Graduate Theses and Dissertations   Graduate School

8-1999

Literacy, Technology, and Change: The Gates of Hell

Janice R. Walker
University of South Florida

Graduate School
University of South Florida
Tampa, FL

CERTIFICATE OF APPROVAL

_____

Ph.D. Dissertation

_____

This is to certify that the Ph.D. Dissertation of

JANICE R. WALKER

with a major in English has been approved by
the Examining Committee on March 23, 1999
as satisfactory for the dissertation requirement
for the Doctor of Philosophy degree

Examining Committee:

_____
Major Professor: Joseph M. Moxley, Ph.D.

_____
Member: Philip J. Sipiora, Ph.D.

_____
Member: Nancy Jane Tyson, Ph.D.

_____
Member: Jack B. Moore, Ph.D.

LITERACY, TECHNOLOGY, AND CHANGE: THE GATES OF HELL

by

JANICE R. WALKER

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
Department of English
University of South Florida

August 1999

Major Professor: Joseph M. Moxley, Ph.D.

Table of Contents

LITERACY, TECHNOLOGY, AND CHANGE: THE GATES OF HELL

by

JANICE R. WALKER

An Abstract

Of a dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
Department of English
University of South Florida

August 1999

Major Professor: Joseph M. Moxley, Ph.D.

In this dissertation, I first briefly examine the history of technology as it impacts on literacy practices, and especially the history of resistance to technological developments in the humanities. In so doing, I also briefly examine some of the possible ideological underpinnings of this resistance, including looking at some of the arguments proposed to counter it. More specifically, I consider how literacy practices, pedagogical practices, and assessment and gatekeeping practices in the field of composition studies impact on and are impacted by the intersection of computer technologies and our field. Finally, I offer some suggestions for ways in which our pedagogical practices may need to be reconsidered in light of changes in how we communicate.

In particular, I propose guidelines for writing teachers to help negotiate the transitional period between traditional and neo-traditional forms, bridging the gaps between existing standards for producing print documents and as yet undetermined standards required by new forms. That is, I present guidelines that I hope, rather than stifle change, can help guide authors in determining which existing

standards make sense for new new forms, and which need to be
reconsidered, thereby providing the flexibility necessary to
cope with change. Because it is imperative that we consider
the effect of our teaching of writing and reading on the
further development of these technologies, as well as the
effect of further development of these technologies on our
teaching and study of writing and reading, I also suggest
ways we may need to rethink the academy, including the
position of the composition classroom itself.

 Abstract Approved: _____
                    Major Professor: Joseph M. Moxley, Ph.D.
                    Professor, Department of English

                    Date Approved: _____

CHAPTER ONE - THE FIDDLER ON THE ROOF

> *There is a--let us say--a machine. It evolved*
> *itself (I am severely scientific) out of a chaos*
> *of scraps of iron and behold!--it knits. I am*
> *horrified at the horrible work and stand appalled.*
> *I feel it ought to embroider--but it goes on*
> *knitting. You come and say: "this is all right:*
> *it's only a question of the right kind of oil.*
> *Let us use this--for instance--celestial oil and*
> *the machine shall embroider a most beautiful*
> *design in purple and gold." Will it? Alas no.*
> *You cannot by any special lubrication make*
> *embroidery with a knitting machine. And the most*
> *withering thought is that the infamous thing has*
> *made itself; made itself without thought, without*
> *conscience, without foresight, without eyes,*
> *without heart. It is a tragic accident--and it*
> *has happened. You can't interfere with it. The*
> *last drop of bitterness is in the suspicion that*
> *you can't even smash it. In virtue of that truth*
> *one and immortal which lurks in the force that*
> *made it spring into existence it is what it is--*
> *and it is indestructible!*
> <div align="right">--Joseph Conrad, Collected Letters</div>

In the 1997 movie *In and Out*, a young woman, confronted by a telephone dial, stares at it a moment uncomprehendingly before futilely attempting to punch the numbers on the dial with her fingertips. In a sixth-grade classroom, a group of students are taught simple computer-literacy skills (opening files, saving files, etc.) in a hands-on environment. In a written, short-answer exam, however, they are unable to translate these skills into verbal knowledge. According to

the 1997 CIA *World Factbook*, ninety-seven percent of U.S.
citizens over the age of fifteen are "literate," defined as
the ability to read and write. As developing technologies
challenge our basic notions of text, however, the ability to
read and write traditional forms of text may very well be in
the process of becoming anachronistic. As many of us are
already experiencing, the haunting melody of tradition in
the writing classroom must contend with emerging new
strains, often resulting in a cacophony of dissonance.

   Modern technologies are already forcing us to rethink
our assumptions about communicative practices.
Technological change is seen by many as a "Faustian
bargain"--for all that we may gain from it, we lose
something as well (Postman). David Rothenberg, for example,
asserts that the Web is "destroying the quality of student
research papers" (A44). In addition to student papers that
are nothing but "summaries of summaries," he argues,

>   the beautiful pictures and graphs [. . .] inserted
>   neatly into the body of the student's text [. . .]
>   look impressive, as though they were the result of
>   careful work and analysis, but actually they often
>   bear little relation to the precise subject of the
>   paper. Cut and pasted from the vast realm of
>   what's out there for the taking, they masquerade
>   as original work. (A44)

Rothenberg's solution, however, seems to be to turn off the
computer screen and teach traditional reading (and writing),
as if, by so doing, everything else will just go away. The

underlying assumption here, of course, is that traditional forms of text are the crowning achievement of our species and that we must resist any force that threatens them. While it is true--the Internet and the explosion of electronic discourse in our modern world may indeed be destroying our students' ability to communicate in the same way that we do--the term "literacy" itself may need redefining. Technology, then, seems often to be regarded as almost an entity, a force that has somehow created itself, or at least that exists outside our sphere of influence or understanding, leaving us to deal with its effects rather than being responsible for its inception and development. And it is a force that must be actively resisted in order to maintain the status quo.[1] This presumes, of course, that the status quo is worth maintaining--that what *is* is what should be–or that embroidery is somehow better or more desirable than knitting.

On the other hand, proponents of the use of technology in the composition classroom often make virtually the same presumptions as those who argue against it. For example, some people see the use of any kind of technology at all in the composition classroom as beneficial, helping to perfect, or at least facilitate, what teachers already do, while others argue that, by its mere presence, technology can help

to engender a collaborative and democratic classroom. T. W. Taylor, for instance, notes that "The unique perspectives of computer-networked classrooms, because they provide a contrast to traditional environments, can help facilitate [. . .] reexamination [of demographic and cultural groupings]" (124). However, the composition classroom is politically located within a system designed to preserve the status quo (whatever that may be in a particular situation), and, for good or ill, the technologized classroom may unwittingly serve the same conservative forces. Students in the technologized (or "non-traditional") classroom are taught to write and, hence, to value traditional research papers, even though they may use electronic means to produce them. The technologized classroom uses word-processing packages, synchronous or asynchronous discussion software, and electronic research methods, and students may be allowed, or even required, to publish their work on the WWW. But even in those classrooms where students work in non-traditional formats such as MOOs[3], listservs, or Web sites, the goal may still be to help students learn to produce and value the same forms of literacy we always have produced and valued. Take, for example, Virginia Tech's Electronic Thesis and Dissertation Initiative at http://etd.vt.edu, which requires graduate students to publish dissertations electronically, using portable document format (PDF) or Standard Generalized

Markup Language (SGML). When these electronic theses and

dissertations retain traditional print formatting, the only

real difference is that they do not need to be reproduced on

paper; nonetheless, many of these formats are designed to

ensure that they *can* be.

Although many discussions of technology tend to view it

as an either-or proposition--that is, technology is either

lauded as some kind of panacea or deplored as some kind of

demonic entity--others insist that technology is neither

good nor evil in and of itself but is, instead, neutral,

merely a tool whose effects depend on how it is used.

"Today," argues Christina Haas in her book, *Writing*

Technology: Studies on the Materiality of Literacy,

> the personal computer is so much a part of writing
> that writers do not think about how it works, how
> it looks, or where it comes from: Its use has
> become habitual, and the technology itself--like
> pens, paper, typewriters, and maybe even clay
> tablets--has become virtually transparent. (xi)

Technology in the composition classroom, rather than being a

force for change, then, can serve to fix a moment in time,

to fix a certain view of literacy, a view that is often

elitist or, at any rate, static. For example, a student

once told me about his lecture-class instructor, who took

sections out of the textbook and made them into

transparencies--and then read them off the overhead

projector to the students. Many of us have had similar

experiences in the classroom, where "technology" is simply a means of making print texts more readily available. One of the dangers in the computer-assisted classroom, too, is the possibility that this pedagogical model will be retained. Interactive hypertext can allow the student to respond and interact with the text, but technology can be wielded in many ways. Hypertext can also facilitate the use of technology as merely a means of disseminating traditional texts, as nothing more than a means of projecting text onto a screen, rather than as a new medium for communication with its own constructions.

In the sixth century, Lycurgus recognized that writing, itself a technology, could serve to fix usage, and he therefore forbade it. Just as with the invention of the printing press the first books attempted to emulate the ornate manuscripts hand copied by monks, thereby attempting to fix usage rather than inventing a new genre with its own unique style, the first computer word processors in the classroom were used for the most part as expensive typewriters with the added benefit, perhaps, of allowing invisible corrections but not much else. So, too, writing on the World Wide Web often seems to be attempting to fit our preconceived writing style into a new medium. Of course, as we consider the possibilities for writing in a new medium, we must keep in mind that change comes slowly.

In the short run, most WWW documents are still being read by those of us raised and educated in a linear, print-based world. As proof, upon completing their Web pages for a class project, with almost one voice my students asked, "Can I print this out?" It is entirely possible to simply paste print-based text online, and many of us are doing just that. But somehow, it just doesn't quite work. The questions rhetoricians must consider, then, include:

1. Is technology having an effect on what it means to be literate and, if so, what effect is it having?

2. Is this effect, if it exists, one that we can, or should, accept? How can we learn to think critically about new forms of literacy without allowing our preconceived notions of what it means to be "literate" color our assessment?

3. If changes in literacy practices are inevitable, or at least desirable, how can we foster the acquisition of new forms of literacy? How can we (or should we) help shape the development of these new forms?

The myths of technology--seeing technology as demonic, as all-powerful, or as transparent, merely a tool and, therefore, "not our job" (Haas)--are not enough. Instead, we need to see beyond the metaphors and critically examine the ideological underpinnings that prompt technological

developments in the first place, as well as those which
prompt whether and how it is used in the composition
classroom. As Robert Pattison notes, reading "acquires its
dynamic form from the ideological framework in which it is
deployed" (55). And technology, too, is shaped by ideology.
Changes in literacy practices--changes in how we
communicate--necessitate the development of new technologies
of communication, and changes in these technologies of
communication in turn impact how we communicate. Our
pedagogy and the development of technological tools for its
delivery are also a reflection of our culture, of our
ideologies. It is too easy for us to eschew technology in
the classroom as not applicable to what we do--teaching
writing. It is much more difficult for us to look
critically at what "teaching writing" really means in a
technological age. It is too easy to refuse to embrace
technology because it can be used to reinforce current-
traditional paradigms--or because it cannot be. It is much
more difficult to attempt to learn as much as possible about
the technology--about how we use it, how it works, what
assumptions underlie it, and what it tells us about
ourselves and our society--and to look at new ways of
structuring the classroom that make sense in the wake of
changes in literacy practices as well as changes in our
society. It is much more difficult to justify spending

enormous amounts of severely limited resources on computers for the writing classroom when the technologized classroom itself may be antithetical to what we are teaching-- traditional forms of reading and writing.

Implicit in the question most often asked of those who make use of non-traditional media in the modern composition classroom--"Yes, but can it help students learn to *write* better?"--is the presumption that we all know what it means to "write" in the first place, and, in the second place, that we can somehow agree on what constitutes "better" writing. In other words, when we question the efficacy of introducing technology into the classroom, all too often we do not question the form of literacy, only the means of attaining it. My intent here is not to argue that technology can help students write better. As a matter of fact, if by "writing better" we mean producing traditional forms of text, then I am not so sure that it can. Nor is it my intent to argue either for or against the study, teaching, or creation of traditional forms for reading and writing--I am, after all, choosing to write this dissertation in a very traditional format, even though I have considerable experience working in non-traditional forms and even though my Chair has strongly encouraged me to explore new ones. My purpose here, however, is not to

promote a specific view of literacy but, rather, to argue
that we need to consciously and systematically explore how
current conceptions of what it is to be literate may be
limiting our ability to see beyond the present moment and
stifling opportunities for us to actively encourage, resist,
or even recognize changes in literacy practices that are
prompted by or reflected in emerging technologies for
writing and communication. Technology is already having an
impact on our definitions of literacy and, hence, on the
composition classroom and the discipline of composition
studies as a whole, as changing technologies force a
reexamination of what it is to be literate in the modern
world. The introduction of technology into the classroom
thus provides a unique opportunity to look beyond current
conceptions of literacy and pedagogical practices, to look
at how traditional gatekeeping functions may serve to resist
exploration of new or different literacies, and to look at
how the traditional structures of the composition classroom
and the academy may need to be reconsidered as we move into
the next century.

 Changing literacy practices may ultimately necessitate
changes in pedagogical and assessment practices as well as
changes in the methods of instructional delivery.
Developments in technology will likely continue apace
because of interests outside of composition studies.

Business, advertising, publishing, media, government, entertainment, education--all of these special interests, among others, have a stake in how the technologies of communication play out in our society. Failing to be involved in this development, failing to be critically engaged with developments in the technological apparatuses of reading and writing, will only ensure that we are ultimately left in a position of figuring out what to do after the fact rather than figuring out what we want to be able to do.

The speed of change in the last century, as Neil Postman notes, has been dizzying. In little more than half a century, he says, television has already created a "new kind of America," altering the very fabric of our lives, and we now find ourselves situated in the midst of fundamental changes in how we communicate, changes that may affect our lives in ways we cannot yet begin to imagine. The proliferation of articles and books in recent years declaiming the effects of technology on students' literacy skills--from the 1975 *Newsweek* article, "Why Johnny Can't Read," to current declamations such as Rothenberg's "How the Web is Destroying Student Research Papers"--represent proof that, indeed, the very fabric of our profession is at stake. On the other hand, the proliferation of books and articles

that argue that we *should* technologize the study and teaching of writing, either praising the effects of technology on what we already do (teaching traditional text) or, alternatively, arguing that technology is merely a tool, not really different from any other tool of writing, and that its use in the classroom is, therefore, not threatening--all of these combine to point to the need to consider whether or not to accommodate these changes in the composition classroom and, if so, how.

In addition to questioning whether or not the use of computers in the writing classroom can help students achieve traditional literacies better than non-technologized classrooms, even many computers-and-writing advocates have argued that "technology should be applied in the classroom only in those instances in which it supports current notions of effective pedagogy" (T. W. Taylor 126). For example, Cynthia L. Selfe and Billie J. Wahlstrom note, "[C]omputers are not right for every course, every teacher, or every student [. . .]. [U]nless the use of computers has distinct advantages for presenting the course content, assisting teachers, and aiding students, the additional work involved may not be worth the effort" (258). The insistence by some that technology has limited applications in the writing classroom and that those must be in the service of "current

notions of effective pedagogy" implies that we have a choice in the matter. However, as society places demands on us to teach students the literacy skills required of them outside the academy, administrators are attempting to appease or meet these desires by incorporating technological skills into the curriculum. And all too often this is being done without our input. Thus, writing teachers may find themselves suddenly catapulted into a technological environment in which they are ill-prepared to cope, without adequate training in the use of the technology or, even more important, without prior consideration of how and why technology even belongs in the writing classroom in the first place.

Nonetheless, in an attempt to improve the bottom line, many administrators are pushing for the use of technology to increase enrollments and decrease costs. For example, distance education applications are being widely promoted, even though some fear that "packaged" education will ultimately be used to replace teachers. Indeed, in their response to Educom's National Learning Infrastructure Initiative (NLII), William F. Massy and Robert Zemsky advocate replacing faculty with computers, arguing that "[t]he career of a workstation may well be less than five years, whereas that of a professor often exceeds 30 years. Workstations don't get tenure, and delegations are less

likely to wait on the provost when particular equipment
items are laid off."

