engine Training**

This study points to the need for students to learn how to use Internet search engines more effectively than they do now. Even though students in the two Internet Emphasis English courses received training in navigating
the World Wide Web and the use of search engines, many of them ignored the fundamentals of search syntax. Only Ms. Anderson conducted what could be termed an "expert search" during preparation for the Decision-Making Kit assignment, and she was one of the least experienced users of the Internet in either study group. However, she did spend a few minutes reading the help file for the search engine she chose, and that allowed her to enter search terms with appropriate syntax.

In addition to the short search engine workshops in which all students in Freshman English courses at LSU may participate, it may be advantageous to emphasize the importance of effective search techniques during class sessions. It may also be advantageous to conduct small group training using one or two search engines before students begin a unit in which network-based information will be required to complete an assignment.

It is also likely that current Internet search engine technologies are not rhetorically suited to the way people use language. While Boolean or punctuation operators are not especially difficult to use, the fact is that few of us use such syntax in our everyday lives. Improvements are being made in search engine technology, however. Shortly before this study began, a new type of search engine called HotBot was introduced which allows users to conduct
effective searches without using special operators or syntax.

Students in the two study groups were learning to use technology for planning and research, and it may be unfair to expect them to conduct expert searches in the first assignment that requires them to use Internet-based reference material. Students were able to access a great deal of information even though they used relatively unsophisticated search techniques. In many cases, students found several central homepages that provided many additional links for them to follow without the need for further search engine use. This method of "browsing" the World Wide Web is quite common and can be very effective.

Access to Network-based Information

Exposure to large amounts of information allows students to, temporarily at least, become immersed in discourse communities that do not always exist in a traditional classroom. While the most important discourse community is obviously the one that exists among group members, students also become aware of other discourse communities that encompass the topic about which they write. Because of the easy access to information the network provides, students quickly learn the parameters of the issues, as well as the ways in which specific topical arguments are frequently structured and presented by others.
who have interests and expertise in the topic areas chosen by students.

For example, one group of students who took part in the present study found many viewpoints expressed on the Deathnet World Wide Web page and the related links it provided. The other group was able to locate a great many alternative views regarding genetic research on the About Biotech page, as well as the many pages to which it was linked. In both cases, students discovered information that they had not previously considered, and these discoveries led them to rethink or reorganize their own essays.

This ability to access rapidly a vast amount of information is part of the difference between library-based and network-based research that scholars such as William Costanzo describe when he outlines the "shifts in the sites of literacy..." (11) that have begun to take place during the past decade as students and teachers supplement library-based information with network-based information. Likewise, Janet Eldred describes the important evolutionary change that has taken place as access to information becomes easier and, at the same time, more comprehensive than ever (209) because of network communication. However, access to a great deal of information is only part of what
makes the new technologies so very different from what most students have used in the past.

If students are to use this information, they must be able to determine quickly, as students in both the 9:00 and 12:00 study groups did, whether it meets their criteria for reliability and usefulness. Generally, students required the sources they used to be free of logical fallacies and overt biases; in addition, they expected the World Wide Web pages that they used to be timely, and to present a professional, adult appearance with graphics and language that were appropriate for the subject.

The availability of information on the Internet also has the advantage that it is always there, unless, of course, temporary technical problems make access to a particular site or document difficult or impossible, as happened at least once during the current study. Generally, students can conduct research at any time of day. While the library continues to be an excellent research resource, books are often unavailable because they are checked out by another patron or misplaced. There is also a certain amount of "lag-time" between the time that a book is published and when it first appears on the library's shelves.

For some very current events and issues, library research can be problematic, while information concerning
timely topics appears on the Internet very quickly. Of course, the Internet is not a solution to all of these problems, but it can be an extremely useful supplementary tool for students.

Several study participants who owned their own network-linked computers were able to conduct research from their homes or dorm rooms as they prepared their Decision-Making Kit assignments. This can be a real advantage for students since they sometimes have the need to conduct research at odd hours when the library may be closed or when they are not on campus and close to the library. This ready access to research information can be very helpful to students at any campus, but it is especially important to students enrolled at commuter campuses where home may be many miles from school. Finally, the ability to conduct research at times that are convenient is especially important to busy students who must juggle jobs, families, and recreation with their academic responsibilities, as did most of the students in the study groups. This added convenience will likely become even more apparent as more students come to college with their own personal computers and as the Internet becomes even more useful as a source of information.
4.2 TECHNOLOGY AND COLLABORATION IN THE COMPOSITION CLASS

The second research question explores the influence of computer and network technologies on student communication and collaboration in the college English composition course.

2) How does the use of computers and electronic communication foster small group communication and collaboration in the composition classroom?

One important reason that I began thinking about conducting research that examines the use of computers and electronic technology in the classroom is because I have, over the past several years, observed many students in courses I have taught and in other teachers' classes who worked together cooperatively to learn these new electronic technologies.

In 1994 and early 1995, only a small percentage of students came to campus with a thorough knowledge of computers and the Internet, and those students have always willingly shared their knowledge with other, less experienced, students. Even students who are not experts readily share the knowledge they have with students who know very little about technology. This informal mentoring usually takes place with virtually no prompting from the teacher, and is something that can help to draw students into a cohesive community of learners who are willing to help one another.
Learning Technology as a Social Act

Once a spirit of cooperation develops regarding technology, it may continue into other non-technical areas. Students in the study groups shared opinions on outside evidence and drafts of writing very readily, and they did so in a reasonable, sensitive fashion. Not only is writing a social act in the network-based composition classroom (of the kind described by Ann Hill Duin and Craig Hansen, 1994; and Andrea Hermann, 1991), learning these new grammars together also becomes an important social act, and makes the use of personal computers less "personal" and more "social," as Janet Eldred suggests (209).

As Andrea Hermann points out, the transition to a computer- and network-based literacy that is at once interactive and social and promotes collaboration is already underway and will almost certainly become even more intense in the coming years. If this is true, college composition teachers must continue to try to find ways to integrate these new and exciting technologies into their classrooms in a manner which will benefit both teachers and students.

This study shows that teachers can rely on students to facilitate at least part of that transition. While Mr. Ahern, Ms. Lasky, and Ms. McCracken began work on the Decision-Making Kit assignment as the three most
knowledgeable students in their groups concerning computers and the Internet, they were able, and were always willing to share their knowledge with others in their groups and with students in other groups.

By the time the groups neared the end of the assignment, all students provided suggestions for web searches, and, in fact, all students conducted effective web searches on their own, although none conducted what could be termed "expert" searches for material which interested them, (even though Ms. Anderson's search came very close). Nevertheless, because search engine technology has become relatively easy to use, students could locate a great deal of pertinent research information using relatively simple and unsophisticated search techniques and syntax.

As mentioned in Chapter One, computer software and hardware, as well as Internet-management applications have recently become much easier to use than they were only one or two years ago. However, students who know little about computers and the Internet probably are unaware of this advancement. These students frequently approach technology with some trepidation; many of them are, to some degree, initially intimidated or even fearful. Students may be concerned that they are going to break the machines or snarl the network. They may worry, as did Ms. Crawford,
that they will seem "dumb" to their fellow students who have more experience with computers. However, in the present study, even Ms. Crawford, the student who began the semester with the highest degree of anxiety, was eventually able to use the computer to type documents and to conduct effective World Wide Web research for the collaborative assignment.

When Ms. Crawford realized how easy the technology was to use, she grew much more confident in all of her work with her group. During the planning meeting and the first research session, Ms. Crawford was very quiet and contributed relatively little to her group's discussion. She made more contributions during the second research session and by the supplemental session in the Writing Center, she became visibly more relaxed and at-ease and made several important suggestions to her group members. Ms. Crawford was not paralyzed by her initial intimidation. To the contrary, she appeared to become liberated as she learned and then mastered the "new grammars" of technology.

During the rest of the semester, Ms. Crawford actively participated in the asynchronous electronic discussion list and shared her ideas about others' drafts in writing to a much greater extent than she did in class sessions. This willingness to contribute to the e-mail discussion list may not, however, conform to the explanation offered by Barker.
and Kemp (13) or Emily Jessup (346) in their studies regarding the positive influence of network-based communication on women writers, or Barker and Kemp’s belief that network-based communication encourages shy students to write (21). Instead, it is possible that Ms. Crawford’s willingness to participate in the e-mail discussion list was partially due to the increase in confidence she experienced as she worked together with the other students in her group on Internet research for their collaborative essay. During the post-semester interview, Ms. Crawford explained that she still lacked confidence in herself as a writer, but that she felt she was more confident, and in fact, a better writer than she was when the semester began.

Ms. Crawford explained that her confidence was bolstered by the fact that she could do the same things that others in her group could do, and also by the fact that many of her suggestions, both during the final stages of the collaborative assignment and during her discussion list activities were well-received by her peers. As Ms. Crawford said during our interview: “If I can do this [master technology], I can do anything.”

Over the years many of the students I have encountered were not poor writers even though, like Ms. Crawford, they believed they were poor writers. It is often a difficult task to provide the kind of encouragement that will enable
these students to overcome their initial lack of confidence in themselves as skillful communicators who have a legitimate right to voice their ideas orally and in writing. If electronic technology can stimulate or help to provide this encouragement in only a small way, it will benefit students and teachers alike in a manner in which earlier researchers and commentators may not have foreseen.

4.3 TECHNOLOGY AS AN AID IN COMMUNICATION

This question explores the influence of electronic communication as a tool to aid in communication between students and teacher.

3) How does the use of network-based computers affect communication between student and teacher?

There are many advantages to the use of electronic technology in the classroom, among the most important of which is the ability of students and teachers to communicate with one another. E-mail, for example, does not provide the immediacy of face-to-face or telephone discussions, but it does have other advantages. Many students are reluctant to "bother" teachers in person, and many more would never consider telephoning a teacher, even if the teacher makes clear that he or she is available. E-mail allows students to communicate with the teacher rapidly, if not immediately, and preserves both the student's and the teacher's personal "space." Students in
the current study took advantage of this many times during the semester.

**E-mail as "Housekeeping" Tool**

During this semester, Ms. Caprio made many important e-mail announcements to her classes that would have been difficult by any other method. For example, Ms. Caprio became ill for one day during the semester; she quickly communicated this to her students using the course e-mail distribution lists. The same principle worked in reverse. On several occasions, students who became ill quickly notified Ms. Caprio.

In addition, Ms. Caprio used the e-mail distribution lists to alter assignments and due dates. E-mail provided a convenient way to make these changes that would have proven difficult in most other ways -- especially since Ms. Caprio's classes met only twice each week.

**E-mail as an Aid to Understanding**

While the use of electronic technology is ideal for these sorts of "housekeeping" tasks, it is also very useful in other even more important ways. For example, at one point during the semester, Ms. Caprio engaged both of her classes in a discussion concerning the differences between "connotative" language and "denotative" language. The discussion was animated and several students asked questions or used examples of both kinds of language.
Other students seemed to understand the distinctions between these two terms and when, at the end of the hour, Ms. Caprio asked if anyone had any questions, none of the students did.

Later that afternoon, however, and continuing on into the evening, Ms. Caprio received e-mail questions from students who were having problems understanding the differences between the two terms. Due to the volume of the e-mail she received, it soon became obvious to Ms. Caprio that she again needed to discuss the differences between denotation and connotation at the next class meeting.

Because she received e-mail from several students on the same day as they had discussed the two terms, Ms. Caprio was easily able to reflect on the earlier class discussion and think carefully about ways to address the distinctions between the two kinds of language that would make more sense to her students. This timely feedback from her students was helpful both to Ms. Caprio and to the students, and it enabled her to discover and quickly correct an important problem.

During our discussion about the event just described, Ms. Caprio speculated that, during a "normal" semester in which electronic communication was not emphasized as a part of her courses, she may never have understood that so many
students were confused about a particular class discussion. While a few students may have scheduled appointments to talk about their lack of understanding of an important concept or idea, Ms. Caprio would, simply because she might be unaware of the magnitude of the problem, likely have addressed this issue on an individual basis when what was really needed was a clarifying discussion that involved the entire class. According to Ms. Caprio, the facility of rapid communication between her and her students is one of the most important advantages to the Internet Emphasis English courses that she teaches.

It is significant that when students use e-mail, they must put their questions in writing. This encourages students to think carefully about the questions they ask or the issues they want to raise with their teacher -- perhaps more carefully than they might if they asked their teacher a hurried question in the hall as they were walking to another class. Another advantage to writing a question down is that students will have a written record of the question and the response to refer to again later if the need arises.

4.4 TECHNICAL PROBLEMS

The fourth question examines issues of reliability of technology, and how access problems can interfere with assigned exercises and other course requirements.
4) Does the use of network-based computers introduce significant technical problems for students? In other words, is the technology reliable enough for students to use?

During most of the period that I studied student use of the Internet, LSU's network operated very efficiently. As already mentioned, the network began to slow down by the students' second research session and became slower still by the time they met for the supplemental session. Nevertheless, the network did function and students had few access problems during the time I was conducting research. However, the day after students handed in the final drafts of their essays for the Decision-Making Kit assignment, the network went down and stayed down for about one-and-one-half weeks.

Network Problems can Disrupt Teacher Plans

Although students were able to complete the Decision-Making Kit assignment on schedule, Ms. Caprio had scheduled other computer and network-based assignments that were to take place immediately after the essays were completed and turned in. The network problems, however, caused Ms. Caprio to change the requirements for those assignments in a way that did not require students to access the network.

Like many colleges and universities across the nation, LSU's network is becoming overburdened as thousands of students compete for scarce bandwidth. It is important to
remember that as recently as 1990, most network bandwidth at colleges and universities was used by physicists, astronomers, and a few mathematicians.

For any large institution, upgrading network resources is expensive and difficult, especially when much of the problem lies in external network-wide bandwidth traffic caused by the huge influx of Internet users over the past year. However, as Les Freed reports, new methods of network communication such as direct satellite network connections, digital subscriber lines, and cable modems will soon improve network bandwidth capabilities for all Internet users (221).