Distance education has been defined as "the use of
advanced communications technologies for teaching" (T. W.
Taylor 209). While seductive, this definition is also not
entirely accurate: distance education preceded "advanced
communications technologies." It is not something new,
although new communications technologies do allow for it to
become something new. Correspondence and television courses
have had limited popularity in the past at least in part
because of the limitations of the technologies used to
deliver them (i.e., postal technologies and television
technologies). Newer communications technologies that allow
for live, interactive video and audio conferencing,
synchronous and asynchronous communication, and the use of
Web protocols that allow students to share drafts of works
in progress as well as finished products can help make the
educational experience richer for students, or they can be
used to reinscribe current-traditional practices, depending
on how they are wielded. What these technologies will not
do, however, is replace teachers, nor will they reduce the
time that teachers spend with students. In some instances,
in fact, distance education using these technologies

requires a greater investment of time on the part of teachers.

Distance education applications, information literacies, and publishing practices are suddenly changing, and many of us suddenly find that we are now among the new illiterate--that we no longer know how to read and write in a world where the word itself has become technologized. Of course, it is not possible in the space of this work to consider all of the history or examine all of the ramifications of present developments. Furthermore, there is no crystal ball to show definitively what the future will be like (or, if there is one, I have not yet found the URL). Besides, there has already been much written that examines the histories of literacy practices and developing technologies, only some of which I will be able to include in this work. For example, Jay David Bolter's *Writing Space: The Computer, Hypertext, and the History of Writing* has quickly become an important work in the computers-and-composition canon; Walter Ong's *Orality and Literacy: The Technologizing of the Word,* although written before the recent innovations in Internet technologies, is nonetheless prescient in its visions of changing literacies; and works such as M. T. Clanchy's *From Memory to Written Record: England, 1066-1307,* Robert Pattison's *On Literacy: The*

Politics of the Word from Homer to the Age of Rock, and Elizabeth L. Eisenstein's *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early-Modern Europe* offer far more in-depth glimpses into historical developments in this field than I could ever hope to achieve.

Until only a few years ago, there was very little scholarship available that adequately critiqued the computers-and-composition movement, and fewer still that were available in print. However, in recent years, scholarship in this field has proliferated as well. Most notably, Gail E. Hawisher and Paul LeBlanc's *Re-Imagining Computers and Composition*, published in 1992; Cynthia L. Selfe and Susan Hilligoss's *Literacy and Computers: The Complications of Teaching and Learning with Technology*, published in 1994; and Gail E. Hawisher, Paul LeBlanc, Charles Moran, and Cynthia L. Selfe's *Computers and the Teaching of Writing in American Higher Education, 1979-1994: A History*, published in 1996, cogently depict the confrontation in our field between our traditional function--teaching the hallowed text--and new means of creating and accessing those texts.

Even these works, however, do not for the most part address newly-emerging Internet technologies, such as the

explosion of developments in voice-recognition software, real-time audio and video conferencing applications, interactive Web authoring tools, and more. Thus, even many books and articles written only in the past few years are already out of touch with current developments. Although many important works of scholarship have been and are being published online, in electronic (and especially hypertext) venues, nonetheless, even these works fall short. The academy's gatekeeping practices ensure that, in order to get the necessary credit for tenure-and-promotion purposes, even those most ardent proponents of electronic writing are often writing for print. And print publishing by its very nature does not and cannot allow for the immediacy necessary to keep abreast of developments in this field. Moreover, many of the gatekeepers whose function it is to decide what is worthy of disseminating in print have judged much of the scholarship in computers and composition and found it lacking, either in its failure to present quantitative evidence of its claims or in its sometimes proselytic zeal.

Although it is premature at this stage of our technological development to attempt to offer definitive answers to the questions precipitated by the adjoining of computers and writing, nonetheless I hope that, by exploring these issues we can see how computers and technologies are already implicated in composition classrooms. Thus, we can

move beyond the argument over whether or not to introduce technology into the writing classroom. In many ways that argument has already been answered for us (whether or not we have noticed). In this work, therefore, rather than argue that technology is beneficial or evil or neutral, I instead assume that technology is already a factor in what we do-- whether we address its impact on the composition classroom or not. Thus, I consider how literacy practices, pedagogical practices, and assessment and gatekeeping practices in our field impact on and are impacted by the intersection of computer technologies and Composition studies and conclude by offering suggestions for ways we may want to begin thinking about how to teach, assess, and value new forms of literacy even while they are still in the process of evolving.

In the next chapter, thus, I look briefly at some of the history of criticism of technological developments in the humanities, beginning with Socrates' denunciation of writing in Plato's *Phaedrus* in the fourth century BC. Many of the same arguments have been advanced against each successive new technology, as we can see by comparing Socrates' arguments with those broached against print technology in the fifteenth century and, now, against computer technology in the twentieth. Moreover, arguments

that look favorably upon technological developments also
follow much the same lines. That is, each technology in
turn has been accused, rightly or wrongly, of destroying
memory, while each has been praised (although usually only
many years after the fact, after it has become
"transparent") for fostering the evolution of the human
mind. For example, Sven Birkerts goes so far as to credit
the development of the printing press with helping to foster
changes in literacy practices that made the Enlightenment
possible. Although some, like Birkerts, fear that newer
technologies will encourage a loss in the human capacity for
extensive reading (and thereby, perhaps, for extensive
thinking), others seem to posit the opposite effect,
offering us, at it were, an electronic panacea--in effect, a
new Enlightenment. Each of these diametrically opposed
positions, however, seems to assume that technology has
"made itself without thought, without conscience, without
foresight, without eyes, without heart" (Conrad 425).
Instead, I hope to show that emerging technologies exist
alongside of and are colored by existing technologies and
that, far from being born in a vacuum, they are constructed
by our own ideological apparatuses. By examining how
arguments for and against previous technologies for the
communication of ideas and information are, in fact, the
same arguments now being posed both for and against new

technologies, perhaps we can begin to look beyond them and toward new ways of assessing emerging forms and determining value (if, indeed, "value" itself is a term that any longer holds sway).

Chapter Three considers both similarities and differences between modern electronic writing and oral and written forms produced using previous technologies. For example, I examine the five parts of the classic rhetorical canon--invention, arrangement, memory, delivery, and style-- as they may or may not relate to emerging forms of writing. Theorists in computers and writing are only just beginning to look at going beyond the typographical elements of writing, moving toward a hypertextual (or intertextual) linking of symbols and ideas, of hieroglyphic and iconic elements, sound and video files, perhaps even soon smell and taste and touch files. It is even conceivable that we will someday have "texts" invested with artificial intelligence (if we don't already), just as we already have computer games that learn and that can change their responses to the reader to fit what they perceive to be the readers' needs or desires. We are only beginning to imagine the possibilities of a fluid text, a text with no set beginning or ending, with no set boundaries even, between the reader and the writer, in a collaborative writing space that, perhaps, negates our preoccupation with authorial control. Literacy

has undergone many changes in the past--from orality to writing to print--and likely it will undergo many more. Hopefully, this analysis will help us formulate ways to begin thinking about literacy practices as they continue to evolve and aid us as we consider how to teach and evaluate these new forms.

Current gatekeeping practices, like those before them, effectively serve to resist change and preserve the status quo. Literacy assessment testing, Ph.D. certifications, tenure-and-promotion guidelines, and publishing practices in the humanities all work together to resist attempts by scholars to even consider how (or, indeed, whether) changes in the technology of writing may be impacting writing itself. In considering how gatekeeping practices such as assessment tests, scholarly publication, and tenure-and-hiring practices (among others) stifle exploration of literacy practices themselves, then, Chapter Four considers how these practices reflect our ideologies in the academy and in English studies especially. Of course, major changes in the demographic and economic make-up of America have already had important effects on the character of American education as a whole and on how the role of literacy instruction in this country is played out in the academy. Marcia Farr and Gloria Nardini, for example, caution that "assuming [essayist literacy] to be the only appropriate

means of discourse too frequently denies voice and identity to those whose ways of speaking are different" (118). In his posthumously-published book, *Rhetorics, Poetics, and Culture: Refiguring College English Studies*, James Berlin argues, too, that the English department itself often serves as a "powerful conservative force" working to exclude those less privileged (15), as schools become "sorting machines, reinforcing class relations by determining the future occupations and income levels of young people" (22). Current measures of literacy assessment, thus, often serve political and ideological interests. Assessment tests, tenure-and-promotion requirements, and other enactments of gatekeeping practices in the academy, moreover, often serve to resist exploration of changing literacies by attempting to fix one moment of history as the model against which all others are measured. By examining these practices, hopefully we can look toward ways to negotiate how we determine value in a given situation and resist attempts to deny voice to ways of speaking--and writing--that may conflict with the dominant discourses in our field.

In Chapter Five, I suggest some ways in which our pedagogical practices may need to be reconsidered in light of changes in how we communicate. In particular, I propose guidelines for writing teachers to help negotiate the

transitional period between traditional and neo-traditional forms, bridging the gaps between existing standards for producing print documents and as yet undetermined standards required by new forms. That is, I hope to present guidelines that, rather than stifle change, can help guide authors in determining which existing standards make sense for new forms, and which need to be reconsidered, thereby providing the flexibility necessary to cope with change. Because it is imperative that we consider the effect of our teaching of writing and reading on the further development of these technologies, as well as the effect of further development of these technologies on our teaching and study of writing and reading, I also suggest ways we may need to rethink the academy, including the position of the composition classroom itself.

To some, it is true, technology offers us a (questionable) paradise--a new world order with no race, no gender, no disability (as a recent MCI commercial asserts). To others, technology is inherently demonic, mesmerizing and seductive, beckoning us to pass through the gates of Hell. But regardless of how technology is viewed by those of us in the academy, it requires that we command a knowledge of how it works, of its capabilities as well as of its shortcomings, and of the assumptions which underlie it. We must now face the task of redesigning our writing

classrooms, our writing programs, our departments, our universities, and our society to face the questions that are still to come. While critics of the technologized classroom are right--simply providing computers and educational software packages to students is not enough--simply pulling the plug is no longer an option either. Along with expenditures on technology, then, we need a concomitant and fundamental change in how we think about education and in how we think about literacy. And, at the same time, we need to be critical of *anything* that promises miracles.

CHAPTER TWO - THE PACT WITH THE DEVIL

> *The archdeacon pondered the [immense church of Notre Dame] for a few minutes in silence, then with a sigh he stretched his right hand toward the printed book that lay open on his table and his left hand toward Notre Dame and turned a sad eye from the book to the church.*
> *"Alas!" he said, "This will destroy that."*
> --Victor Hugo, *Notre Dame de Paris*

After the governor of Washington established a commission to explore how electronic delivery of education might "alter our very definition of what constitutes a college education," almost nine-hundred professors at the University of Washington joined together in protest, saying, "Education is not reducible to the downloading of information" (Woody). James Gregory, a history professor at the University of Washington, proclaimed that a university education is about more than information; it is also about the

> social experience of encountering new ideas and new people [. . .]. You can't do that on the Internet, and we would be cheating a generation if we tried to substitute some type of techno education for a campus education. (Woody)

In an article in *The Atlantic Monthly*, Todd Oppenheimer blames poor research methods for the push to use technology

in the classroom. He calls for freezing spending on computers in the classroom and instead increasing expenditures on "fundamentals"--"teaching solid skills in reading, thinking, listening, and talking; organizing inventive field trips and other rich hands-on experiences; and, of course, building up the nation's core of knowledgeable, inspiring teachers" (62). According to Oppenheimer, the worth of these methods of instructional delivery, while not as enticing as computers, has been proven "through a long history" (62). His arguments against continued expenditures on computers hinge on what he sees as the lack of evidence to prove the merits of technology in the classroom; however, he also seems to imply that a "long history" is a necessary component of any such proof. In effect, then, he would seem to be arguing that we should stick with what we know. While many educators might agree with Oppenheimer, nonetheless I am not entirely certain that the worth of these "traditional" methods of instructional delivery has been proven (or disproven) at all. Moreover, I would argue that technology is not necessarily antithetical to preserving these same methods--computers in the classroom can most certainly be used to facilitate what teachers already do, as well as to undermine it.

The history of technological development, however, is a history of resistance to change, especially in the

humanities. In Plato's *The Phaedrus*, for example, Socrates worries that the invention of writing will destroy memory and distance the reader from the rhetor's exposition of ideas. Writing, he argues, should serve as a reminder, not as a replacement for the exercise of memory. Thus he esteems the living speech over the written one. A written speech, he says, cannot answer questions or protect itself from the wrong audience. Like arguments against computer technology, his fears are that the technology of writing will destroy the status quo. The real problem here, then, seems to be how we define "writing," although we must also consider how writing may define us in turn.

Changes in literacy practices and technological developments for the production and distribution of literacy have each in turn been both praised and blamed for their impact on the individual mind and on society as a whole. Jay David Bolter defines writing as "a technology for collective memory, for preserving and passing on human experience" (33), reminding us of Plato's own injunction that writing should serve as a reminder. Indeed, if literacy practices and the technologies for creating and delivering them are merely attempts to perfect a way to store and reproduce the spoken word, then electronic technologies may be the ultimate means to do so. However,

these ideas are interestingly complicated in online spaces.

On the other hand, many others see writing as serving to

foster changes in thinking and social patterns rather than

merely preserving existing ones. Of course, changes in

literacy practices and the technologies for communicating

them are reflections of other changes--in society, in

language, and in ideologies--as much as they are causes of

further changes.

Emerging forms of literacy are based on preceding

forms; they are not created anew from primordial matter.

Rather, elements of each impinge on each other.   M. T.

Clanchy's historical research on the shift from an oral to a

literate culture, for example, recounts how the imposition

of written contracts by the dominant culture in medieval

England was, essentially, an attempt to impose writing as a

cultural norm. Nonetheless,

> the Normans realized that paper deeds for land
> were open to forgery, so they continued to use the
> older practice of affixing seals as well, for
> safety. Contrary to the idea that the shift to
> literacy caused a radical shift in thinking, the
> continuing mix of literate and nonliterate modes
> exemplified in the seal stamped on top of the land
> deed show how written forms adapted to oral and
> other practices. (Farr and Nardini 110)

Robert Pattison agrees that changes in literacy practices

are "colored by the existing attitudes toward language and

the economic structure of the culture where [they are]

introduced," asserting that "By itself, writing is an inert

force" (83). Although many of us would argue that writing

is far from inert, nonetheless we would probably agree that

whatever other changes are precipitated by changes in

writing practices make sense "only when studied in

conjunction with the consciousness of language prevalent in

the culture where [they are] employed" (4). Julian Jaynes

even argues that, before the advent of writing, the mind was

bicameral. That is, as Walter Ong notes,

> The right hemisphere produc[ed] uncontrollable
> "voices" attributed to the gods which the left
> hemisphere processed into speech. The "voices"
> began to lose their effectiveness between 2000 and
> 1000 BC. This period, it will be noted, is neatly
> bisected by the invention of the alphabet around
> 1500 BC [. . .]. (29-30)

Thus, Jaynes attributes changes in the inner workings of the

mind itself to the invention of the alphabet. Ong examines

how the distinctive features of Homeric poetry were due to

"the economy enforced on it by oral methods of composition"

(21). Oral texts require more repetition than written ones;

we can see evidence of mnemonic devices such as the use of

rhythm (i.e., the hexameter line), repetition of words,

phrases, sounds, or ideas, the use of narrativization and

visualization (i.e., metaphoric representations), and the

use of commonplaces, or *topoi*, in oral texts from Homer to

Native American poetry.

Writing, on the other hand, allows for the storing of knowledge which, argues Walter Ong, "freed the mind for more original, more abstract thought" (24). According to Eric A. Havelock, "[T]he development of the Greek alphabet (approximately 700 BCE) constituted a momentous and unique event in the history of human culture" (Haas 10). Havelock has even gone so far as to credit "the ascendancy of Greek analytic thought" to the introduction of vowels. The "abstract, analytic, visual coding of the elusive world of sound," he says, "presaged and implemented their [the Greeks'] later abstract intellectual achievements" (Ong 28). The invention of writing is, therefore, often credited with eventually leading to Greek philosophy itself (Havelock; Jaynes; Ong).

Ferdinand de Saussure contends that change in language is simultaneously arbitrary and inevitable. "Time changes everything," he says. "There is no reason why languages should be exempt from this universal law" (77). However, like Pattison, he discounts entirely the effect of the mode of inscription. To de Saussure, language is "thought organised in sound" (110). In much the same way, the ancient Greeks saw writing as "an instrument for holding spoken words in a fixed form until they could be revived by the voice of the reader" (Bolter 72). Thus de Saussure maintains that

> the characteristic role of a language in relation
> to thought is not to supply the material phonetic
> means by which ideas may be expressed. It is to
> act as intermediary between thought and sound, in
> such a way that the combination of both
> necessarily produces a mutually complementary
> delimination of units. (110)

The structuralist approach to language has been very influential in the field of literary criticism, focusing critical attention on the process of encoding and decoding signs. However, de Saussure also argues that "Whether I write in black or white, in incised characters or in relief, with a pen or a chisel--none of that is of any importance for the meaning" (118). As many others have noted, however, the means of inscription affects how we perceive a text as well as the ways in which the production of discourse is envisioned in the first place (McLuhan; Haas; Ong). The online world may be seen as constituting a distinct community, in effect a linguistic one, with its own sign system, or *langue*.[3] Thus, the meaning of a given sign in hypertext may be categorically different from the meaning of the same sign in a print text.

     Resistance to new technologies for the creation, distribution, and reception of forms of literacy may be, in essence, then, a defense against the changes that these technologies may ultimately effect on literacy itself as well as an attempt to preserve and naturalize the ideologies

that inform language practices in the first place. Writing
at first served mainly to recycle knowledge, preserving oral
discourse in a static form for later recitation.
Nonetheless, over time, written compositions began to
change, as they began to be written specifically "for
assimilation directly from the written surface" (Ong 10).
For example, devices necessary in oral compositions, such as
mnemonic devices to aid memory and the use of *topoi*, were no
longer necessary in written ones. Alternatively, writing,
like other technologies, required the acquisition of new
skills, not only skills with language but also mechanical
skills for the production and reception of written text.
Early writing materials could be unwieldy at best, and they
often required considerable investment in materials on the
part of would-be writers as well as in time spent learning
to work with them:

> Instead of evenly-surfaced machine-made paper and
> relatively durable ball-point pens, the early
> writer had more recalcitrant technological
> equipment. For writing surfaces, he had wet clay
> bricks, animal skins (parchment, vellum) scraped
> free of fat and hair, often smoothed with pumice
> and whitened with chalk, frequently reprocessesd
> by scraping off an earlier text (palimpsests). Or
> he had the barks of trees, papyrus (better than
> most surfaces but still rough by high-technology
> standards), dried leaves or other vegetation, wax
> layered onto wooden tables often hinged to form a
> diptych worn on a belt (these wax tablets were
> used for notes, the wax being smoothed over again
> for re-use), wooden rods and other wooden and
> stone surfaces of various sorts. As inscribing

> tools the scribes had various kinds of styli,
> goose quills which had to be slit and sharpened
> over and over again and what we still call a "pen
> knife", brushes (particularly in East Asia), or
> various other instruments for incising surfaces
> and/or spreading inks or paints. Fluid inks were
> mixed in various ways and readied of use into
> hollow bovine horns (inkhorns) or in other acid-
> resistant containers, or, commonly in East Asia,
> brushes were wetted and dabbed on dry ink blocks,
> as in watercolor painting. (Ong 94-95)

Access to these materials and to the skills requisite for

working with them was necessarily limited to those with

sufficient resources--of money as well as leisure--to

experiment with them. And, of course, universal access is a

goal that has yet to be achieved, regardless of the forms we

use to disseminate information.

Nonetheless, one goal of print technology, like writing

itself, was to make existing texts more readily available,

even if universal access was not possible. However, many of

the same arguments that were advanced against writing were

also brought to bear against the technology of print. For

example, many people feared that print technology, by making

information more readily available, would destroy memory "by

relieving it of too much work" (Ong 80). That is, instead

of storing knowledge in the mind, one need only have access

to information stored in writing. Libraries, thus, came

into being as "houses of memory," in effect. The importance

of the classical device of memory dwindled in modern

rhetoric, until, in our own time, memory is no longer

considered an important component of the rhetorical canon, except as it is manifested in libraries and archives.

The spread of print technologies, moreover, had an impact on our concept of authorship and the ownership of ideas, as well. Whereas Aristotelian rhetoric relied on commonplaces, or *topoi*--that is, appeals that the rhetor could expect his audience to already know and share--after the advent of written text, and especially after print technology allowed for the text to become fixed, invention became instead an individual act. Oral texts were often passed down through many generations, growing and changing with each recitation, until it was impossible to fix any one author as *the* author of a given text. Early written texts were also subject to this same ephemerality. Plato wrote down the teachings of Socrates in the form of dialogues. As this dialogic model changed, the lecture model came into its own, with texts dictated by professors to students who meticulously inscribed them on their tablets, and on their memories. Later incanabula were hand copied to allow for distribution of this canon of knowledge--the text--to those at a distance, either in time or space. Of course, this was often expensive as well as time consuming. Often, too, scribes inadvertently introduced errors into the texts or included commentaries or "corrections" of their own. The

very concept of "authorship" was thus a difficult one--was the "author" the professor who dictated the text from memory? The student who wrote it down? The scribe who copied it and, perhaps, changed it as he did so? Indeed, the concept of authorship, and especially the romantic notion of sole originary authorship, can be seen, at least in part, as a result of new technologies that allowed for the increased fixity and stability of texts.

Printing, of course, made it possible for texts to be stabilized in a way never before possible. Moreover, it allowed for distribution well beyond the confines of the Agora (the ancient Greek marketplace for ideas as well as goods)--and well beyond the confines of the classroom. Written discourse can be preserved in a way that oral discourse cannot be. However, preserving the written text for posterity depended upon finding a means to permanently inscribe the markings as well as preserving the language necessary to apprehend them. The printed book, therefore, came to be valued "for its capacity to preserve and display fixed structures" (105); rather than displacing previous structures, that is, print technology allowed for the reproduction of the products of scribal culture in ever-increasing quantities and with ever-increasing reliability (Eisenstein 168). However, by making texts more permanent and, even more important, enabling identical reproduction of

texts, print technology can also be seen as a "technological reflection of the great chain of being, in which all nature had its place in a subtle, but unalterable hierarchy" (Bolter 105).

Regardless, many continued to question the value of the book as a vehicle for delivery of education, in much the same way that today academics question the value of electronic means to deliver it:

> Had any of our current testers of media and various educational aids been available to the harassed sixteenth century administrator they would have been asked to find out whether the new teaching machine, the printed book, could do the full educational job. Could a portable, private instrument like the new book take the place of the book one made by hand and memorized as one made it? Could a book which could be read quickly and even silently take the place of a book read slowly aloud? Could students trained by such printed books measure up to the skilled orators and disputants produced by manuscript means? (McLuhan 145)

Just as Oppenheimer argues against the use of computer technology to deliver education, many educators in the early Gutenberg era questioned the use of print technology to deliver it, and for many of the same reasons.

One fear was that the use of technological means for instructional delivery--whether writing or print--would distance the student from the "real" world of knowledge, isolating him[3] instead within the virtual world of the book. Reminiscent of Plato's fears that writing would distance the

rhetor from his audience, this also can be seen as a

reflection of the fear of loss of community. New

technologies such as writing and print and, yes, computers,

may indeed have an adverse effect on existing communities.

However, writing also allowed for the sharing of discourse

across boundaries of time and space, thus allowing for the

formation of new communities:

> [E]ven while communal solidarity was diminished,
> vicarious participation in more distant events was
> also enhanced; and even while local ties were
> loosened, links to larger collective units were
> being forged. Printed materials encouraged silent
> adherence to causes whose advocates could not be
> found in any one parish and who addressed an
> invisible public from afar. New forms of group
> identity began to compete with an older, more
> localized nexus of loyalties. (Eisenstein 132)

The nascent print shops, for example, brought together

authors and technicians, philosophers and craftsmen,

"bookworms and mechanics," forging alliances which,

> [i]n the figure of the scholar-printer, [. . .]
> produced a 'new man' [. . .] adept in handling
> machines and marketing products even while editing
> texts, founding learned societies, promoting
> artists and authors, advancing new forms of data
> collection and diverse branches of erudite
> disciplines. (Eisenstein 250)

In turn, this collaboration prompted "new interactions

between theory and practice, schoolman and artisan" (249),

perhaps best exemplified in the person of Benjamin Franklin

(1706-1790). Carla Mulford writes that, despite many

protestations to the contrary, Franklin was "the preeminent

American patriot statesman, a Renaissance man whose scientific, philosophical, and political inquiry [. . .] made life better for all Americans" (706). At any rate, Franklin married the work of the printer with that of the author in a way that modern publishing technologies seldom allow. The production and distribution of ideas was thus under the control of their creator.

Not everyone perceived the new alliances as salubrious, of course. Print not only allowed authors to more readily disseminate material of questionable value, it also led to commercial interests more concerned with the marketability of a product than with its reliability or aesthetic value. Alexander Pope's *The Dunciad* decries "the bard and blockhead, side by side, / Who rhym'd for hire, and patroniz'd for pride" (Book IV, lines 101-2), denouncing what many felt was a privileging of the popular--what the presses could sell--over what was of lasting value. Just as Aristotle mistrusted the masses to know what was of value, so, too, many others, as evidenced in works ranging from Immanuel Kant's aesthetics to Henry David Thoreau's (admittedly quiet but nonetheless devastating) rant against the telegraph to current diatribes against the World Wide Web, have expressed fear that technologies for writing, for

print, or for electronic publication will foster a "dumbing down" of taste.

In many ways, the immediacy of modern communication methods--telegraphy, telephony, television, telecomputing, etc.--are seen as a similar cause for concern. Not only do we hear arguments against modern technologies pandering to the popular taste, allowing for self-publication of questionable work, and the lack of adequate peer review and verifiability of Internet sources, but many argue as well that the skills necessary to apprehend these telecommunications, especially the oral or "speech-written-down" texts (for instance, MOO transcripts), are of a lower order than those required to deconstruct a written text. Socrates, of course, might have taken issue with this view.

Even though, as Marshall McLuhan notes, the "components of Gutenberg technology were not new" (90), nevertheless the wide dissemination of printed materials allowed by the invention of the printing press in the fifteenth century, like the invention of writing and the Greek introduction of vowels, is often credited with bringing about widespread changes in society. According to Sven Birkerts, "the shift from script to mechanical type and the consequent spread of literacy among the laity is said by many to have made the Enlightenment possible" (156). Elizabeth L. Eisenstein, too, asserts that

> print made the Italian Renaissance a permanent
> European Renaissance [. . .], affected the
> development of modern capitalism, implemented
> western European exploration of the globe, changed
> family life and politics, diffused knowledge as
> never before, made universal literacy a serious
> objective, made possible the rise of modern
> sciences, and otherwise altered social and
> intellectual life. (Eisenstein qtd. in Ong 117-
> 18)

Obviously, claims such as these give to technology a power

that, while it may or may not be considered beneficial, is

nonetheless often frightening. Of course, as noted

previously, innovations in technology do not "spring to life

abruptly and full blown, like Minerva from Jove's brow"

(Eisenstein 31). Instead, they are the product of changes

within society itself, changes in ideologies, changes in how

we conceive of education and in how we deliver it, changes

in language practices as a result of changes in production

and distribution of goods that, in turn, allow for changes

in the demographic make-up of a region, and, of course,

changes in ways of communicating prompted by prior

developments in technology.

At any rate, as books became more accessible, scholars

were encouraged to create texts specifically for the new

medium. With the advent of printing, then, not only the

mechanical skills for production, dissemination, and

consumption of texts changed, but also the form of the texts

themselves. Initially, written texts still required use of

repetitive devices to remind the reader of important points presented earlier in the unyielding scroll or codex. Later technological developments, however, allowed for the introduction of pages, making it easier for the writer to trust the reader's ability to return to previous sections of text, if necessary. During the Gutenberg era, then, we see a proliferation of indexes and encyclopedic works taking advantage of the new technology to aid in organizing and categorizing information. The use of page numbering, the use of paragraphing to set off bits of text, and even the selection of texts that found their way inside a single book's binding all resulted from attempts to find ways to make the new products of printing technology easier to read, easier to produce, and easier to catalog.

Early medieval illuminated manuscripts required the reader to stand at a podium, and manuscripts were often chained to library shelves. Furthermore, the written text was read aloud. Print technology has been credited with allowing silent reading, which, in turn, has been credited with fostering changes in our very thought processes. Print technology and the economies it allows are also credited with leading to the birth of the novel (Bolter; Ong; Eisenstein). And print technology also "fostered the idea that writing can and should be rounded into finite units of expression: that a writer or reader can close his or her

text off from all others" (Bolter 85), in effect fulfilling earlier fears that writing would distance the reader. In spite of this, Birkerts argues that "the bound book is the ideal vehicle for the written word" (4).

In the 1960s, however, even before the term "hypertext" was coined by Theodor Nelson and began to make its way into the writing classroom, Jacques Derrida already saw a "new" way of writing emerging, one that followed a non-linear sequence (and, at least partly as a result of this non-linearity, is considered incomprehensible by many people), which he believed heralded "the end of the book" (Bolter 86). We can begin to see, then, how new technologies for reading and writing in a non-linear space are precipitated by changes in reading and writing practices rather than the other way around. In light of these changes, we need to also reconsider how we define the term "literacy."

Bolter redefines literacy as "the realization that language can have a visual as well as an aural dimension, that one's words can be recorded and shown to others who are not present, perhaps not even alive, at the time of the recording" (36). Of course, we can take this a step further by including the recording of ideas that cannot be expressed in words alone, and, indeed, Bolter recognizes this as well, crediting the electronic medium with providing "a renewed prominence to the long discredited art of writing with

pictures" (46), as I discuss in greater detail in Chapter Three. Nonetheless, whereas writing continues to change (for example, the proscription against split infinitives has been lifted; it is now officially "okay" according to the *Oxford English Dictionary* to boldly split what no one has split before), print is in many ways a static form. As Bolter notes, for example, "its letter forms stabilized between the 16th and 18th centuries and have since changed only a little" (65).

Depending on how it is used, the computer can reinforce existing practices, or, alternatively, it can serve to "sweep away the whole tradition of typography" (65). More than typography is at stake, of course, as evidenced by the almost religious fervor with which arguments both for and against computers in the composition classroom are broached. The technologies that we use to create, disseminate, and access our fund of knowledge are themselves value laden (Baron): "By the meaningless sign linked to the meaningless sound," says McLuhan, "we have built the shape and meaning of Western man" (50). Thus, attempts to either foster or resist changes in that system of "meaningless signs" can also be seen as attempts to foster or resist changes in our definitions of ourselves. In composition studies

specifically, what is at stake may be no less than the very future of our profession.

In the wake of a perceived literacy crisis in the last decades of the twentieth century, university administrators have sought to prove that literacy is, indeed, a serious pursuit within their institutions (Hawisher et al. 21). Computers were initially seen by many as a means to help remedy this perceived crisis, relying on a drill-and-skill approach that attempted to "fix" errors in writing. Thus, computers entered the classroom during the 1970s as both "fancy typewriters" and as "tools that would magically and mechanically improve students' writing" (71). In 1983, Apple introduced the "people's computer," and a general dissatisfaction with commercially-available software, coupled with more accessible programming capabilities, led to more and more writing teachers writing software in an effort to "utilize the new machines in the service of pedagogical goals" (109) rather than the other way around. And, as networking technologies became more available, many computers-and-writing specialists began to see new ways to use technology in the writing classroom that coincided with the shift in composition studies from a focus on product to a focus on the writing process.

The introduction of computer technology into the writing classroom, however, represents a significant capital

investment, one that even the most ardent of computers-and-writing evangelists may be hard pressed to justify. And, although early theorists in computers and writing seemed almost unanimously enthusiastic about the potential for the integration of technology and the writing classroom, this uncritical enthusiasm has given way to a realization that the classroom, even the technologized classroom, is "situated in complex and overdetermined formations of social, political, and ideological forces" (199).

Amidst the laments about decreasing literacy rates in the United States, blamed by many on television, telephones, and telecomputing, we can discern an increasing sense of loss. Birkerts argues that "how we receive information bears vitally on the ways we experience and interpret reality" (72). He sees electronic media as part of a move from intensive to extensive reading. That is, he argues that reading online is often more an experience of breadth than of depth: the television set replaces travel (and, of course, books) as a way of knowing other cultures. Television, however, argues Birkerts, presents the viewer only with glimpses of these cultures. Hence, we travel extensively through the medium of television, yet still fail to know another culture extensively. But electronic media can also allow us to come to know other cultures in unique ways, for instance by connecting us via the Internet

intimately--and extensively--to people and ways of communicating we might not otherwise have encountered.