Until these new technologies are in place, however, it will remain extremely important for teachers to be flexible in course planning as they think about ways to use network communication. Teachers must plan for network slowdowns and outages and should formulate alternative non-networked backup assignments for every assignment they create that uses the network. While the network is fairly reliable, it is just like any other technology in that it can malfunction from time to time. Teachers will not likely need to implement a backup plan each semester that they use network-based resources, but they will be required to use the backup plan occasionally.
Teachers also must inform their students early in each semester that the network can malfunction, and to do their best to complete network-based assignments in more traditional ways when this happens. For example, if students are required to post a draft of an essay on the e-mail discussion list, students can instead bring two or three copies of their draft to the next class meeting if the network should go down.

If students understand the alternatives early, they can use these alternatives automatically, rather than wasting a valuable class session in which no student is prepared with copies of his or her essay. In addition, if students understand the alternatives, it also helps to reduce the panic and dismay that many of them feel when they are suddenly unable to access the network to complete an important assignment.

Although technical problems do come up from time to time (and they are usually much less serious and of shorter duration than that described above), students who complete Internet Emphasis English classes report that they will continue to use computers and Internet technology to communicate with others and to conduct research in other classes. Apparently, students see advantages to the use of technology even though they understand that they will experience occasional difficulties.
4.5 ELECTRONIC TECHNOLOGY AND COMPOSITION COURSE GOALS

The final question examines the extent to which computers and the Internet can be used to promote rhetorical goals that are common in most first-year college composition courses.

5) **Can teachers use computers and the Internet to foster rhetorical goals that are important in most traditional composition courses?**

Although first-year college composition courses that use technology require extra planning, they can be used to successfully promote pedagogical goals that most composition courses share. During course planning, teachers must be every bit as aware of the limitations of technology as they are of its benefits. They must also thoroughly examine the goals they set in the traditional classroom and decide how technology can make attainment of those goals easier or more effective.

One of the most important pedagogical advantages to a network-based composition course is one that was mentioned in Section 4.1: the network can facilitate student participation in genuine discourse communities that exist outside the physical walls of the classroom. While it is easy, in practice, to encourage students to explore these discourse communities in a traditional classroom, in reality it is often difficult for them to actually do so, if for no other reason than students do not know where to
find them. Internet resources, particularly Usenet Newsgroups, may be useful resources for students who want to engage in topic-driven discussions as well as more traditional research because they are very easy to find and, once found, they are just as easy to participate in.

Social Constructionism is Supported by Networks

Perhaps the most pervasive influence in Rhetoric and Composition Studies today is the social constructionist idea advanced by Kenneth Bruffee that participation in discourse communities changes the way that students communicate (1984). Students who use network resources quickly determine the outlines of a given issue, and the way others conduct discussions and arguments related to it in a public forum.

If students desire, they can enter that discussion to ask questions or to state opinions, just as they did during their work on the Decision-Making Kit assignment. Of even greater pedagogical importance is the fact that participation in these additional discourse communities by using them as sources of evidence for their own work promotes students’ ability to determine the structure and context within which their own discourse will develop.

For example, the 9:00 group of students developed a conceptual framework for their essay as they examined World Wide Web pages. Although none of the students were experts
in genetic engineering, they quickly learned a great deal
about the legal, moral, and ethical issues surrounding that
topic as they explored web pages and documents and began to
consider ways they could incorporate this information into
their developing essay.

After deciding on the audience for their own essay,
students in the case study group quickly determined whether
a given web document would be suitable for that audience.
As Mr. Ahern said, "We knew as soon as we went in [to a
given web site] if it would work or not. We might have made
some mistakes, but we knew there was a lot more we could
look at [at other web sites]. We didn't have a lot of time
to look at each source to find out if we wanted to keep
it."

Such a statement might indicate that students who use
the web give only a cursory examination to the discourse
they find there. However, after watching the students work
and listening to their comments during the two research
sessions and the supplementary sessions, it seemed much
more likely that students quickly became adept at
interpreting the information they found and deciding
whether it met their needs. This was more difficult to do
early in the first research session because students were
not familiar with either the Internet or the accepted ways
of conducting discourse on their topics of interest.
Initially, at least, this caused students to spend much more time trying to determine what to make of the information on the computer screen than they did in later sessions.

By the second research session, students in the 9:00 group had conducted additional individual research and were more familiar with their topic. This familiarity, together with a better understanding of their audience, allowed the students to quickly categorize web-based information as either useful or useless for their purposes and to better gauge the importance and utility of reference material that they discovered.

In addition, student participation in a discourse community that extended beyond the classroom encouraged them to continually develop and revise the structure of their own collaborative essay. Finally, students were not looking for quantities of information, since quantity was easy to find on the network -- a great deal of which they discarded; instead, students were looking for quality and suitability of information.

Networks can Expand the Audience Beyond the Teacher

Local e-mail discussion lists that are limited to students in one or two courses are very effective extensions to the discourse communities available online.
These lists allow students to post drafts and to respond to the drafts of others in a relatively safe and moderated environment. Posting drafts online and conducting network-based discussions concerning those drafts is much easier than it is in a traditional classroom where students or teachers must make multiple copies, distribute them to others, provide time to read the drafts, and then allow students to think about and plan responses to the writing.

In a class of fifteen to twenty-five students, such a method of distribution and discussion is very difficult and expensive, so teachers often require student writers to make only two or three copies of a draft and distribute the copies to only two or three students readers. This makes for a very narrow audience that may provide less effective criticism than a draft that is read and discussed by the entire class or at least by a somewhat larger segment of the class.

Working in an electronic community expands the number of readers that a writer can address, and allows students to write for an authentic audience. Students who publish their work on the network quickly begin to understand that their audience consists of many readers beyond the teacher. Writing for an authentic audience is something that many composition teachers try to encourage their students to do,
though in practice it is, as Ms. Caprio explained in Chapter Three, a very difficult concept to teach since many students continue to write exclusively for the teacher.

Students who enroll in Internet Emphasis English courses may write more than students in traditional composition classes, although that was not one of the variables under study in the present research. Students in the two courses under study were required not only to electronically publish their own work, they were required to respond to essays published by their classmates. Again, while the length or frequency of these responses was not a variable under study, the thirty students who completed the two courses sent well over one-hundred e-mail messages to their teacher and to other students in each class. Many of these messages were lengthy and detailed responses to essays that their classmates had posted electronically.

Technology as a New Literacy

Perhaps one of the most important reasons that some teachers believe it is important to teach computer and Internet technologies to their students is because they see these technologies as part of a new and very important emerging literacy of the kind described by Cynthia Selfe (1989). If electronic communication becomes as widespread as some theorists believe, all of our students will need to understand the "new grammars," as Selfe describes them (6-
7) and be able to use these technologies in the years to come. As Ms. Caprio said during our post-semester interview:

I don’t want to overstate it, but this kind of technology, this kind of rapid advance of technology has got to be in some ways analogous to Gutenberg’s printing press. It just has so altered so many parts of our lives, and certainly academic life, I just thought, I need to know it, my students need to know it. I don’t have to teach them how to read a book, but I do have to help teach some of them this... They have to get the technology, because they’ll have to have it.