The vehemence of arguments against new technologies of writing is not surprising, however. Oppenheimer argues, for instance, that "It would be easy to characterize the battle over computers as merely another chapter in the world's oldest story: humanity's natural resistance to change [. . .]." However, he continues, "This is not just about the future versus the past, uncertainty versus nostalgia; it is about encouraging a fundamental shift in personal priorities--a minimizing of the real, physical world in favor of an unreal 'virtual' world" (62). As we have seen, much the same arguments were brought to bear against writing itself, as well as against later print technologies. Dennis Baron, in "From Pencils to Pixels: The Stages of Literacy Technology," even recounts how

> Thoreau rejected modern improvements like the telegraph as worthless illusions. In *Walden* he says, "They are but improved means to an unimproved end" [and] Morse refused Bell's offer to sell him the rights to the telephone patent. He was convinced that no one would want the telephone because it was unable to provide any permanent record of a conversation. (Baron)

New technologies challenge our notions of the world; they challenge our senses. According to McLuhan, "Those who experience the first onset of a new technology, whether it be alphabet or radio, respond most emphatically because the

new sense ratios [. . .] present men [sic] with a surprising new world" (22-23). As technologies become more prevalent, they tend to also become more transparent. That is, we no longer see the means of communication as a technology at all. Writing is itself a technology, of course. It is, ultimately, "a way of engineering materials in order to accomplish an end" (Baron). However, as we find new ways to accomplish a task, the task itself may morph. That is, the medium of communication may, in turn, impact the form of that communication (McLuhan), which, in turn, may even ultimately affect our purpose in communicating in the first place. Kathleen E. Welch argues that

> there is not so much a loss as there is a change. We have many ways of communicating. The reading and writing of texts and the formation of consciousness based on written communication-- literacy--have not been displaced by anything; rather, they have grown even more powerful, as the record number of published books indicates. Writing has changed irrevocably because of secondary orality; composition needs to take account of this change with more thorough theories that will inform composition textbooks. (23)

Welch, I believe, does not go far enough in considering the impact of the technology that delivers "written" communications, although she does, indeed, recognize that writing itself has changed at least as a result of what Ong terms "secondary orality." Welch's claim that existing forms of literacy have not been displaced, however, may be

premature, as the impact of technological developments

remains to be seen.

Birkerts and others fear that computer technology will

encourage

> (a) a fragmented sense of time and a loss of the
> so-called duration experience, that depth
> phenomenon we associate with reverie; (b) a
> reduced attention span and a general impatience
> with sustained inquiry; (c) a shattered faith in
> institutions and in the explanatory narratives
> that formerly gave shape to subjective experience;
> (d) a divorce from the past, from a vital sense of
> history as a cumulative or organic process; (e) an
> estrangement from geographic place and community;
> and (f) an absence of any strong vision of a
> personal or collective future. (27)

While some of these fears are indeed valid, simply turning

off the computer--or the television, or the telephone, or

whatever electronic medium is *au courant*--will not keep

these hounds of hell at bay, as many are well aware. In

attempting to foster a vision of the word itself as

permanent, transcending time as well as space, we can see

evidence of the fear that new technologies, like their

predecessors, will destroy memory. The written word in

print culture is, after all, a physical object that exists

perforce in both time and space. Thus the MLA committee

argues that

> [E]lectronic texts will and probably should change
> but [. . .] readers must be able to get back to
> the original texts (or "archival" copies) a writer
> consulted and cited. Ways must be found to

> archive electronic texts reliably at specific
> times in their history. (Franklin xvi)

Lester Faigley, on the other hand, predicts that "we will be teaching an increasingly fluid, multi-media literacy," reminding us that the fourth "C" in CCCC stands for "communication" (41). Thus, in his chair's address at the Milwaukee CCCC (1996), Faigley announced that "If we come back to our annual convention a decade from now and find that the essay is no longer on center stage, it will not mean the end of our discipline" (40).

Many in English studies nonetheless still fear the impact of technology on what we do. As with the introduction of previous technologies, we fear that new technologies will affect our memories, that techno-literacies might lead to "an expansion of the short-term memory banks and a correlative atroping of long-term memory" (Birkerts 139). The increases in the field of knowledge, across disciplines, across space, and across time, thus, will bring about a "sacrifice of depth":

> On the model of Chaos science, wherein the
> butterfly flapping its wings in China is seen to
> affect the weather system over Oklahoma, all data
> will impinge on all other data. The technology
> may be able to handle it, but will the user?
> (Birkerts 138)

The real fear would seem to be that the glitz of multimedia will cause a concomitant loss in students' ability to become engaged in extended, intensive reading of traditional texts.

The failure of traditional texts to engage students, while in part, admittedly, a function of current technologies that make it difficult to read large masses of text online or that flash animations across our screens out of our control, may also hearken back to Socrates's fear that writing would distance the reader from the rhetor. In other words, the failure of the traditional canon to engage students in the technological age may reflect a desire to return to greater immediacy in communicative practices, in effect, a return to the roots of classical rhetoric. Thus, while some may see technological developments as perhaps leading Icarus-like too close to the sun (Birkerts 140), faulting a society steeped in technology for the failure of students to become engaged by traditional texts, we may instead need to consider how traditional forms of texts are failing our students.

It is not at all certain, of course, that traditional forms of text must be displaced. What *is* certain is that how we read and write in the technological age is having an impact on how we think about texts, on how we think about literacy, and on how we think about our pedagogy. According to Bolter,

> What will be lost is not literacy itself, but the
> literacy of print, for electronic technology
> offers us a new kind of book and new ways to write
> and read. The shift to the computer will make

> writing more flexible, but it will also threaten
> the definition of good writing and careful reading
> that have been fostered by the technique of
> printing. (2)

The writing classroom, nonetheless, is incredibly

conservative. As Robert Coover notes, students "write

stubbornly within the tradition of what they have read"

(12). For now, that means students are attempting to

emulate the forms of literacy they have been exposed to in

the classroom--traditional print forms. However, these are

not the forms with which they have come to be engaged

outside of it. Thus, although new technologies, including

the computer, initially attempt to perfect previous

technologies of communication, merely pasting existing forms

of literacy into new spaces just does not quite work.

Hypertext technology, for example,

> both absorbs and totally displaces. Print
> documents may be read in hyperspace, but hypertext
> does not translate into print [. . .]. Artists
> who work there must be read there. And they will
> probably be judged there as well: criticism, like
> fiction, is moving off the page and online, and it
> is itself susceptible to continuous changes of
> mind and text. (Coover 14)

So, what if anything do we gain from this Faustian

bargain? According to Birkerts, we gain

> (a) an increased awareness of the "big picture," a
> global perspective that admits the extraordinary
> complexity of interrelations; (b) an expanded
> neural capacity, an ability to accommodate a broad
> range of stimuli simultaneously; (c) a
> relativistic comprehension of situations that
> promotes the erosion of old biases and often

> expresses itself as tolerance; and (d) a matter-
> of-fact and unencumbered sort of readiness, a
> willingness to try new situations and
> arrangements. (27)

Whether or not we will experience these "gains" is

impossible to predict. Nonetheless, the mix of traditional

and electronic forms of text in our own time may represent a

"crisis not unlike that of the middle ages" (Pattison 84).

Robert Pattison's pronouncement on the struggle between the

advocates of formal grammar and correctness in writing and

the less formal, oral cultures "we see growing up around us"

is also applicable to the struggle over technologies for

writing:

> [T]he anxiety expressed about literacy [. . .] is
> at heart a struggle between two ideologies. One
> of these [. . .] is at the moment the ideology of
> established authority [. . .]. The other [. . .]
> is as yet undeveloped. It is at present a
> movement without a messiah, a doctrine that awaits
> its fourth gospel. When these come, the battle
> will be joined in earnest. (84-85)

Are the gains worth it? Birkerts admits that with few

exceptions his students were not and never had been

"readers" in the existing sense of the word. The role of

literacy instruction in this country during the last one

hundred years reflects an "intense diversification of

cultures and cultural experience" (Berlin xix). However,

increased attention to this diversity has also led to a

backlash that may be attempting to resist this

diversification by imposing a "uniform set of texts and a

monolithic set of reading and writing practices" (xx). The
study of literary texts is, perhaps, one way of preserving a
specific culture, disallowing access to those who cannot (or
will not) understand the texts in the ways naturalized
within the dominant culture. But what happens when those
who cannot or will not understand these texts are the
majority of students in the university writing classroom?

Attempting to preserve traditional forms of literacy--
the form of the text itself--may also be an attempt to
preserve a unified vision of our profession as well. Kurt
Spellmeyer notes, for example, that "when we define what it
means to read and write as though the nature of reading and
writing must remain unchanged, we have halted the process of
democratization" (176). Perhaps resisting changes in
literacy practices is in some way a desire to resist the
cacophony of these increasingly diverse voices as well.
Perhaps, then, we must resist our own resistance, by making
a concerted effort to explore how the nature of reading and
writing may be changing or may need to change in light of
changes in the demographic composition of our country that
have prompted at least some of the technological
developments in the first place.

What it means to be literate in the modern world is
just quite simply not what it meant only a few years ago.
In the next chapter, therefore, I will consider some ways in

which reading and writing practices may be changing, or may need to change, to reflect the reality of our culture and our communicative needs. Whatever we may mean by the term "literacy"--textual literacy, computer literacy, critical literacy, visual literacy, or some other as-yet-to-be-born form of literacy—-it is becoming increasingly obvious that we are now in a transitional period. It is increasingly obvious as well that, if we do not engage these issues now, we may soon be left with only a nostalgic yearning for a bygone era when we were among those called "literate."

CHAPTER THREE - CROSSING THE RIVER STYX

> *The book is your portal - open it and you enter the Age within. But another has gone before you, reading with dark purpose.*
> *Myst is a land of puzzles, and a book of secrets. Some secrets, however, were too dangerous for words. So Atrus hid the answers within the world itself. Now you must journey to Myst and unravel the mysteries of an age-old injustice. It is an ancient tale of betrayal, of a people who vanished long ago.*
> *The story is still being written. How it ends is in your hands.*
> <div align="right">--"The Book of Myst"</div>

One argument often advanced against hypertext and electronic publishing is that electronic text is ephemeral and mutable and, therefore, not a reliable source. That is, electronic files may change or even disappear entirely at a moment's notice. Thus Joseph Gibaldi proposes in the newly-revised *MLA Style Manual* that electronic sources should only be used to "complement [ideas and facts] derived from traditional print sources" (210). As Jay David Bolter notes in *Writing Space*: *The Computer, Hypertext, and the History of Writing*,

> Long tradition assigns to good literature the qualities of stability, monumentality, and authority. Works of good literature are

> monuments, and the author who creates monuments
> is, as the etymology suggests, an authority. (147)

The "monumentality" of print--the belief that the printed word is somehow stable and permanent--is, in part, also reflected in our Western ideas about intellectual property. According to U.S. copyright law, a work is copyrighted when it is "fixed in any tangible medium of expression, now known or later developed, from which [it] can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device" (USPTO). Writing thus becomes more than an expression of ideas; it is a physical artifact, one with material value, existing in both time and space. Essentially, then, the complaint that hypertext is volatile expresses not only the same fear of loss of memory we have seen before, but also wreaks havoc on our perception of value--both economic and aesthetic. We can longer depend on memory to preserve a text, we can no longer depend on a given text to even continue to exist as a material object after it has been read, and we can no longer depend on our determination of the value of a text apart from that materiality.

The epigraph that begins this chapter offers a familiar scenario to humanist scholars: "The book" is a "portal" to a different age; through this gateway we are catapulted into

new worlds. However, *Myst* is not a book in the traditional
sense, but an interactive computer game. Readers construct
the text anew with each choice they make as they navigate
through the "pages" of the "story."   Hypertext fictions
such as Michael Joyce's *Afternoon* and Stuart Moulthrop and
Sean Cohen's *The Color of Television* are also, in essence,
re-written by each new reader, as readers choose which links
to follow or, as in *Hypertext Hotel*, as the reader literally
becomes an author of the text by creating new nodes which
future readers may choose to follow. Literature as a
monument, then, becomes itself a fiction.

Even when the text does take material form we have no
guarantee of its permanence, as *Agrippa: A Book of the Dead*
by cyberpunk author William Gibson and artist Dennis
Ashbaugh so deftly illustrates. Bound in fine leather and
treated to appear aged and worn, the pages in the book
contain illustrations printed in a special ink that fades
and eventually disappears when exposed to light. Some of
the pages of the book have been hollowed out, allowing space
in which to nestle a computer disk that contains the text.
However, the disk, too, has been specially "treated"; it
contains a virus that destroys itself upon being read. The
book is about memory; it is also itself an example of the
fallibility of memory as well as an embodiment of the

contradictions inherent in our image of the book as a physical artifact.

Resistance to changes in the technologies we use to communicate is actually resistance to changes in literacy practices themselves. New technologies, of course, *do* cause changes in forms of literacy; however, they are also developed at least in part in response to changes already occurring within a culture. Moreover, as de Saussure has demonstrated, literacy practices--languages--are *always* in a state of change Thus, we need to look at how changes in literacy practices are already reflected in new technologies as well as how these new technologies may be prompting further changes. In addition, we need to look at how we can adapt our classrooms and our assessment practices to reflect these changes.

In recent years, "technology" has come to be almost synonymous in the minds of many with "computers," and innovations in networking technologies--linking computers together to share resources and to enable swift communication between remote locations--have captured the interest of the media, of educators, and of the public. The Internet is a vast network of computers from around the world that began as a medium for communication by the U.S. Department of Defense during the 1960s. More recently, it

has become a civilian resource, thanks to user-friendly
software that has given anyone with access to a computer and
modem remarkably smooth connections to the network. Many
colleges and universities now offer Internet accounts to
students and faculty, while commercial Internet service
providers (services that charge a fee for allowing access to
the Internet) have dropped rates drastically as a result of
increased demand and competition, bringing millions more
people online. Some providers even offer free email
(sometimes called "hot mail") or Web publishing space on
their servers, while free chat rooms have become popular
places to meet and talk with people from around the world.
While universal access is not (and most likely never will
be) a reality, nonetheless even people who cannot afford
their own computers or Internet account can often gain
access at work, libraries, schools, community centers, or
cyber-cafés.

   Researchers are no longer limited to their own
libraries for the information and texts they can access.
While interlibrary loan programs have long allowed most
researchers to arrange to borrow books from other
institutions, the Internet now offers a quicker and more
efficient way to search library databases from around the
world to locate these sources. Moreover, enterprises such
as Project Gutenberg, the Library of Congress, and the

Networked Digital Library of Theses and Dissertations
(NDLTD), among others, are working to make entire texts
available online, often for free. Currently, these are
primarily works in the public domain, that is, works whose
copyrights have expired. For example, the complete works of
Shakespeare are available online to anyone with a home
computer and modem, and many print journals now have digital
analogs that provide access to the full text of current or
archived articles. Many magazines and newspapers are also
publishing online, some for free, others for a subscription
fee that is usually less than the cost of paper copies of
the same material, while book publishers are producing Web
versions of new books, including textbooks, which allow for
more frequent updates and, possibly, lower costs.

However, accessing even traditional scholarship and
literature online may ultimately impact our perceptions of
these materials. Many scholars are recognizing that sources
that are written for print may be best read in print;
sources that are written to be accessed electronically may
be best read online. That is, translating these sources
from one medium to another may ultimately force changes in
the form of the works themselves, as signs assume new
significations in new spaces. Janet Carey Eldred and Ron
Fortune, in "Exploring the Implications of Metaphors for

Computer Networks and Hypermedia," note that many hypertexts

"often do little more than transfer the printed page to the

computer screen" (67). Further, they say, this is a "waste

of technological resources" and entails "greater difficulty

involved in trying to read a book on screen rather than on

the printed page" (67-68).

Hypertext, hypermedia, hyper-authoring (whatever we

call it) is still in the process of becoming, but what it

will become will remain a mystery unless we experiment with

the possibilities. Some theorists see chaos study as

helpful in trying to discern new forms that may be emerging

from the "primordial matter" of electronic writing:

> Chaos theory suggests that we should be asking
> different kinds of questions about these texts--
> that our traditional notions of authorship,
> coherence, and style are changing along with
> scientific theories and the technology of
> communication. (Paul Taylor 132)

The interest in chaos theory perhaps at some level reflects

our dis-ease not only with technology but with a perceived

"shift from a world view based on Newtonian physics to a

world view based on quantum mechanics" (Tornow 177). Our

students are growing up in a world where television,

computer games, and hypertexts are altering their ways of

perceiving reality. This shift in turn "is bound to bring a

shift in sensibilities such that a linear deterministic

world will eventually become antiquated" (181). The

implications for the composition classroom, as Joan Tornow

notes, include a threat to the very forms we are teaching:

> The traditional academic research paper appears to be one of the at-risk forms. Because the processes of research are constructed so differently now, so too will the products begin to be constructed differently. Two generations ago, students gathered data for research papers by painstakingly writing out notes on 3x5 index cards and then attempting to blend this information through paraphrase and judiciously placed quotes. One generation ago, students gathered data by Xeroxing articles and highlighting pertinent data with fluorescent markers. Again, they were to use paraphrase, judicious quotes, and logical organization to construct a cohesive, well-organized essay that makes a certain 'point' or 'argument.' (211)

Many theorists are now questioning the usefulness of this

model. New research methods, along with increased

familiarity with reading electronic forms, have already had

an impact on the production of texts and are likely to have

even more of an impact in the future. Although books and

essays will not disappear entirely (at least, not in the

near future), some believe they may nonetheless become

"marginal to the central project of literacy education"

(Myron Tuman qtd. in Tornow 215).

Word-based documents, argues Mike Markel, are

"transparent"; that is "we look through the words to see a

writer's ideas beneath the page" (374). Of course, as we

saw in the previous chapter, the layout, typography, and

textual cues that are part of word-based documents are,

themselves, products of technology. The transparency that

Markel perceives is thus a product of our increased

familiarity with the printed text rather than an innate

feature of the text itself. Multimedia documents, on the

other hand, are opaque, according to Markel: "we read their

surfaces, interpreting the cues provided by layout,

typography, and graphics as we create the meaning of a text"

(374). Richard Lanham asserts further that the emergence of

new electronic technologies is forcing our hand by reducing

the arts to a numerical (i.e., digital) structure while

eluding the fixity of traditional forms (38-43). Thus, he

argues, digital technologies bring us full circle, back to a

realization of the rhetorical nature of art as well as text,

and back to a redefinition or revival of the "classical

system of education, the rhetorical paideia, of an applied

rather than a passive, conception of the liberal arts" (45).

Michael Spooner and Kathleen Yancey also see written,

visual, and aural genres collapsing "back into the collage

of raw experience" (273) in what they call a "wonderful

stage-managed chaos of virtual communication" (275).

However, they contend, it is a "prepared rhetoric of chaos,

a genre of chaos, perhaps designed to exploit more of our

native ability to process many channels of information

simultaneously" (273). Of course, in part this multi-

tasking is what worries those like Sven Birkerts who fear

that more extensive reading will be at the expense of intensive reading, bringing with it a "sacrifice of depth" (138). One problem with ascertaining forms in new media, however, is that we begin by using terms--metaphors--that belong to existing ones (DeWitt; Ong). Walter Ong notes, for instance, that

> One weakness in Plato's position was that, to make his objections effective, he put them into writing, just as one weakness in anti-print positions is that their proponents, to make their objections more effective, put the objections into print. The same weakness in anti-computer positions is that, to make them effective, their proponents articulate them in articles or books printed from tapes composed on computer terminals. Writing and print and the computer are all ways of technologizing the word. Once the word is technologized, there is no effective way to criticize what technology has done with it without the aid of the highest technology available. (80)

However, I believe that we *can* effectively use existing terms to some extent. As Richard Whately argues, "The invention of Printing, by extending the sphere of operation of the Writer, has [. . .] contributed to the extension of those terms which, in their primary signification, had reference to speaking alone" (831). Now we must look at how we will extend these terms--the five parts of the traditional rhetorical canon, i.e., invention, arragement, memory, delivery, and style--to yet another new medium. In so doing, however, we must be careful to recognize that we bring with us our own subjectivities, and these

subjectivities may impact not only how we extend these terms, but, indeed, how we view the necessity of doing so.

Up until the beginning of the modern period, invention often included the use of "commonplaces" that could be called upon over and over in support of arguments and which the rhetor could count on his audience sharing. In the modern period, of course, invention was primarily considered an individual accomplishment, as evidenced most tellingly in our laws of copyright supporting the ideal of text as intellectual property and of the author as sole creator. We can also see this privileging of invention as an individual act in our tenure-and-promotion guidelines, with many committees in the humanities looking askance at collaboratively-authored work or attempting to calculate the contributions of individual authors to a given multi-authored work.

The World Wide Web as an electronic writing and publishing space, however, often makes it more and more difficult to determine individual contributions. Intertextual (or hypertextual) linking of words and other elements of cyber-compositions makes it possible for an author's work to no longer clearly belong to any given individual entity. Thus, as we move into a global online writing community, our western notions of plagiarism and ownership of intellectual property are called into question

as well. Martha Woodmansee and Peter Jaszi in "The Law of Texts: Copyright in the Academy" have even proposed that we consider disclaiming authorship in electronic spaces altogether (781). Many of us are already quite at a loss as to how to deal with students from different cultural backgrounds where knowledge is considered communal and, therefore, not subject to Western notions of attribution. Obviously, we need to reconsider both our definition of invention and our rules of attribution as we consider how to write and teach writing in an era of global and collaborative information.

Arrangement in clasical rhetoric is the means of placing arguments into an effective order, designed in part to facilitate memorization (both the rhetor's and the audience's). The early Greek rhetors, of course, believed that "knowledge, once acquired, had to be constantly repeated or it would be lost" (Ong 24). Moreover, the arrangement of parts represented a way of thinking, a logical, linear progression of arguments in an all too often agonistically-arranged composition. However, this linear conception of arrangement, where the reader is expected to begin at the beginning and continue in a straight line to the end, is often complicated by electronic media as well as some postmodern literature. What happens, for instance, when a work has no set beginning or ending? How do we

arrange links between ideas--arrange our arguments and appeals--when we cannot know where the reader may begin or end a text? Our notions of arrangement are further problematized when we consider the effect of adding graphics, sound, and video as part of our arguments. How do we arrange these bits and bytes to greatest effect?

Hypertext offers authors a great deal of flexibility in design. But just as a traditional essay must follow a logical structure, a Web site needs a coherent system of organization. The "Yale C/AIM Web Style Guide" defines four basic structures: a linear sequence, a gridwork structure, a hierarchical structure, and a hub or network structure. The choice of design depends on the author's purpose and audience as well as on the nature of the information being presented. Many Web sites will follow a simple, linear sequence. For shorter works, a site may consist of a single page with headings and subheadings to help the reader locate important information and to draw the reader through the page. For longer, more complicated projects, an index or table of contents page may be included with links to the different parts of the page or to additional pages within the site. A more complicated structure might begin with an index page with links to additional pages that, in turn, link to other pages. Such a pattern forms a kind of

gridwork and is useful for presenting information that depends upon previous information but that does not necessarily follow a linear sequence. Online help manuals for software applications usually follow such a pattern, allowing the reader to connect to related ideas, similar to cross-referencing in an encyclopedia or reference work. Sometimes information is dependent on other information, however. That is, it is necessary to understand one part before moving to another. Such a hierarchical structure may be constructed by connecting pages to each other following a format similar to a genealogical or organizational chart. Information presented in this format follows a top-down structure, but with branches to show relationships between related parts at the same level.

    Sites may also radiate from a central "hub" with spokes (or links) connecting each page to every other page, forming a web or network. This kind of structure works best for information that is interrelated. That is, all parts are related to each other and to the whole but are not dependent on each other, allowing the reader to access the information in any order. One way to create this kind of site is by including pages inside a frame (a way of dividing the browser window into two or more sections). The frame remains on the screen at all times while other pages appear inside the frame. Alternatively, since not all browsers

support frames, the author may choose to simply link each page in a site back to a main index page ("Yale C/AIM Web Style Guide").

All of these choices, however, involve making rhetorical decisions regarding arrangement, delivery, and style. Moreover, they entail a conscious awareness of audience and of the audience's needs, including the audience's needs for memory--whether we mean access to computer memory or the necessity of repetition (the links back) to reinforce or remind the reader of important points previously presented. Additionally, these choices may prompt invention of further arrangements, or, indeed, of new technologies to deliver information and ideas.

The agonistic arrangement of appeals in classical rhetoric, as noted by feminist scholars such as Arabella Lyon in her response to an interview with Stephen Toulmin in the *Journal of Advanced Composition*, may also be, if not ineffectual, at least inadequate in electronic environments. The hypertextual nature of documents on the Web adds a level of complexity not found in print compositions. Readers follow links which lead to other links, and so on. We no longer know exactly what text our reader is reading (if, indeed, we ever did), to the extent that some scholars (Bolter, for example) claim that the reader, in effect,

contributes by the very act of reading to the authorship of the text itself. Of course, print-based texts can also be read resistantly (and, indeed, some of them are written specifically to be read non-linearly). Reader-response and post-structuralist theorists would also argue that no two readers apprehend a given text in exactly the same way. In effect, that is, each reader "rewrites" the text based on his or her own subjective positions or situatedness within a given community. Additionally, I would argue that all texts are "linked" to other texts through the author's encounter with other ideas, other texts, other conversations. And, of course, even in electronically-authored works, writers can decide to eschew links altogether, ensuring that what they have written is a traditional, linear document, merely pasted onto the electronic writing space. But even in print, these "sedate rows of linear text," as Bolter suggests, "are becoming the exception rather than the rule" (81).

Peter Ramus argues that rhetoric consists of style and delivery only, and that invention, arrangement, and memory properly belong to the realm of dialectic (Bizzell and Herzberg). Indeed, with few notable exceptions (Yates; Winifred Bryan Horner), memory remains forgotten. However, as Winifred Bryan Horner says,

> Today, memory as a cultural phenomenon preserved
> in our data bases, in our oral histories, and in
> our own minds needs to be explored [. . .]. What
> effect does this kind of communal memory have on
> invention and on contemporary literature and
> composition? What kind of effect will it have on
> libraries and on books and journals, the
> traditional storehouses of information? As we
> look at delivery in an electronic age, what impact
> will screens and windows, as opposed to familiar
> pages, have on our thinking processes? Will those
> processes be unalterably changed and, if so, how?
> (xi)

Instead of pages, the length of electronic documents is
measured in bytes--how much room the document will take in
random access memory (RAM) or on a storage device such as a
hard drive or floppy disk. Many of us rely on storage of
files outside of our own limited hardware capabilities, and
university servers are being pushed to their limits as more
of scholars begin publishing online. Plato, of course, as
we have already seen, worried that writing would "produce
forgetfulness in the minds of those who learn to use it"
(qtd. in Bolter 100). Now, too, many scholars are worried
that an entire generation of scholarship may be lost, erased
from our communal memory, as we come to place greater
reliance on electronic storage devices rather than print
ones.

As we try to find ways to ensure the permanence of
our texts, however, we need to remember that memory is and
always has been a limited resource. Gibaldi argues that
"Electronic media [. . .] so far lack agreed-on means of

organizing works. Moreover, electronic texts are not as
fixed and stable as their print counterparts" (209).
However, the spoken word itself, as Ong reminds us, is also
not fixed and stable; that is, it is only apprehended as it
is in the process of disappearing. Furthermore, as signs
acquire new meanings in an ever-changing world, it becomes
impossible to ensure that the meaning of any text--written
or oral--will remain fixed. At any rate, the meaning of any
sign may depend on what the reader/listener/television
viewer/Web surfer brings with him or her to the "text"
rather than on any inherent meaning of the text itself.
Attempts to preserve our texts as physical (or even
electronic) artifacts can thus be seen as attempts to
monumentalize them, to preserve the status quo, or to foist
an explicit subject position upon readers, rather than as a
necessary component of rhetoric, or even a desireable goal.
At any rate, we cannot afford to ignore important
scholarship simply because it may cease to exist at any
given time.

　　Many modern composition textbooks leave delivery either
for the realm of speech departments or bring it into the
modern world only by focusing on fonts and other such
textual elements. However, as was the case for the
classical orator, delivery may once more be an integral part
of any rhetorical work we do, whether we define delivery in

terms of bodily gestures or in terms of the speed with which a given WWW page appears on a reader's screen or the types of files being transferred, the protocols or software necessary to view or read the files, or other elements of electronic literacies that may affect the presentation of our masterpieces. Laura J. Gurak's presentation at the Conference on College Composition and Communication (CCCC) in Milwaukee, "Reviving Rhetoric's Fifth Canon: Delivery in Real-Time Virtual Discourse," discussed how the body is reinscribed in virtual composition in MOO space, where characters interact in a text-based virtual reality and designate body language and facial expressions through the use of certain commands (i.e., "Kiwi smiles"; "Kiwi claps her hands"). Non-verbal elements, of course, are a very important part of communication, as Gilbert Austin most meticulously delineated with his notation system showing hand, arm, body, and head movements to express or reinforce the emotional content of the text. These non-verbal elements, as classical rhetoricians were well aware, are essential, but, nevertheless, these same elements are missing from the printed composition.

Those who argue that distance education on the Internet will lose the benefits of face-to-face communication often seem to view electronic communication as merely an assemblage of textual communication, failing to recognize

that the Internet is more than just a network of computers linked together by cables and satellites; it is a network of people, and those people are bringing with them not only their words but their emotions and gestures--their bodies--as well. It is entirely conceivable that a manuscript marked up with Austin's notations could be converted into a computer "script," a programmed sequence of commands, that would, in effect, deliver non-verbal as well as verbal signs through the electronic interface.

Real-time audio and video conferencing also allow for the body to be an integral part of composition online. For example, *Eloquent!* is an electronic presentation software package that includes streaming video and audio (that is, files that can be played while they are still continuing to download, thus saving the annoying waiting time that often plagues larger online files) as well as "slides" as in Microsoft's *PowerPoint* presentation software. The viewer can read along with the text and control the speed and volume of the presentation, skip through slides to access key points, or sit back and enjoy the show. As anyone who has ever tried some of the new virtual reality games can attest to, as Web interfaces become more sophisticated, with real-time graphics, audio, and video, the difference between "real life" and "virtual reality" may very well begin to

blur. As an instance, the National Council of Teachers of English (NCTE) recently mailed out what they called a "virtual" print replication of their "real-life" Internet site.

Mikhail Bakhtin segregates language into three aspects--thematic content, style, and compositional structure--in which all three are "inseparably linked to the *whole* of utterance," and in which "[a]ny style is inseparably related to the utterance and to typical forms of utterances; that is, speech genres" (945, 947). Forms of electronic writing are sometimes viewed as new "speech genres," which, therefore, require new styles of writing. Further, as Bakhtin reminds us,

> The transfer of style from one genre to another
> not only alters the way a style sounds, under
> conditions of a genre unnatural to it, but also
> violates or renews the given genre. (949)

In attempting to transfer the style of the genre of print discourse to the genre of electronic discourse, however, many of us are still writing and teaching writing even in electronic spaces using a print-based model. But we now have a unique opportunity to shape this new writing space as it is being formed.

As the result of an economic climate that makes print publishing an ever-more expensive and therefore an ever-more conservative venture, what gets published is often only that

which fits the publishing houses' formula for successful sales. That is, newly published works are, in effect, patterned on previously-successful ones. However, readers' expectations are already changing as a result of exposure to various tele-technologies. Thomas Kuhn recognized that "knowledge in a particular discipline is not cumulative in the sense of adding brick after brick to a building. Rather the building must sometimes be rebuilt from the base up. Or, perhaps the bricks need to be used to construct something entirely new" (Tornow 61). Kuhn agrees: "Within the new paradigm," he says, "old terms, concepts, and experiments fall into new relationships with the other" (qtd. in Tornow 61), creating, in effect, a sort of *bricolage*. Over time, as the effects on communicative practices of new technologies accumulate, we may no longer be able to work within the constraints of existing print-based patterns at all.

According to Immanuel Kant (1724-1804) in *The Critique of Judgement*, the aesthetic judgment relies on a universally communicable standard, or a "common sense," which, he says, is an inherent quality of the object itself (82-3). Aesthetic judgements, he contends, are based on *a priori* assumptions, or "a way of gaining knowledge without appealing to any particular experience" (Palmquist). He

assumes that external objects must conform to internal

standards:

> [T]he judgment of taste, with its attendant
> consciousness of detachment from all interest,
> must involve a claim to validity for all men, and
> must do so apart from universality attached to
> Objects, i.e., there must be coupled with it a
> claim to subjective universality. (Kant 51)

To judge what is sublime, on the other hand, entails the

failure of subjective reasoning to apprehend the subjective

in the object (Kant 118-19). Kant's philosophy of the

aesthetic has had serious ramifications for literary

criticism, especially for the justification of the view that

works of "great literature" are inherently "beautiful" or

even "sublime" because they appeal to this common sense.