Like many others, Ms. Caprio has, during the past several years, developed the sincere belief that these new computer and network technologies are part of a new mode of communication that will certainly never supplant the book, but may one day become nearly as important as the book. Technology is not usually a component in the traditional first-year English composition class, although many scholars already mentioned believe that it will be within a few very short years.

4.6 NEED FOR FURTHER RESEARCH

This study points to the need for additional research as computer and electronic communication technologies become more common in English composition courses. While the challenge for composition researchers will be to keep abreast of rapid technological change, this study points to the need for additional research in several key areas.
Influence of the Internet on Student Writing

Perhaps the most important research that should be undertaken is a formal examination of the differences between composition courses that emphasize Internet use and control groups comprised of more traditional composition courses in which Internet use is not required. Researchers may examine issues such as the differences, if any, in the amount of writing students produce in experimental and control courses, or in the quality of writing that students produce.

While most research that examines the influence of computers on writing shows little qualitative difference in the writing of students who use computers and the writing of students who do not, those studies have usually focused only on the use of word processors, grammar checkers, or style guides. At this time, there simply are no studies that examine the influence of the Internet on writing quality.

It will also be necessary to examine the nature and quality of reference material that students in experimental and control groups collect in support of their essays. Again, studies of this kind must focus upon the influence of Internet technology since this kind of communication may represent a revolutionary difference in the way students conduct research.
Influence of Web Page Design on Students

Case study participants in the current study could quickly determine whether a given World Wide Web page deserved an in-depth analysis. Analysis of videotapes show students moving from Web page to Web page very rapidly. When students discussed the reasoning behind their quick decisions, they pointed to a number of important influences. Some of these are easy to understand. For example, if a page contained many examples of obvious bias, students moved on to another World Wide Web location. The same was true if the language on a page was inflammatory or directed toward an audience that was either so immature or so advanced as to be useless for the group’s chosen audience.

Somewhat more difficult to understand is the influence of graphical content on students as they examined various World Wide Web pages. Students in the current study reported that “cartoonish” or childish graphics often provided the kind of first impression that caused them immediately move on to other sources. This result points to the importance of graphical content as an influence on student perceptions and decision-making processes.

This result also squares with the notion advanced by William Costanzo (1994), Cynthia Selfe (1989), and Ron Fortune (1989), that technology creates new layers of
literacy that our students will encounter and likely use. One important area of research that should be undertaken is that which explores the influence of Web-based visual representations on student decision-making and research processes. While the influence of graphics is an important component of many document design courses, many of these courses do not specifically examine Internet-based resources or the kinds of animated graphics that are frequently embedded in World Wide Web pages.

Of course, studies of this nature must examine more than just visual representation. Also required will be an analysis of how World Wide Web page organization and ease of use combine with visual representation to influence students.

Influence of Internet Commercialism

One area that the current study does not examine, but which is nevertheless extremely significant is the influence of Internet commercialism on students. Many World Wide Web pages exist solely as advertisements for their sponsors, although frequently the advertising is not overt. This is somewhat akin to television infomercials that pose as news or talk shows, but are designed primarily to sell a product or service. Because the Internet is a multinational resource, it is difficult for any government to impose strict advertising regulations, so some of the
advertising methods are exceedingly clever and manipulative.

Because the number of people who use the Internet is large and growing every day, corporations large and small are beginning to understand the importance of the Internet as a commercial tool, and some of them exploit that tool relentlessly. It is becoming increasingly common to find advertisements on World Wide Web pages. Even search engine pages routinely post many advertisements to which students will be exposed as they conduct research for their writing assignments.

If students will be routinely exposed to this level of commercialism as they conduct research for college writing assignments, it is important that studies be conducted to determine if this commercialism adversely affects students or the writing that they produce for their composition courses.

4.7 CONCLUSION

The new grammars of computers and electronic communication described in the current study can be used successfully in the first-year English composition course, although they come with their own set of problems and concerns. Teachers must carefully consider how they wish to use technology to advance their pedagogical goals since a careless use of computers and electronic communication
can unfairly restrict and inhibit students. This becomes more important when we recognize that technology is being used in more English composition classrooms with each year.

However, a properly designed course can be helpful for students. If this use of technology is something that students want, if it is something they find useful, perhaps this will enable even our most reluctant students to more thoroughly reflect upon and understand the relevance and importance of the English composition courses in which they enroll.
BIBLIOGRAPHY


Daiute, C. "Do 1 and 1 make 2? Patterns of influence by collaborative authors." *Written Communication* 3 (1986): 382-408.


Hawisher, Gail E. "Research and Recommendations for Computers and Composition." In Critical Perspectives


Purdue University Online Writing Center. http://owl.trc.purdue.edu/.


APPENDIX A

To Ms. Caprio's 1002/1003 students:

The purpose of the Internet study is to determine how Freshman English students use computer resources at LSU to aid in completing writing assignments. This information will be used in my dissertation. To aid in this research, I would like to ask students in Ms. Caprio's 1002 and 1003 classes to participate by doing the following:

1) Keep a short weekly log that details how much time you spend working on your Decision-Making. The information that you provide will allow me to make a reasonable estimate of the amount of time it takes you to discuss, research, write, and revise a college-level essay. The log will also allow me to estimate the relationship between computer vs. non-computer preparatory work in which you engage. Please take a look at the logs that I will distribute today; they are very short and will not require you to spend much time filling them out.

2) Allow me to have a copy of your completed Decision-Making kit and a copy of your Position Essay that you will write after you finish the Decision-Making Kit.
All information that I gather will be completely confidential. Though your essays may be examined by a group of LSU faculty and teaching assistants, only copies from which your names have been removed will be examined. In addition, no person except for me will see any of the work you provide until next semester. You will not have to make the copies for me - I will make the copies after Ms. Caprio has collected them from the class.

In return, I will do this for you (though I am well aware that this isn’t much):

1) If you will give me a one-day notice, I will make a laser printout of both your Decision-Making Kit and your Position Essay. You will need to save your file to a virus-free 3.5" IBM formatted disk. My computer can read most modern versions of word processing software (most versions of Word for Windows, WordPerfect 5.1 or later, or Lotus WordPro 95). If you have a different word processing program, check with me because I can convert that to a format that I can use to print. The same is true if you use a Macintosh; I can probably convert to a usable format, but check with me.
2) I will open the Writing Center on several late afternoons or evenings while you are working on your Decision-Making Kit and your Position Essay. This is time that the Center will be reserved exclusively for your use. You may use the computers to research or write drafts of your work, or you may use the conference rooms to discuss your work with others in your group. I will pass around a sign-up sheet so that I can get a sense of the best times to open the Writing Center for you. If you have conflicts in the late afternoon or early evening, but would still like to use a computer, please call me at 388-4439 and I’ll reserve a computer or a conference room for you during the day.
APPENDIX B

Please respond to the following questions. This questionnaire takes about 5 to 7 minutes to fill out. Your responses will be used to provide data for a research project that examines the Internet Emphasis English courses at LSU.