Anyone who does not see the beauty in them, then, according

to Kant, is allowing subjective notions of "purpose" (i.e.,

"taste") to interfere with the objective apprehension of *a*

priori value.

Obviously, in a post-structuralist world, this idea of

a common sense, of *a priori* value, is seriously undermined.

Nonetheless, in *The Gutenberg Elegies*, Birkerts mourns the

passing of the "stable hierarchies of the printed page" (3).

The "bound book," he says, "is the ideal vehicle for the

written word" (6). Bolter, on the other hand, asserts that

> We have begun by using word processors and
> electronic photocomposition to improve the
> production of printed books and typed documents.

> Yet it is already becoming clear that the computer provides a new writing surface that needs conventions different from those of the printed page. (3)

"True electronic writing," he continues, "is not limited to verbal text: the writeable elements may be words, images, sounds or even actions that the computer is directed to perform" (26). But assessing new forms entails redefining the terms we use to deconstruct them as well as redefining our conception of value in the first place.

New forms of literacy include among other things the ability to recognize the rhetorical differences between reading a text on paper and on an electronic screen. Christina Haas's study of writing technologies showed writers' difficulty getting a "sense of the text" when writing online (117-18): "Physical and spatial aspects of the text," she notes, "may provide cues to writers, helping them represent structure, meaning, and intent" (122), and these cues may be missing in online writing, necessitating the use of pen and paper or hard-copy printouts to facilitate writing and reading. Thus she argues,

> Writers' representations of their texts' semantic content may also be tied to spatial structures, including page layout, paragraph shape, or size of manuscript. Spatial location does not remain constant on a computer screen (because of scrolling), and the computer text is two dimensional, not having the additional spatial cues of the print text's physical pages. (127)

However, her study compares pen-and-paper writing to word-processed writing, both of which are forms written to be read on paper. While it may be true that writers often have difficulty writing electronically for print, spatial structures of online texts may be quite different from those of texts for print. Cynthia L. Selfe has noted that students, asked to compose texts specifically for electronic publication, "invented and exploited a new set of literacy skills that their teachers never imagined" (qtd. in Tornow 169). We now have the opportunity, then, "not only to learn the conventions and grammars of this new kind of text but also to invent grammars appropriate to it" (Tornow 169).

The meaning of a given sign in hypertext, as we have noted previously, may be categorically different from the meaning of that same sign in a print text. The printing press and modern word processing technologies allow for the use of different fonts, colors, and other textual features, or signs, that in turn impact the meanings of the text. For instance, underlining in print texts is often used to indicate titles, foreign words, or terms--that is, text that should be italicized. However, in hypertext, underlining is used to denote a linking of texts or parts of texts. In synchronous communication forums, speech acts become written acts, or speech written down, further problematizing de Saussure's distinctions between speech as sound and the

written word. And in hypermedia writing, emblematic or
iconic writing or writing with audio and video files make
possible new ways of constructing the "written text,"
problematizing our distinctions between the sign and the
signified still further, or, at least, complicating our
notion of what constitutes the "text."

Most modern rhetorics, however, continue to privilege
text-based elements. For example, Susan Miller and Kyle
Knowles, in *New Ways of Writing*, note that "Word processing
allows you to express voice, tone, and special emphases
visually" (5). However, their discussion of visuals and
graphics is limited to their use in reports to "clarify and
highlight written information" (89). Maxine Hairston and
John J. Ruszkiewicz in *The Scott, Foresman Handbook* include
information on designing and using visuals in the chapter on
"Document Design," and Andrea Lunsford and Robert Connors
include discussions of graphics and visual representations
in the sections on "Wired Style" and "Oral Presentations"
(Lunsford and Connors). *Coretext*, another recent handbook,
includes a quote from Roger Parker's *Looking Good in Print*
which opines that "Graphic design should provide a road map
that steers your readers from point to point" (qtd. in
Hairston *et al.* 268). However, most handbooks, including
these, focus only on such print design elements as "spacing,

margins, type styles and sizes [and] print quality"
(Lunsford and Connors 248), where to break a line of text in
print when referencing a World Wide Web address, or on *how*
to insert images in technical documents and personal home
pages on the Web. Few texts include any discussion of
graphics as rhetorical; that is, visuals are not presented
as part of the composing process but only as part of
document design, something "added on" to the text, as it
were.

Electronic writing is thus still often seen as
primarily a text-based form. Following the leadership of
Virginia Tech, for example, many universities are now not
only allowing theses and dissertations to be produced
electronically, some are even requiring it--even doing away
with print versions entirely (NDLTD). However, for the most
part, electronic theses and dissertations (or ETDs) are
defined as those files which may be accessed and read using
electronic means. The format is often still primarily
print-based, using Adobe *Distiller* software to produce files
in portable document format (PDF) intended for print. But
electronic documents may also include audio and video,
blinking text, animation, interactive forms, hypertext
links, or real-time discussion, and even word processors now
allow for embedding applications and hypertextual links into

documents. Of course, the very nature of reading in these electronic spaces disinclines most of us to the same kind of close reading of dense text that we may be used to on the printed page. Thus, without the links and graphics, white space and animations, sound and video files, or other elements allowed by electronic publishing technologies, our work may ultimately become anachronistic, as hard to follow for the reader of the future as modern hypertextual documents are now for many of us, raised and nurtured as we were in a print-based world. Clearly we need to learn how to evaluate these new forms, not merely as another medium for producing traditional print documents, but as a new form of writing, a new literacy, in their own right.

Ben Jonson once wrote, "[T]he Pen is more noble than the Pencill. For that can speake to the Understanding; the other, but to the Sense" (112). In the Renaissance, emblems, which combined both pictures and text, were often added for the "benefit of the uneducated reader" (Vicari 160) to help explain the text. Like the commonplaces used by Greek rhetoricians, they were "chosen from an established repertoire of meanings" (158). Illustrations, however, may also play an important role in the "creation of meaning" and may impose an "alternative authority on a text [. . .] capable of complementing, reinforcing, or even subverting the meaning suggested by [their] verbal

counterpart" (Gawel 170-72). In *Designing Visual Language*,
Charles Rostelnick and David D. Roberts contend that
"design, like writing, is a process that entails invention,
revision, and editing" (xix) with a "symbiotic relationship
between the visual and the verbal" (xix). Even the decision
to include or exclude these elements, then, is itself a
rhetorical one. For example, Cindy Selfe's Keynote Address
at the 1998 Conference on College Composition and
Communication (CCCC) is published online, but the published
version is minus the pictures she included in her live
presentation. If the pictures were important to her
message, how can they be separated? Or were they merely
added on? Or perhaps they were a rhetorical device that
works in one medium (i.e., a live presentation to modern
compositionists) but not in another--in "print" (or, in this
case, in a hypertext publication online)?

James E. Porter and Patricia A. Sullivan argue that

> Any page of text is composed of visual as well as
> verbal elements, and those visual patterns
> themselves exert a rhetorical effect, [which] not
> only cue the reader as to how the material is to
> be comprehended, but also attempt to persuade, or
> argue that the reader should adopt a certain
> posture toward the material. (117)

"[P]age design and rhetorical posture are interconnected"
they argue, "and the two work in unison to establish and
maintain authority over the users" (125). The design, or

format, of a mailing address, for example, includes cues that generate expectations in the reader and that facilitate the reader's understanding of the text. Bibliographic citation formats, such as MLA, APA, and Columbia Online Style (COS), also work both visually as well as textually. When these visual representations violate the reader's expectations, however, they may compete with the text and alter our understanding of it.

Nonetheless, many of us in the humanities often tend to denigrate images: television, with its swift succession of images, is too often condemned as merely "passive entertainment" rather than as a form of literacy itself, and many people see the WWW as nothing more than a picture book. Images in our culture have more or less been relegated to the realms of children's books, coffee table books, advertisements, diagrams in technical manuals, television and movies (i.e., entertainment), or pornography, while text, defined only as the written word, is ultimately privileged. Visual and multimedia elements, however, combine with textual elements in distinctly rhetorical ways, and must be considered as part of the composing process, not merely as additions to the word.

In medieval times, writing was "profoundly oral" and "inseparable from what is now called oratory" (McLuhan 94). Reading, too, was oral rather than visual, with books often

chained to a podium where the reader stood to read them.

Now, once again, says McLuhan,

> [W]e can understand why there should be a great
> diminishing of the special qualities of print
> culture, and a revival of oral or auditory values
> in verbal organization. For verbal organization,
> whether on the page or in speech, can have a
> visual bias such as we associate with the clipped
> and rapid speech of highly literate people.
> Again, verbal organization, even on the written
> page can have an oral bias [. . .]. (108)

McLuhan moreover sees a cinematic structure to the book
itself: "It is," he says, "a consistent series of static
shots or 'fixed points of view' in homogeneous relationship"
(127), and, as such, a way of attempting to homogenize both
"men and materials" (127). Electronic composition, however,
can help further resistance to the structuralist binaries of
langue and parole, signifier and signified, oral and
textual--or not.

　　We write differently with a pencil than we do with a
pen. Perhaps the possibility of erasure allows more freedom
to err, to experiment, to play. We write differently with a
pen that we do with a typewriter; while writing with a pen
is more permanent than pencil, it still does not seem to
require the same level of correctness as the typed page.
That is, with a pen we are still free to mark through
errors, to draw lines to connect ideas, to use smaller fonts
when necessary to squeeze more words, more ideas, into a
given space. The typewriter limits our choice of font sizes

and types, it limits the size of the paper on which we inscribe our ideas, it limits our revisions by its very unwieldiness--we are forced to retype entire manuscripts should we choose to add or delete words, and, of course, the inclusion of non-textual elements is a messy and awkward process at best. Word-processing technologies allow greater flexibility, merging the greater freedom and flexibility of the pencil with the permanence of the pen and the neatness of the typewritten page. However, word-processing technologies also limit our use of non-standard papers, and even the inclusion of non-textual elements may be limited by our access--or lack thereof--to state-of-the-art hardware or printers. Hypermedia technologies allow for a dimension in writing never before possible--melding orality and visuality, flexibility and fixity, fluidity and permanence, and more, while still imposing limitations depending on the hardware and software used by the author as well as by the intended audience.

Literacy, of course, as Shirley Brice Heath argues in *Ways with Words: Language, Life and Work in Communities and Classrooms*, is "located in social, cultural, and historical practices that have changed over time, not in anything objective or universal" (117), and these cultural spaces often "contrast sharply with language use at school" (112).

That is, writing outside of the classroom does not necessarily even involve words. In a study of workplace writing by engineers, for instance, Dorothy A. Winsor notes that "[n]on-verbal elements in engineering writing may not be words but they are certainly language, and their visual representation can be seen as a kind of writing." Many theorists have even posited that thinking itself may be visual at least as much as it is verbal (Fox 4). With the proliferation of powerful word-processing and desktop-publishing applications that make it easy to include graphic and multimedia elements even in traditional "print" documents, then, the scholarly essay itself may soon morph into a form that no longer privileges text as the primary means of communicating ideas.

In the wake of our realization that change is an inherent feature of communication and communicative practices, then, perhaps "change" should now become a sixth term in the traditional five-part canon of rhetoric. At any rate, although we may take issue with McLuhan's famous "the medium is the message," nonetheless, the medium of communication does impact the creation, transmission, and reception of the message in a myriad of important ways. Now we must look at how we can assess the effectiveness of changing literacies while they are still in the process of changing. We need to engage online spaces critically as they

are being developed, "acting from positions of critical awareness during the development and expansion of these technologies" (Johnson-Eilola 17), including not only a critique of the technological space itself, but also of the social, political, and economic forces that are driving its development.

CHAPTER FOUR – THE HOUNDS OF HELL

> *To meet the challenges of this new economy with*
> *our new society, we have to rely on our old*
> *values, but we have to make sure that we manifest*
> *them in modern ways. That means our public schools*
> *must change. They must teach our children while*
> *reflecting the way we work and live now and will*
> *work and live in the 21st century [. . .].*
> --President William Jefferson Clinton, State of
> the Union Address

Major changes in the demographic and economic make-up of America in this century have had important effects on the character of American education and on how the role of literacy instruction in this country is played out in the academy. In *Rhetorics, Poetics, and Cultures: Refiguring College English Studies*, James Berlin explores how the "shift from entrepreneurial to corporate capitalism" in the last century led to the "transformation from the old liberal arts college to the new research university," prompting the development of modern English departments in the first place (18). As he shows, in large part land-grant colleges and compulsory education were initially a means to provide trained workers and to assimilate the growing numbers of immigrants into Anglo-Protestant cultural norms.

Under the Fordist mode of production, work was highly specialized, with the "bureaucratic structuring of mental work" falling under the production-line mentality of manual labor (Berlin 43). The current post-Fordist mode differs from its predecessor in that "production becomes an international rather than a national process, a development made possible by technological changes in transportation and communication," the "small-batch production of a variety of goods," and the "internationalization of corporations" (43). Along with the growth of a post-Fordist economy has come the growth of an ever-smaller core of well-compensated full-time managers, and a workforce divided primarily into two main segments: "clerical, secretarial, routine, and lesser-skilled manual" workers and "part-timers, casuals, temporaries, and public trainees" (45). Essential to this new work force, if they are to compete successfully, are skill with language and a knowledge of proper work habits, attitude, and behavior (48). English studies is uniquely positioned in the academy as a key site of entrance: composition is one of the few, if not the only, universally required course in the curriculum. As such, we are often charged with providing both the language skills necessary for success (and weeding out those who do not conform to accepted standards) and instilling the "cultural skills and

knowledge most at issue in the assessment of qualifications"
(Watkins 205).

Berlin delineates three major paradigms of the "poetic-
rhetoric binary" in English studies: "literacy for the
scientific meritocracy," marked by current-traditional
rhetoric and literary criticism as philology; the "liberal-
cultural paradigm," wherein rhetoric becomes a branch of
poetry, a "product of genius," and oral reading is at the
center of teaching literature since "to those of taste the
text spoke for itself"; and the "social-democratic" that
argues that "Rhetoric in college should focus on training
citizens for participation in a democracy," encouraging a
"literary criticism that seeks to integrate the aesthetic
response with a study of the social and historical milieu
that generated works of art" (34). Current measures of
literacy assessment often reflect these same divisions, thus
serving the same political and ideological interests. As
John Trimbur notes,

> [L]iteracy--and particularly the ability to write-
> -is being called on to provide a common means of
> communication in a divided culture, to promote
> national economic recovery, and to explain the
> success and failure of individuals in a class
> society [. . .]. (48)

Our assessment practices are geared primarily to preserving
the *status quo* (White, Lutz, and Kamuskiri; Shale; Faigley;
Ohmann), measuring only those skills which are deemed

marketable, either in the academy or in the workplace. And, of course, assessment practices determine what counts as knowledge in the first place (Murphy and Grant 286-87): what we choose to assess reflects what we consider to be important. What is all too often measured by such tests, however, is not "literacy" *per se* but student's ability to write in the way that the testers value as we will look at in greater detail in the next chapter.

When *Newsweek* published an article entitled "Why Johnny Can't Read" in 1975 denouncing students' lack of literacy skills, teachers and administrators responded by attempting to prove that literacy instruction in the academy was, indeed, a serious pursuit and that students' failure to perform well was not the fault of educational institutions. Many educators blamed parents, television, or society at large for students' lack of literacy skills. Although literacy practices have changed over time, our current definition of literacy is synonymous with reading and writing alphabetic text, predicated only upon the last four hundred years of history (Pattison 5). However, as Robert Pattison notes, "[O]ur own common usage and that of other cultures belies so simple an equation" (5). Furthermore, defining literacy only as the ability to read and write a particular kind of text marginalizes those whose ways of

communicating--ways of speaking and writing--are different from our own (Farr and Nardini 118). Perhaps the perception that there is a literacy crisis at all is the result of changes in literacy practices in our society rather than any real decrease in our students' ability to communicate. Instead of trying to impose a vision of what constitutes literacy that conflicts with what literacy is now or may be in the process of becoming, therefore, we need to ask whether or not the literacy crisis actually exists or if "we are dealing with an illusion produced by a perspective that erases history" (Spellmeyer 174). That is, perhaps one reason for the perception that Johnny can't read or write is not because our students have lower literacy skills but, rather, because they are differently literate; that is, perhaps current definitions of what it is to be literate are already anachronistic.