1) What is your classification? ____Freshman
   ____Sophomore  ____Junior  ____Senior  ____Other

2) Why did you enroll in an Internet Emphasis English course? (check all that apply) ____I want to use and learn about the Internet.  ____Course time was convenient for my schedule.  ____Someone recommended this teacher.  ____Someone recommended an Internet Emphasis course.  ____I did not know that this was an Internet Emphasis course.  Other: ________________________________

3) Before you came to LSU, did you have: (check all that apply)  ____a home computer?  ____access to online services (Prodigy or AmericaOnline, for example)?  ____access to the Internet?

4) While at LSU, do you have: (check all that apply)  ____your own personal computer?  ____access to a friend’s computer?  ____access to another computer that is not provided by LSU?  ____access to online services?

5) When you use a computer, do you: (check all that apply)  ____use your own computer?  ____use a friend’s computer?  ____pay to use a computer at a local copy or office center?  ____use a computer at one of LSU’s computer facilities?  ________________________________other.
6) Describe your familiarity with the use of computers:
   ___ Novice -- You know how to turn it on, but not a whole lot more.  ___ Intermediate -- You are familiar with a few software programs, (for example, you can type and print a paper), but not a great deal more.  ___ Expert -- You understand various operating systems, and you can "tweak" a machine to get the most out of it. People come to you with questions about computers. You are able to take advantage of the advanced options in many software programs.

7) Describe how well you understand the Internet:
   ___ Novice -- You have not used the Internet at all, or very little.  ___ Intermediate -- You have sent a few E-Mail messages, and have browsed the Web, but you believe there is a whole lot more there that you can't find.
   ___ Expert -- You use E-Mail and browse the Web frequently. You know how to get around on the Web, and understand the options available with the different search engines. People ask you questions about how to get around on the Internet.

8) Before you enrolled in an Internet Emphasis English course, how many hours each week did you use the Internet, either for E-mail or World Wide Web browsing?  ___ None at all  ___ 1/2-2 hours  ___ 2-4 hours  ___ 4-6 hours  ___ more than 6 hours

9) Do you believe that colleges should try to train students to use computers?  ___ Yes  ___ No
   Why?_____________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
10) Do you believe that colleges should try to train students to use the Internet and other forms of electronic communication?  ____Yes  ____No

Why?________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

11) What do you expect to gain from an Internet Emphasis 1002 or 1003 course that you would not expect to gain from a traditional Composition course (where the use of the Internet is not required)?
APPENDIX C

RESEARCH RELEASE

By signing this statement, I allow Michael McCord access to the writings associated with the Decision-Making Kit assignment. This includes the completed Kit itself, as well as the evaluations that are a part of the assignment. I also allow Michael McCord access to the Opinion Paper that follows this unit. You are assured that these materials will be used only for analysis and will not be shared with your teacher. When these papers are analyzed by a group of faculty in the Spring semester, the papers will not have your name on them. In addition, any reference to the students in this class - including the case study students - will be by pseudonym in my dissertation. I assure you that these documents will be held completely confidential until you receive your final grade for this course, and also that you will have complete anonymity after the course is completed.

Thank you for participating.

Mike McCord

(Signed)_____________________________________

(Date)__________________________
APPENDIX D

1002/03 Research Portfolio Assignment

For this assignment, you will work in groups to create a portfolio of information on the topic which your group selects. Your ultimate goal is not to take a side, but to present a thorough and balanced portfolio of information on the issue.

Your intended audience is a reader who will have to take a stand on the issue and write a paper supporting that stand (which, coincidentally, is what you will do as your next writing assignment).

You should neutrally present a balanced variety of materials. Include charts, statistics, quotations from experts, examples and any other material you think would be useful in making a decision. You must document sources (see your handbook and the packet for electronic citation information). Remember that when you use the Internet for research, you have to look carefully at the sources for reliability. We’ll talk more about this issue in class.

You will have two and a half weeks to do your research and to write your final draft, and I will allocate class time to the project since it is group work. However, you will probably have to get together outside of class, also. After you’ve chosen your issue, you should establish a time line for research, revision, and editing. Remember that writing collaboratively cannot be done “the night before.”

If you want to reserve a computer in the Writing Center for your group, call 388-4439 and explain that you are in my class, doing an Internet project, and have been told to call ahead to reserve a computer. The Center is open on Monday and Wednesday nights from 6:30-8:30 as well as during the class day.

This assignment requires at least three Internet sources.
APPENDIX E

Decision-Making Kit Log -- WEEK 1

Please log the amount of time in minutes you spent in the following activities. NOTE: Please include ALL times you spend in the following activities, even if you work on or discuss your topic with friends or roommates who are not in your group. However, please do not include transportation time if you must drive or walk to campus to work on the assignment. I will collect the completed log for the first week on Tuesday, October 22.

Discussing the assignment (Include all discussions except those that will be included in "Planning.")

using E-mail:_____ minutes
in face-to-face meetings:_____ minutes

Planning the assignment (Outlines individual responsibilities; determines how to use research results; plans the shape and content of the Decision-Making Kit.)

using E-mail:_____ minutes
in face-to-face meetings:_____ minutes

Researching the assignment

using E-mail:_____ minutes
in interviews:_____ minutes
at the library:_____ minutes
on Usenet Newsgroups:_____ minutes
on the World Wide Web:_____ minutes
using other computer resources:_____ minutes
using print resources like books, magazines, journals:_____ minutes

Writing the assignment

in longhand:_____ minutes
on a computer:_____ minutes
writing the first draft:_____ minutes
revising the first draft:_____ minutes
other drafts:_____ minutes
revising other drafts:_____ minutes
final draft:_____ minutes
revising the final draft:_____ minutes
Conferences

How many minutes (out of class) did you spend discussing this assignment with your teacher:

Using E-mail? _____ minutes
In person? _____ minutes

Briefly describe any problems you had using computers and/or the Internet during this week.

If applicable, briefly describe how using computers and/or the Internet made your work easier, more thorough, or more rewarding than past assignments for which you did not use these technologies.

Please make additional comments or voice concerns on the back of this page.
APPENDIX F

Decision-Making Kit Log -- WEEK 2

Please log the amount of time in minutes you spent in the following activities. NOTE: Please include ALL times you spend in the following activities, even if you work on or discuss your topic with friends or roommates who are not in your group. However, please do not include transportation time if you must drive or walk to campus to work on the assignment. I will collect the completed log for the second week on Tuesday, October 29.

Discussing the assignment (Include all discussions except those that will be included in “Planning.”)

using E-mail: _____ minutes
in face-to-face meetings: _____ minutes

Planning the assignment (Outlines individual responsibilities; determines how to use research results; plans the shape and content of the Decision-Making Kit.)

using E-mail: _____ minutes
in face-to-face meetings: _____ minutes

Researching the assignment

using E-mail: _____ minutes
in interviews: _____ minutes
at the library: _____ minutes
on Usenet Newsgroups: _____ minutes
on the World Wide Web: _____ minutes
using other computer resources: _____ minutes
using print resources like books, magazines, journals: _____ minutes

Writing the assignment

in longhand: _____ minutes
on a computer: _____ minutes
writing the first draft: _____ minutes
revising the first draft: _____ minutes
other drafts: _____ minutes
revising other drafts: _____ minutes
final draft: _____ minutes
revising the final draft: _____ minutes

188
**Conferences**

How many minutes (out of class) did you spend discussing this assignment with your teacher:

Using E-mail? _____ minutes  
In person? _____ minutes

Briefly describe any problems you had using computers and/or the Internet during this week.

If applicable, briefly describe how using computers and/or the Internet made your work easier, more thorough, or more rewarding than past assignments for which you did not use these technologies.

Please make additional comments or voice concerns on the back of this page.
APPENDIX G

Decision-Making Kit Log -- WEEK 3

Please log the amount of time in minutes you spent in the following activities. NOTE: Please include ALL times you spend in the following activities, even if you work on or discuss your topic with friends or roommates who are not in your group. However, please do not include transportation time if you must drive or walk to campus to work on the assignment. Since your work on this assignment will conclude this week, I will collect the completed log for the third week on Thursday, October 31 instead of next Tuesday.

Discussing the assignment (Include all discussions except those that will be included in “Planning.”)

using E-mail: _____ minutes
in face-to-face meetings: _____ minutes

Planning the assignment (Outlines individual responsibilities; determines how to use research results; plans the shape and content of the Decision-Making Kit.)

using E-mail: _____ minutes
in face-to-face meetings: _____ minutes

Researching the assignment

using E-mail: _____ minutes
in interviews: _____ minutes
at the library: _____ minutes
on Usenet Newsgroups: _____ minutes
on the World Wide Web: _____ minutes
using other computer resources: _____ minutes
using print resources like books, magazines, journals: _____ minutes

Writing the assignment

in longhand: _____ minutes
on a computer: _____ minutes
writing the first draft: _____ minutes
revising the first draft: _____ minutes
other drafts: _____ minutes
revising other drafts: _____ minutes
final draft: _____ revising the final draft: _____ minutes
Conferences

How many minutes (out of class) did you spend discussing this assignment with your teacher:

Using E-mail?_____ minutes
In person?_____ minutes

Briefly describe any problems you had using computers and/or the Internet during this week.

If applicable, briefly describe how using computers and/or the Internet made your work easier, more thorough, or more rewarding than past assignments for which you did not use these technologies.

Please make additional comments or voice concerns on the back of this page.
APPENDIX H

Physician-Assisted Suicide Examined

By:

Diane Crawford
Carol Curry
Jody McCracken
Cathryn Anderson

English 1002
Ms. Capprio
October 31, 1996
Introduction.......................................p.1
Jody McCracken

Popular Opinion Throughout the Ages. ..............p.1
Jody McCracken

Arguments for Assisted-Suicide. ...................p.3
Diane Crawford

Arguments Against Assisted-Suicide. ...............p.4
Cathryn Anderson

Religious Views on Euthanasia. ....................p.7
Carol Curry

Physicians' Views on Euthanasia. ..................p.8
Carol Curry

Conclusion........................................p.8
Cathryn Anderson
Introduction

Physician-assisted suicide has been one of the leading controversies of our time. Also, called Active Voluntary Euthanasia, it is defined as a doctor providing the drugs and assisting the suicide of a dying patient at their request. Euthanasia, from the Greek eu (well) and thanatos (death), is defined as "help with good death." (Humphry and Wickett p.1) It is legally vague, but useful as a broad descriptive term. There are many people who argue that euthanasia and physician-assisted suicide are two very different things. They say assisted suicide is voluntary and euthanasia is involuntary (a doctor secretly slipping a little extra morphine to a terminal patient in a coma.) For the purpose of this paper, we are going to use euthanasia as the broad descriptive term for suicide. In this informative paper, we will discuss ancient and recent opinions, pros and cons, and experts' opinions of euthanasia.

Popular Opinion Through the Ages

Since the beginning of history our acceptance of euthanasia has changed many times. Aristotle believed that "to kill oneself to escape from love or poverty or anything else that is distressing is not courageous." (Humphrey and Wickett p.) He thought of suicide as an offense against the state. Greek society, on the other hand, embraced the idea. They viewed illness as a kind of curse. Socrates believed that painful disease and suffering was a good reason not to cling to life. The Stoics embraced suicide when life was no longer in accordance with nature because of pain, grave illness or physical abnormalities. In Rome, suicide was punishable if it was not rational. The ending of one's life because of terminal illness was considered a good cause.

From the 2nd and 3rd Centuries until the 14th century, Christianity took over. Suicide was denounced and physician guilds and medical schools followed laws laid down by the church. Doctors were not allowed to put people out of their misery. Any person who took their own life was denied a Christian burial. Instead, the body was impaled by a stake.

\[2\] Unless otherwise specified, all information contained in this section comes from Humphrey and Wickett.
and placed by the highway. St. Augustine argued that suicide was against the 6th commandment: Thou shalt not kill.

During the next two centuries, scientific discoveries began to replace myths and superstitions. Scientifically, "easy death" was ideal. Catholics and Protestants held on to their beliefs. However, suicide was no longer an inexpiable sin. In 1516, Sir Thomas More wrote Utopia, which depicted an ideal society in which voluntary euthanasia was officially sanctioned.

By the 18th century, a few members of the medical profession began speaking of their responsibilities to their patients. They preferred a natural and humane way of dying. Also, by this time, the public had become more informed and had their own views of life and death. A supportive attitude toward suicide surfaced publicly. 18th Century rationalists believed that suicide was an intensely private act and should not be seen as a monstrous crime.

In the 19th century, Nietzsche spoke of the thought of suicide as "a strong consolation . . . one can get through many a bad night with it."(Humphrey and Wickett p.) Physicians and philosophers spoke of a person's right to decide for himself. They believed that man should be in charge of his environment. They thought that a life with persistent and unrelenting pain was not worthy and demanded
a merciful release. In 1873, L. A. Tollemache wrote an article making a strong plea for the legalization of voluntary euthanasia.

By the 1940's, interest in legalizing euthanasia had greatly increased for two main reasons: there were doctors who were willing to speak publicly about their responsibilities to the dying patient, and the growing number of court cases in England and America since 1920 that involved around mercy killings. In 1939, the American Institute of Public Opinion asked people, "Do you favor mercy deaths under government supervision for hopeless invalids?" Forty-one percent said yes and 48 percent said no. Fifty-three percent of doctors voted in favor and 47 percent opposed.

During the 1920's Germany began lebensunwerten Leben, meaning "life not worthy of life," which gained government approval. As a result, this provided the rationale for the Nazi practice of murdering the handicapped. Since this was improperly labeled "euthanasia," it has affected the meaning of good death.