By defining literacy so narrowly, we are, in effect, attempting to ensure that what we teach and study will remain static, an elitist study designed to preserve an homogenous literacy rather than promoting a critical one. Aristotle used the Greek word *agrammatia* (meaning "illiteracy") to refer to the "inability to read and write" as well as, more broadly, to refer to "the lack of awareness

of the uses of language" (Pattison 5). Tellingly, however,

Aristotle also used the term to refer to animals:

> some animals have a voice, and, of these, make
> ordered, mutually intelligible sounds, while
> others simply make noise without any purpose or
> organization. These last beasts Aristotle calls
> illiterate. (5-6)

When we cannot discern a "purpose or organization" to the

"noise" of those who speak or write differently, rather than

questioning our own literacy, we question theirs. In

effect, at least at some level, those whose literacy

practices are different from our own are perceived as

somehow lower on the food chain as it were. This elitism is

part and parcel of our assessment practices, with the

academy, then, acting as a kind of sorting machine,

"reinforcing class relations by determining the future

occupations and income levels of young people" (Berlin 22),

providing a valuable service to the corporate world and

ensuring our own position in society. However, as John

Trimbur notes,

> If we think of the politics of writing assessment
> as the result (as well as the cause) of the great
> ongoing American literacy crisis, then the role
> composition studies has in the public debate about
> standards may be to *keep the meaning of writing
> fluid and indeterminate*--a subject of cultural
> contention as much as a measurable skill.
> (Trimbur 48, emphasis added)

The introduction of computers into the writing

classroom and the emergence of network technologies have

further added to the confusion over both the definition of literacy and the goal of the composition classroom. Initially, of course, computers were introduced into the classroom as a way of correcting errors in writing rather than as a new medium for communicating. It soon became evident, however, with the development of networking technologies and especially of the Internet, that computers could be used as more than fancy typewriters. In consequence, it is apparent that what writing teachers are doing, or need to do, is not simply about writing traditional academic papers. However, more and more, corporations rather than educators are determining how educational practices are implemented (Berlin; Johnson-Eilola). Instead of providing students with a "well-rounded education," we may find that we are being asked to provide instruction in "marketable skills" (185), whether or not this caveat is made explicit. Although Berlin argues that "colleges ought to offer a curriculum that places preparation for work within a comprehensive range of democratic educational concerns" (51) that will both prepare students to enter the work force and prepare them as "critical citizens" (52), the reality of the technologized classroom may often work against such democratization. The classroom itself, with or without computers, is, of course, politically situated. Moreover, the very unfamiliarity of

the technologized classroom can work against even the most ardent proponents of liberatory pedagogy as resistance to new technologies forces us to justify its existence in traditional terms.

The early days of computers and composition were in many ways a time of uncritical optimism, of course, as members of the emerging computers-and-writing community began to explore ways to use this new medium to create a more egalitarian classroom and foster a sense of community. But the same technology that allows teachers and institutions to empower their students can also be used to give "universities the opportunity for more power than ever before" (Flores 108). In *Fragments of Rationality*, for example, Lester Faigley argues that computer conferencing and synchronous communication can help to increase collaborative opportunities in the composition classroom. Initially, he is optimistic about the effects of the networked classroom on discursive relations: "[E]lectronic discourse," he notes, "offers a means of exploring how identity is multiply constructed and how agency resides in the power of connecting with others and building alliances" (199). However, these same spaces can also allow for a decrease in teacher authority and control of writing, which can be very disconcerting to both teachers and students.

Faigley thus concludes that the networked classroom, while

creating "opportunities for resistance to the dominant

discourse of the majority" (199), also allows students to

wrest control of the conversation away from the teacher or

from each other. Teachers, especially those new to teaching

in electronic environments, often have a difficult time

coping with feelings of powerlessness in the face of this

loss of authority. And, further, the teacher may also be

relinquishing control, knowingly or not, to the interface.

That is, the technology itself, or, more accurately, the

developers and maintainers of the hardware and software, may

ultimately be the ones who decide how the technologized

classroom is configured and, thus, to decide what

constitutes "literacy" in these spaces.

The intersection of computer technology and the writing

classroom can help to foster an awareness of the classroom

as an ideological construct rather than a physical space, of

course, and of writing as more than a means of rendering

thought into a commodity, marketable or otherwise. Johndan

Johnson-Eilola, for instance, argues that, by focusing on

the collaboration that electronic spaces can allow, and

encouraging cognitive mapping of the spaces in the classroom

and in texts (and hypertexts), we can foster a greater

awareness of how we (and our students) write and are written

by the ideologies informing the classroom, whether online or

off. For example, technology is often regarded as all powerful, able in and of itself to effect change: in pedagogical practices, communicative and literacy practices, individuals, and even in societies themselves. In other words, many people believe that, simply by virtue of using technological "tools" for writing and reading, the writing classroom will magically be transformed into a democratic space. Literacy itself, then, would also be transformed merely by virtue of the medium used to produce or access it. This, however, ignores the gatekeeping practices that work against change, working to ensure a measure of stability. By examining how these gatekeeping practices work, we can come to have a better understanding of the ideologies that inform them and perhaps by so doing we can help foster the skills to approach them critically.

The concepts of ownership of intellectual property and single-authorship perpetuated by traditional citation and quotation formats, for instance, are reflections of the economic necessities of the past few centuries. The commercial development of hyperspace readily encourages the commodification of information, just as the technology of print made "words into objects" (Johnson-Eilola 106). Future methods of research and delivery using online spaces are "threatened by governmental directives designed to aid business rather than educational institutions" (126). Many

proponents of the use of technology in the classroom tout
its benefits for encouraging or facilitating collaborative
work, while few question whether or not collaborative
authorship itself is even desireable in the writing
classroom. Nonetheless, our own valuation of scholarship in
promotion-and-tenure decisions does not usually value
collaborative work in the same ways as individually-authored
work.[4] Obviously, the ideologies behind these ideas also
need to be seriously questioned in light of the economic
realities of the twenty-first century.

Although the possibilities do exist (and are, indeed,
being explored by technorhetoricians) for hyperspace to be a
space for grappling with the Other (i.e., Mary Louise
Pratt's "contact zones" and Henry Giroux's "border
pedagogy"), the spatializing metaphors of hyperspace which
replace the more temporalized metaphors of print also allow
for an articulation of hyperspace as a space for
colonization (Johnson-Eilola). This is best exemplified by
the use of English--and especially of American English--as
the standard for communication in online spaces: the
seven-bit code that assigns numbers from 0 to 127 to the
English character set, or ASCII (American Standard Code for
Information Interchange), is used by many Internet and
computer applications to represent text, allowing for the
transfer of data between applications and platforms.

Internet addressing also bespeaks American colonization of hyperspace. That is, while most Internet domain names include a two-letter code designating the country of origin, the ".us" country designator is usually glaringly absent. The United States, thus, becomes naturalized, the standard against which everything is else is measured. However, the Internet is an international space; as such, what consitutes literacy online is not necessarily what has traditionally constituted literacy in American English departments. How do we reconcile our continued privileging of standard American English with the needs of an international audience? Even the interface of the computer's operating system, with its graphical icons representing a middle-class desktop, for example, as found in Macintosh or Windows95 operating systems, can be seen as a form of colonization, a way of naturalizing the world of white, middle-class, primarily male Americana.

A primary goal of developers of technology is that the technology itself be transparent, of course, but this very transparency may also be inculcated in the paradox of hypertext:

> Whereas an overly restricted and/or difficult-to-use functional text might give users a critical position in relation to the technology [. . .], a fluid, very fast functional text that appears to respond directly to the user's immediate needs constructs accommodating users. (Johnson-Eilola 63)

"Functional hypertexts," argues Johnson-Eilola, "are defined, socially and politically, in this politics of amnesia" (50). The very act of linking in a way contributes to this amnesia as hypertexts become collections of interlinked texts, assuming an appearance of infinite possibilties, while actually existing within a continually circuitous and delimited space. Continuing to envision hyperspace as an extension of print technologies furthers this accommodation by envisioning it as only a "more technically efficient" distribution channel, thus naturalizing it rather than exposing the implications of this vision (87).

However, the vision of hypertextual space as a liberating translation of print space or a collection of information often metaphorized as a library can be contrasted with the commodified vision of hyperspace conceived by its creators. Theodor Nelson, often credited as the creator of hypertext, has proposed what he calls a "transcopyright," which would, he argues, allow for "broad re-use of materials" by creating a cyberworld wherein "words and ideas [are] freed from the technological limitations of paper and ink":

> Nelson described a world spanning network of
> information repositories containing all the
> information in the world 'cross-referenced, linked
> and transcluded'. The central tenant of his work,
> Transcopyright, provides unimpeded access to

> information to those quoting excerpts in a new
> context (transclusion) while automatically
> providing compensation and protection to the
> holder of the copyright of transcluded media.
> (Epstein)

This proposal would, in effect, "'meter' each use of a copyrighted work, and [. . .] charge a user a fee for the use" automatically (Epstein). However, citing even portions of a document would require some payment under this system, and would, therefore, entirely negate the concept of "fair use" in cyberspace (USPTO). Evidently, the vision of cyberspace as a space for the free and democratic exchange of information and ideas is far different from that of those who are developing new technologies.

Much of the current structure of the World Wide Web actually encourages and reinforces the structures of traditional scholarship, including single-authorship and ownership of text (Johnson-Eilola 151-62). Moreover, by allowing space for dissent and circumscribing it, hypertext also defuses it (Johnson-Eilola; Moulthrop). Commercial interests have fostered much of the technological development that has, in turn, spurred the growth of online environments. As a result, the online world has rapidly been changing from one of a forum for discussion (readily allowed by text-based interfaces) to a forum for presentation of commercial interests, requiring more and more powerful hardware in order to exploit the glitzy,

point-and-click graphical interfaces that, in effect, shut

down communication as a two-way (or multi-user) act

(Johnson-Eilola 184).

However, in reaction to the loss of control that many

feel in the online classroom--and in cyberspace in general--

rather than examining the underpinnings of technological

development, teachers and administrators often seek for a

means to reinstate control by designing computerized

classrooms in more and more circumscribed ways. For

example, a panopticon arrangement allows teacher to peek

over students' shoulders and monitor their work. Networks

can be designed to allow teachers to "snoop" into a

students' ongoing work by eavesdropping on electronic

conversations or peeking at students' compositions in

progress. In some instances, designs allow for teachers to

wrest control of the students' computers in the classroom

entirely, or, in synchronous communication sites such as

MOOs or Daedalus' Interchange, of students' very right to

speak. Software, as Cynthia L. Selfe and Richard J. Selfe,

Jr., note, can "enact--among other things--the gestures and

deeds of colonialism, continually and with a great deal of

success" (484). Limiting student access in MOOs to

programming or communication commands, building permissions,

and so forth, or to "inappropriate" material (i.e.,

pornography, sexually-explicit materials, or even

controversial information on the WWW or in newsgroups) can

thus be seen as measures of dominance. Some schools, for

example, ban telnet access across the board because it can

be used to access MOOs and MUDs considered by many

administrators to be games rather than educational spaces,

and, hence, a waste of valuable--and limited--resources.

Firewalls and other filtering devices can ensure that access

is only allowed to certain types of information or sites,

and intranets and software such as WebCT can limit access

only to those to whom we have granted permission. These

decisions, by the way, are often made by systems

administrators without the input of users. The physical

configuration of the computer classroom and the computer

network may be designed, in part, to exact measures of

control by allowing teachers to monitor students and ensure

they remain on task. And MOOs and other synchronous

communication sites, especially those such as Diversity

University or Connections MOOs designed specifically as

educational spaces, may allow teachers to control students'

actions, effectively squelching the normal underlife of a

classroom and resisting student resistance. Thus,

technology can help to impose structures of power and

control that may even undermine the intentions of educators

who see student resistance as a positive part of the

learning experience, particularly in the composition

classroom. The idea of cyberspace as democratizing,

therefore, is all too often only an ideal and not a reality.

Many online spaces mirror traditional academic

structures--building classroom spaces where wizards[5] and

teachers have the knowledge and power, and students are more

or less left to reside on the receiving end of knowledge.

Thus they are becoming communities of teachers and wizards

that may exclude students (and others) from full

participation. In "Cocktails and Thumbtacks in the Old

West: What Would Emily Post Say?" for instance, Laurel A.

Sutton cautions newcomers that

> After you join a group, it's best to lurk for a
> while and get the feel of it. Each newsgroup has
> its own culture and its own social conventions,
> and unless it is a brand-new group, you must be
> prepared to behave like the native population.
> (174)

This sentiment is echoed in most netiquette[6] guidelines. The

danger here is that, far from being democratizing, computer

spaces can instead mirror (and thus reinforce) real-life

structures of domination and marginalization:

> [T]eachers of English who use computers are often
> involved in establishing and maintaining borders
> themselves--whether or not they acknowledge or
> support such a project--and, thus, in contributing
> to a larger cultural system of differential power
> that has resulted in the systematic domination and
> marginalization of certain groups of students,
> including among them: women, non-whites, and
> individuals who speak languages other than
> English. (Selfe and Selfe 481)

One problem is the tendency to view the online world as "virtual reality," which is, or can be, essentializing, reductive, and, perhaps, just plain dangerous. Metaphors such as this do not merely describe reality (virtual or otherwise); they also help to shape that reality. Thus, using the metaphors of the traditional classroom to describe online writing spaces may impose the same structures of domination and control onto virtual spaces as are often engendered in real-life classrooms. And these metaphors may encourage teachers and students to unwittingly reproduce structures of dominance and control, even when these structures are consciously resisted in the traditional classroom.

The first online dissertation defense, which took place at Lingua MOO in 1995, is a case in point. The dissertation was a traditional one on a traditional topic, "Penelopeia: The Making of Penelope in Homer's Story and Beyond," by Dene Grigar at the University of Texas at Dallas. The defense was held in a specially-designed MOO "room," called a $classroom, which imposes certain restrictions on participants. For example, in the case of Grigar's dissertation defense, only panel members were allowed to pose questions; questions were mediated by the use of a queue; and while the audience could talk amongst themselves (unless they chose to "wear" a special virtual headset which

blocked input from fellow audience members), Grigar and

members of the panel were unable to hear their comments or

see their emotes[7] (Grigar and Barber). Rooms such as these

can be effective, of course, by disallowing some of the

chaos that is often so much a part of synchronous, or real-

time, communications. As Ken Schweller aruges in "MOO

Eduational Tools,"

> the proper use and not the misuse of tools such as
> the $classroom can be liberating rather than
> oppressive. There is nothing so annoying as
> trying to follow a speaker's online argument or
> carry on a serious discussion and being constantly
> interrupted by extraneous emoting or a bystander's
> off-top conversation. Moderation rooms [. . .]
> offer a way to control this conversational
> confusion and empower the users to dynamically
> select moderation levels appropriate to a room's
> changing activities. (94-95)

Within the confines of the composition classroom, however,

this kind of control can also work against attempts to allow

students' right to their own discourses. In the case of the

dissertation defense, rather than exploring how new media

can empower students (or others) or considering new ways to

approach old tasks (or even considering whether or not the

tasks themselves can or should change), it instead mirrored

existing structures and thereby effectively negated even the

possibility of change.

Like many of our current assessment practices, our

Ph.D. qualifying exams may also fail to test the ability of

a given student (or, indeed, of any student) to enter the

ranks of professionals. While admittedly the ability to
evaluate and connect the various materials that students
have been studying is a valuable skill, the ability to sit
in a room with no source material and write a timed essay
consisting of regurgitated facts may already be
anachronistic. Instead, then, what we may actually be
testing, in a very Aristotelian sense, is the student's
memory. What tests such as these are judging, then, is not
the professional readiness of the student but the student's
ability to conform to a model of literacy which we revere.
In other words, we want our students and colleagues to be
like us (Faigley, "Judging Writing").

The form of the dissertation is also perhaps merely a
demonstration of content knowledge without the rhetorical
power of expertise, predicated upon producing consumers of
expertise rather than experts (Geisler 81). The ubiquitous
survey of literature along with the profusion of references
required by most dissertation committees helps to ensure
that the dissertator has consumed the requisite body of
scholarship in his or her field. Further, the work must
conform to the expectations of its primary audience--the
dissertation committee--thus guarding against serious
disruption of accepted knowledge in the field. That is, the
forms of the Ph.D. exam and dissertation, as are most of our
assessment practices, are reflections, at least in part, of

the desire to create students who are replications of ourselves, who are producers and consumers of what *already* counts as standard academic knowledge and, thus, readily assimilable into the cultural norms of the academic workplace.