Presently there are 20 states that have no legislation specifically criminalizing assisted suicide and 28 states that have statutes barring assisted suicide. Oregon and Washington have legalized it under certain guidelines. Dr. Jack Kevorkian is the most well-known physician who assists
suicides. To date, the doctor has admitted to assisting in 43 suicides. He has been to court many times. His cases have been dismissed or he has been acquitted by a jury every time.

**Reasons for Legalizing Physician-Assisted Suicide**

The question of whether or not to legalize physician-assisted suicide is a question of whether or not to offer terminally ill patients "aid-in-dying." The Ninth Circuit Court of Appeals found a "liberty interest in determining the time and manner of one's death." The court decided that "these matters, involving the most intimate and personal choices a person may make in a lifetime, choices central to personal dignity and autonomy, are central to the liberty protected by the 14th Amendment." Dr. Grifford-Jones believes that suicide also others, challenge the states' interests, and promote a society of changed values.

According to Judge Reinhardt of the Ninth Circuit Court of Appeals, there is "a constitutional right to physician-assisted suicide for the terminally ill." There are a few problems with this. First of all, it is

---

¹ Unless otherwise specified, all information in this section comes from "Frequently Asked Questions."

discriminatory. According to the 14th Amendment, everyone is given the same constitutional rights. This right would be limited to people with terminal illnesses, which is not even a legal category. "Constitutional rights arise by virtue of citizenship, not circumstance." Another problem is that this would not be a guaranteed right. All civil rights are guaranteed and protected by the constitution. Any doctor who refuses to aid in a patient's suicide would be guilty of denying that person their "right-to-die."

In order for physician-assisted suicide to be a fundamental right, it must be offered to every citizen and it must be guaranteed. Doctors must be forced to assist in killing anyone who gets through the red tape. This interferes with the doctors' rights if not with their personal morals and ethics.

Even if it were not to become a basic right, simply making it legal would put us in the same position. "The subjective nature of the criteria for determining who would be eligible for assistance makes legislating this area impossible." If aid is offered to one, can it be denied

---


another: If one method is used, why not another? The "slippery slope" will be inevitable if physician-assisted suicide is legalized, and especially if it is developed into a right. The Dutch example proves this statement. In 1973, physician-assisted suicide became unpunishable in the Netherlands. Now, in 1996, physicians and even nurses practice "involuntary euthanasia" for a wide variety of reasons. The German example should also be heeded.

It is this acceptance of induced death that will have the greatest impact on society. "Legalization of physician-assisted suicide/euthanasia requires a fundamental and drastic realignment of all codes of ethics." Our society would develop a fatalistic outlook of death. We would cease to attach any positive value on adversity. "It's easier to kill than cure, or even care." "The character of a helping society would begin to disintegrate"

Many people argue that legalizing euthanasia would result in the coercion and killing of people who do not rationally choose to die but rather feel compelled to spare society or loved ones. "Given growing pressures to contain medical costs and prevailing social attitudes, if assisting

---

^ Leo, John, "Judges 1, people 0", U.S. News and World Report, v.120, March 25 '96, p. 21
suicide is legalized, many terminally ill patients will be led to feel they are burdens and have a duty to die."

Physicians would determine who has a low quality of life and should be helped to die. According to recent studies, 88% of those with disabilities or terminal illness rated their lives as "average or better." This number is roughly equivalent to the statistics of able-bodied Americans. In fact, disabled citizens already resent the fact that everyone assumes they should have a special "right" to die. There are organizations were they defend their right to live and reject what they see as a duty to die.

Many people argue that euthanasia should not be offered to patients because there is no need for it in the context of today's society. They hold this belief for two reasons: patients who opt for suicide are depressed, and medical advances are being seriously undermined. Many experts believe that almost all terminally ill patients who desire suicide suffer from clinical depression. Depression can be treated regardless of whether the person is terminally ill or not. We should not offer counsel and support to healthy suicidal people, and offer to kill

"Why We Shouldn't Legalize Assisting Suicide, Part III: What About the Terminally Ill." http://www.nrlc.
suicidal patients. Also, pain and suffering should not be an issue. Medical advances have created effective pain management techniques. "Tragically, pain control techniques that have been perfected at the frontiers of medicine have not become universally known at the clinical level."
"Current medical practice, not capability, is failing." We are on the verge of better end-of-life care for patients both physical and mental. Accepting euthanasia as an easy option may end this.

**Religious Views on Voluntary Euthanasia**

When people were asked the question of where they thought the main opposition to voluntary euthanasia came from, the majority of people polled answered the Church. Actually, the main opposition comes from the hierarchy of the Roman Catholic Church and other churches on the "religious right." The united Church of Christ, the Unitarian Church, and the Methodist Church on the west coast of America officially support the principle of voluntary euthanasia for the terminally ill. These few churches are the only ones listed that have an official position on voluntary euthanasia. Most churches and religious groups take no official position and simply leave it up to the individual to choose their own position. This is due to the confusion associated with some religions' reasons for accepting or rejecting voluntary euthanasia or
even suicide in general. An example would be the position
Christian theology lends itself to arguments in favor of
suicide. To begin with, suicide is not specifically
prohibited in the Bible without some interpretation. In
fact, the many people that have committed suicide in the
Bible were not condemned for it. [Consider, the passage in
I. Samuel which describes the deaths of Saul and his
armor-bearer in the battle against the Philistines. Here,
they committed suicide by falling on their swords after all
hope of victory was lost. One other example would be that
Judas is said to have hanged himself by a halter (Matthew
27:5) because of his remorse over the betrayal of Jesus. In
neither case were there any punishments given by god.] This
contradicts how suicide is judged as a crime against God
and therefore a sin. A few analogies were found: Birth is a
gift from God and so is death, The human being is the child
of God and should try to obey his Father in all things.
These analogies remain the major religious arguments used
by those opposing voluntary euthanasia.

Physicians' Opinions on Assisted Suicide

There are many different sides to be taken when the
question of euthanasia is brought to the feet of the
medical profession. Some polls taken have indicated that
doctors have been practicing physician-assisted suicide for
sometime now. The frequency of occurrences is unknown, but certainly not rare. Almost 90% of currently practicing physicians admit to taking part in voluntary euthanasia on justifiable occasions even though it is considered a crime in almost every state. The many doctors just spoken of that support and practice physician-assisted suicide do so without openly advocating a change in the legal treatment of the practice. This secret support of physician-assisted suicide is probably due to the American Medical Association's attitude toward the subject. The AMA, as well as other leadership of professional medical associations, are adamantly opposed to physician-assisted suicide. Furthermore, the AMA establishes the Code of Ethics for the medical profession, and one of the fundamental principles of that code is that physicians must not act with the intent of causing the death of their patients. Yet the AMA also says that it is ethical for a doctor to provide effective pain medication, even if that medication hastens death. Those two statements may seem to contradict each other, but some believe that they give each physician room to make their own decisions on physician-assisted suicide.

Conclusion

Although this issue may seem like it has only two sides, it is really much more complex. There are those who

6 All information: Deathnet
believe physician-assisted suicide should never be practiced at all, there are those who oppose it because of their values but do not wish to force their opinions on anyone else, and some believe it should be an option open to everyone. Still others believe it should be legalized and highly regulated. And who will legalize it? Is this a state or national issue? Should it stay as it is? This issue will not stand idle. It is a decision that could change the face of society. It is also a matter of personal rights. It is important to become informed on this issue so that we can make a decision as a nation.
APPENDIX I

Decision-Making Kit

by

John Ahern
Janet Lasky
Mark Hellwig
Tanya Smith

English 1003
Mrs. Caprio
31 October 1996

206
# Table of Contents

Introduction.......................................3  
Arguments for Unrestricted Genetic Research........4  
Arguments for the Abolition of Genetic Research...5  
Arguments for Restriction..........................6  
Conclusion........................................7  
Bibliography.......................................8  

Supporting Material

"Medical Ethics".....................................9  
"Regulation of Genetic Engineering"...............19  
Selections from "The Manifesto".....................24  
"The Advent of Genetic Engineering".................26  
"The Hedonistic Imperative"........................27  
"The Dog Genome Project"............................29  

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Unraveling the DNA Controversy

Introduction

Imagine a world where every organism is a product of genetic manipulation. Physical and psychological characteristics appear by choice, not chance. Each organism is extensively planned to achieve desired traits. Such a world would be considered a Utopia to some, but to others, a living hell.

The above scenario may soon be possible because of advances in genetic sciences. "Genetics is the science that studies all aspects of inherited characteristics. Genetic engineering is the application of the knowledge obtained from genetic investigations to the solution of such problems as infertility, disease, food production, waste disposal and improvement of species." (Medical Ethics, pg. 52)

This relatively new science has its roots in the experimental conclusions of Gregor Mendel. He determined the patterns of inheritance among pea plants which eventually led to the discovery of chromosomes, the fundamental unit of our genetic makeup. Watson and Crick took genetics much further when they determined the structure of DNA. (Campbell, pg. 284)
With this knowledge from the past we now embark upon the quest of determining what each structure in a DNA sequence is responsible for and how it can be altered to benefit mankind. With these advances comes the benefit of better crops, the eradication of genetic diseases, and safer ways to dispose of toxic contaminants.

This ability however, inevitably faces corruption by society. This science can be used to give people the advantages over others in school, sports, and other aspects of daily life. There also exists a faction which strives for the balance of this power through regulation standards set forth by the government or the scientific community. It is therefore necessary for all aspects of the issue to be addressed before a definite opinion can be obtained.

The arguments for unrestricted genetic research

The most obvious support for further unrestricted genetic research stems from the multitudes of benefits which accrue from it. Genetic engineering can be used for everything from improving food to treating genetic disease. Proponents of unrestricted research oppose further regulation because they feel that their research is already restricted. First, scientists simply don't have the funds to accomplish the research required for activities such as
full human cloning. Also, the federal government already has laws which apply to all scientific experiments. Those experiments which are potentially harmful to society are not approved. ("Regulation of Genetic Engineering", pg. 1)

Scientists feel that the risks involved in genetic engineering are negligible. They argue that they determine what the DNA strands code for before inserting them in another organism, therefore guaranteeing that unwanted traits are not be introduced.

Traditional breeding methods can't prevent the passing on of genes like genetic engineering can. Scientists also know that manipulating a few genes won't cause a drastic change in an organism. These mutations occur randomly in nature anyway. Scientists claim that they only speed up natural selection and use their discoveries to benefit society. ("Regulation of Genetic Engineering, pg. 2")

One example of how genetic engineering is being used today is in the ongoing research of scientists at Rockefeller University to regrow brain cells. Unlike most other cells of the human body, human brain cells cannot reproduce. Some birds have the ability to regrow brain cells. By studying the genetic link between the bird brain cells and human brain cells, these researchers could
possibly counter the affects of diseases such as Parkinson's or Alzheimer's disease. ("Genes Therapy and the Concept of Genetic Disease, pg. 1")

**Arguments for the abolition of genetic research**

There is opposition of genetic engineering for a variety of reasons. Genetic engineering goes against the doctrine of some people's religion. Others feel that experiments will get out of hand or that "a non-pathogenic organism could be converted to a pathogenic one." ("Regulation of Genetic Engineering", 2)

One public figure who opposes genetic research is Ted Kaczynski. As outlined in his manifesto, he feels that through correcting a corrupted gene, the process of natural selection is neutralized. With its deactivation, the corrupted gene is spread throughout society. This spreading of corrupt genes has already occurred. For example, diabetics are treated with insulin supplements. Pituitary dwarves also rely on genetically engineered supplements to maintain normal function. If the correction process is ever found to be faulty, it is too late, for the corrupt gene has already been passed on. (Kaczynski, para. 121-124)

Along with genetic alterations comes the introduction of new species into the environment. If the environment is
not prepared for such an invasion, then the results could be disastrous. When Hawaii was discovered, rats and pigs were brought from their original environment to this newly discovered land. These creatures competed with native animals for food and territory. Some unique species suffered from what was not originally taken into consideration. Many people believe that the same could happen with genetic manipulation. ("Genes Therapy and the Concept of Genetic Engineering", pg. 2)

**Arguments for restriction**

There are those who feel that genetic engineering has its benefits, but also realize its potential for danger. This group of people is in favor of regulated genetic engineering. The idea of further restricting genetic experiments brings up several questions. Who will regulate? What will these guidelines be?

Australia is tangling with this problem. Their research is controlled by both the National Government and their territorial governments. The conflict between the two causes experimentation to be more costly and time consuming. ("Regulation of Genetic Engineering", pg.4)
Conclusion

Do the benefits of genetic engineering outweigh its repercussions? Should it be eliminated because it is too risky? Should genetic engineering be allowed, but restricted by the federal government? Even with thorough discussion and debate, we may never reach a unanimous decision on how to unravel the DNA controversy.
Bibliography


"Regulation of Genetic Engineering": n.pag. Online.
Internet. 15 Oct. 1996. Available

Internet. 22 Oct. 1996.
http://mendel.berkeley.edu/dogs/manifesto.html.
VITA

Michael A. McCord was introduced to Rhetoric and Composition by a couple of great teachers at Scott Community College: Dr. Dan Morgan and Mark Newman. Mark took Michael to visit the Writing Center at the University of Iowa where he had a chance to meet Dr. Lou Kelly. Lou was Michael's mentor during the remainder of his undergraduate years at Iowa, and for most of the time that he was a graduate student in the Master of Arts program there. Lou Kelly inspired many of her students over a long and distinguished career, and Michael was no exception. After studying with Lou for a couple of years, he knew there was no other career that could interest him as much as Rhetoric and Composition. He continues to teach college composition courses, as well as technical writing and business writing courses. In addition, Michael teaches in the Writing Center at Louisiana State University.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Michael Allen McCord

Major Field: English

Title of Dissertation: Technology in the English Composition Classroom: Freshman Composition Students Using the Internet to Plan Assignments and Conduct Research

Approved:

[Signature]
Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

May 12, 1997

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.