These same practices are reflected in our tenure-and-promotion criteria as well, helping to perpetuate the *status quo* by privileging a certain view of literacy, usually the form of literacy required by print journal publications, university presses, and other traditional venues for publication, thereby effectively limiting work in new media and new forms. For instance, the MLA Committee's "Evaluating Computer-Related Work in the Modern Languages: Draft Guidelines Prepared by the MLA Committee on Computers and Emerging Technologies in Teaching and Research" has prompted some to review tenure and promotion guidelines to take into account the online work being done by faculty, but in ways that only recognize online work in existing terms. The guidelines make it clear that "the criteria for evaluating computer-related work will be based on existing criteria and the traditional categories." While this does allow for recognition of electronic work that can be made to fit existing criteria, nonetheless these guidelines do not adequately address the need to change the criteria in the

face of change in our definition of writing itself.
Consequently, we are left with three choices: first, somehow
make electronic work fit into existing guidelines so it can
be justified along traditional lines; second, continue to
push the envelope by experimenting with new forms of
literacy as well as new forms of publication, with the
realization that this work may not count as scholarship in
many departments; or, third, change the definitions of what
is valued, of literacy and scholarship, to fit the realities
of the present and, as much as possible, to fit whatever the
future may hold.

Of course, tenure itself is under attack by many
conservative groups who (rightly) see it as defending
controversial and often radical ideas. Although these same
groups have called for a "back-to-basics" approach to
education in which students learn to use computers,
nonetheless they are often reluctant to grant the protection
of tenure to professors who experiment with new media and
new forms for scholarship and teaching. The purpose of
tenure in the academy traditionally is to protect those who
express unpopular ideas. Since tenure protects the
expression of what is unpopular, that is, what the public
does not like, then by definition, tenure itself must be
unpopular. What scholars are doing in cyberspace is often
radical--as unpopular inside the academy as outside it.

Thus, it should rightly fall under the very definition of what tenure is designed to protect. Nonetheless, tenure protects conservative ideas just as much as, if not more than, radical ones. That is, tenure guidelines may also work to protect the status quo and stifle change. Therefore, to get academic credit for online work, many scholars are simply emulating the more traditional off-line work and putting it online.

Many of those charged with serving as gatekeepers in the field of composition see online work, especially work in synchronous communication, only as conversation and not as scholarship, and, as many of them once did with cultural studies, take an unashamedly elitist attitude toward it. Like popular culture, online work is often "deplored for its deficiencies--for its lack of 'moral seriousness' or of aesthetic value" (Turner 43). Perhaps part of the reason for this dismissal of much online work can be traced to the fact that the text in these spaces is not inscribed in any permanent medium. Each foray into the cyberworld can confront the reader or researcher with an entirely new text. Like electronic communications, societies and individuals also refuse to remain fixed. Ethnographic research as part of cultural studies' approach to studying the living text of a culture, thus, is also sometimes viewed with disdain because of its non-replicability as a result of the often

ephemeral and contradictory nature of the lived experience.

So, too, even more permanently inscribed texts of popular

culture--TV and music and films and books and

magazines--although preserved on various recording devices,

are often viewed as too ephemeral or too lacking in

seriousness to be considered as worthy subjects of study.

Throughout all of this, there seems to run the thread that

somehow what counts are only words preserved on paper.

What, then, happens when more of our texts become

transitory, as *Agrippa: A Book of the Dead* so poignantly

expresses in its refusal to even exist after it has been

read?

At a meeting of "Jesters" at DaMOO, John Towell argued

that only those studies published in peer-reviewed

journals (whether online or in print) can be considered

"serious studies." The process of print publication

determines what is valued by what is published, with

editors, publishers, and peer reviewers serving as

gatekeepers (Parsons 7). However, such gatekeeping is also

a "form of information, or knowledge, control" (15). Paul

Parsons argues, however, that this is not the same thing as

censorship: "[C]ensorship is the deletion of objectionable

material, a process quite different from selection. If

publishers did not have the right of selection, they would,

in effect, become clerks, publishing everything that entered
the gate" (15). In a way, what Towell and Parsons are
arguing, however, is that the formal process of peer-review
and editorial selection will decide for us what we should
value. In this same vein, a philosophy professor at the
University of Evansville has created a World Wide Web search
engine called Argos designed to act as a sort of peer
reviewer of information, a guardian of what is valuable
currency online:

> Argos is the first peer-reviewed, limited area
> search engine (LASE) on the World-Wide Web. It has
> been designed to cover the ancient and medieval
> worlds. Quality is controlled by a system of
> hyperlinked internet indices which are managed by
> qualified professionals who serve as the Associate
> Editors of the project [. . .]. The overall
> quality of Argos is, therefore, determined by a
> system of peer-review. This system is based on an
> "accreditation" model of legitimating resources,
> rather than a "referee" model. We have chosen to
> do this, because accreditation models are designed
> for works, institutions, etc. that change over
> time and that may, in the process of their change,
> fall below certain standards. The Associate Sites
> accredit other sites by including them in their
> indices; when, and if, these sites fall below the
> standards established by the Associates, they are
> removed from the Associate Site and, at the same
> time, from the Argos search window.

In the case of this search engine, what is valued is that
which is returned. We are accumulating online, then, a sort
of electronic canon of works deemed important enough, or
scholarly enough, or acceptable enough to be included by
mirroring what the print world has accomplished through the

peer-review and publication process. However, according to

Seth Katz,

> [I]t is easy to see how publishing in a
> peer-reviewed online periodical is equivalent to
> publishing in a peer-reviewed print journal. But
> many activities do not readily fit into one
> category, or else do not clearly fit into any of
> them. Thus, computer-related work poses a threat
> to the traditional modes of evaluating academic
> work.

Furthermore, some scholars disagree entirely that online

periodicals can even be evaluated along the same lines as

print:

> [W]eb publications are fundamentally different
> from print, requiring separate evaluation. What
> needs to be reconsidered is not whether on-line
> publication is as good as printed publication, but
> whether the tradition-bound, print-based standards
> for tenure evaluation need to be revised so they
> are more in line with the goals of what most
> people consider to be true scholarship, learning
> and teaching. (Gillette)

Whether we accept online publications as the equivalents of

print ones or not, the process of selection and peer review

has the potential to be also a way of selecting the ideas

that we lend credence to in academia. Serious work that is

unpopular can be stifled or ignored if it doesn't fit.

Since the nature of the Web right now is that anyone can

publish, we have the opportunity, if only briefly, to open

up the conversation to those who might otherwise be

silenced. Admittedly, much of what is published online may

be tripe; however, important work that cannot be forced

into traditional modes is also being done. Since, according to Gary A. Olson, "[P]ublished works are the currency with which we purchase tenure, promotion, salary increases, and the respect of colleagues" (50), setting clear guidelines as to what counts as scholarship and what does not is mandatory.

The politics of writing assessment ensures that what is often being measured by our tests is students' ability to "employ socially inherited forms" (Bruce Horner 507). By focusing on traditional forms, these testing practices can effectively discourage change: "what remains [. . .] is not social but marginal and therefore of no consequence" (506). By ignoring changes in literacy practices, our assessment practices make it all too clear that what is really at stake is not literacy but merely the form it takes, that is, the existence of writing *as we know it* (Macrorie).

A study by the National Center for Education Statistics reported an "overall pattern of declining performance is evident in the average writing scores across the assessment years [among eleventh graders]." However, during the same period (1984 to 1996) and for the same population (eleventh graders), they also report an increase in the use of technology in the classroom from nineteen percent to ninety-six percent. These figures force us to consider why an

increase in the use of technology should be accompanied by a decrease in writing skills as measured by this study. Perhaps it is our definition of "writing skills" that is at fault as the use of technology fosters the acquisition of new communicative skills in our students. Thus, although it is entirely possible that increased use of technology (in or out of the classroom) may be causing a decrease in students' skills in writing traditional texts, it is also entirely possible that writing traditional texts may already be out of touch with the real communicative needs of our society.

In "New Views of Measurement and New Models for Writing Assessment," Roberta Camp argues that assessment should consider

> what kinds of performances are central to students' learning about writing, what kinds of information can legitimately be derived from those performances, what generalizations about students' ability and development can be made on the basis of the information derived, and whether the writing performances required for our new assessments are equally appropriate for students who draw on different cultural and linguistic experiences. (143)

However, outcomes-based assessment instead all too often

> confuses models and prototypes with production quality. If we learn *only* [sic] to hit "a" target, we are unlikely to hit "the" target when parameters change. If we are unaware of the variables that affect our own production but learn to produce on demand anyway, then when the parameters change, we are unable to discover novel paths to a solution. This is one reason why the ancient rhetors relied on myriad topoi and common places. (Royar)

The five-paragraph essay is a good case in point. One reason it persists may be its convenience:

> writing becomes merely a transparent medium through which students can deliver back a body of knowledge to the teacher. A predictable format makes assessment that much easier. (Tinberg)

New forms of writing, however, may require new formats for assessment.

All of this simply points to the fact that we are all confused--confused because we do not know how to read and write new forms, we do not know how to teach them, and we do not know what standards to use to assess them. For instance, a traditional dissertation in English studies at many universities is required to run approximately one-hundred fifty pages in length, but how many bytes is that? How do you defend a dissertation such as Keith Dorwick's online writing lab that changes as it is in the act of being "read"? How do we teach and assess our students' work in the classroom in new forms that the students may be better equipped to understand than we are? Obviously, throwing out existing standards entirely is a bit like throwing the proverbial baby out with the bathwater, but we need some way to think about, to talk about, and to assess emerging literacy practices that is not bound solely to the medium in which they are produced and published. In other words, we need a way to evaluate effective writing no matter how that

term may come to be defined in the future. Thus, in the
next chapter, I look at ways that we can approach teaching
and assessing new forms in the writing classroom that
recognize change as a permanent and essential component of
literacy.

CHAPTER FIVE – FANNING THE FLAMES

> *You enter your traditional classroom on the first*
> *day of class. You attempt to write your name on*
> *the board but there is no chalk and no chalkboard.*
> *Disoriented, you turn to the class, but all of the*
> *students are facing the back of the room. You try*
> *to get their attention, but half of the students*
> *are talking on cellular phones, and the other half*
> *are flipping channels on portable television sets.*
> *Finally, the ceiling and walls of the classroom*
> *slide away, and the floor begins to stretch out*
> *infinitely toward the horizon.*
>> --Roxanne Kent-Drury, "Finding a Place to
>> Stand: Negotiating the Spatial Configuration
>> of the Networked Computer Classroom."

In a *New York Times* article entitled "The End of Books," Robert Coover declares that "the very proliferation of books [in our time] is [. . .] a sign of its feverish moribundity, the last futile gasp of a once vital form before it finally passes away forever, dead as God" (11). Meanwhile, the Media Laboratory at Massachusetts Institute of Technology is working on a project they call "the last book," which looks like a book, but uses electronic ink, or e-ink, which isn't even ink at all. Instead, a tiny computer embedded in the book's binding causes the "ink" to arrange itself on the "page" into whatever text the reader chooses. This one book, the last book, is, thus, all books

in one--"[e]very book ever published in a single volume"
(Lehmann-Haupt). If all of this sounds a bit far fetched,
consider that Microsoft announced recently that they have
developed a liquid-crystal display that "approaches the
visual quality of text printed on paper" (Markoff), and
powerful palm-top computers that can fit in a shirt pocket
are quickly replacing bulkier laptop computers as we move
toward what may almost seem like a scene out of Dick Tracy.

Although many scholars, like Sven Birkerts, fear that
the book is dead or dying, others believe we will have more
books but that they will be produced, delivered, and
consumed electronically. Since, as noted previously, the
experience of reading online has a distinct effect on the
meaning of what we read, writing for online spaces must also
change in response to the specific vagaries of the medium.
As teachers, then, it behooves us to ensure that our
students are adequately versed in the forms of literacy they
need to develop critical thinking and communicative skills
for their academic, professional, and personal lives. Chris
M. Anson argues that our key role as educators is to "create
opportunities and contexts for students to write and [to]
provide expert, principled response to that writing" (275),
and I would add this is true regardless of how we come to
define writing. Nonetheless, what Anson so aptly dubs the

"textual landscape of writing instruction" has not changed significantly in the last fifty years or so.

Declines in student literacy are often attributed to a wide variety of factors: the Free Speech Movement, lower academic standards, poorly-trained teachers, telecommunications technologies, demographics, and open admissions, among others (Washington). In "The Writing Crisis in Urban Schools: A Culturally Different Hypothesis," Gerald R. Washington recounts the results of a comparative study of student writing conducted by the National Assessment of Educational Progress (NAEP) in 1969 and 1974, which found that "only half of America's high school students write expository, argumentative, or narrative essays that are organized, coherent, and well developed" (Washington). Of course, just as the physical configuration of the classroom has changed very little in the last century, such that the nineteenth-century schoolteacher would feel right at home in most of our classrooms today (Anson), so, too, there have been only negligible changes in our assessment practices during the last twenty years. This is true even though, as we have seen, there have been radical changes in the technological configurations of reading and writing. In response to studies such as this that bewail declining literacy rates in our nation's classrooms, we have focused on amending teaching practices,

in effect attempting to make literacy fit the tests. Instead, perhaps we should consider if our testing practices may be failing to take into account changes in what constitutes literacy in the current age.

Many educators fear that commercial interests will take over the job of education if we fail to provide students with the skills required for the workplace, the same skills that are usually measured by tests such as the NAEP's. The Business Coalition for Education Reform (BCER), for instance, reports that "The majority of America's young people are not learning enough in school." As a result, they urge employers to "support efforts to raise academic standards," by which they mean their own efforts to "gain access to a wider supply of skilled, capable workers" (BCER). The educational goals pursued by business interests, however, are often at odds with the goals of educators, who may instead see the goal of the writing classroom as empowering students to be critical citizens, capable of resisting the hegemonies of an industrial regime that capitalizes human beings as "resources." Nonetheless, so long as our students enter the workplace unable to communicate effectively because they do not know how to translate writing with a pencil to communicating with newer technological tools, the academy itself will remain at risk, and our own goals are thwarted when students are unable to

either accommodate *or* resist because they lack the necessary skills--the necessary literacies--to do so.

In 1991, a poll of American educators and employers reported that "a majority of high school students neither like to write nor do much writing in school or outside of school" (U.S. Dept. of Education). In particular, among eleventh graders only eight percent wrote more than three pages per week in English classes, with sixty-one percent writing papers of three pages or more less than once per month, and only twenty-eight percent reporting that they wrote outside of school. One of the benefits most often cited by computers-and-writing advocates is that students are writing more in the electronic classroom (Norris, Smolka, and Soloway; Hawisher; Reiss; et al.). Writing more, of course, does not necessarily mean that students are writing better (Miller). But does the fault lie in the use of technology or in our own resistance to change in what constitutes "good writing" and lack of familiarity with new forms of literacy?

Even though our theoretical approach to teaching composition has undergone a sea change in the last decades, moving from a product-centered to a process-oriented approach, the physical configuration of writing has changed very little. That is, as Anson says, "students write or

type on white paper of a standard size and turn in their work, adhering to various admonitions about the width of their margins and the placement of periphera such as names, dates, and staples" (262). A recent discussion on the listserv for the Alliance for Computers and Writing (ACW-L) debating the number of spaces required after a period by MLA format proves that many of us--even those intimately involved with emergent technologies--still see these traditional print-based structures as an important component of writing itself. However, rather than presenting structural rules for the production of one specific form of literacy--the academic essay--that rely on a specific medium of production, i.e., Gutenberg technology, I suggest that we should be helping students understand how the structures of writing, of communicative acts, are rhetorically informed.

Comparing students in a design-intensive writing class with those in a more traditional one, Mike Markel concluded that "students in the design-intensive section achieved a greater understanding of the role design can play in communicating the cognitive development of a text" (382). However, he argues that "the scholarly community has not [. . .] established a baseline measure of students' abilities to perceive and understand basic elements of visual rhetoric" (374). Thus we can see that perhaps the perception of declining literacy is predicated on a failure

to recognize that texts consist of more than alphabetic

characters, or what one contributor to an academic listserv

has termed "letteracy." As students use technological means

to read and write, more and more they are becoming immersed

in oral/aural and visual means of communications.

Nonetheless, the impact of technology and the incursion of

multimedia on our communicative practices is often ignored

in both our teaching and assessment of writing and the study

of literature.

Researchers with the Educational Testing Service (ETS)

also argue that technological developments necessitate

changes in our assessment practices (Bennett). Computer-

based tests, already being used in some areas, include

response-driven selection of questions that allow tests to

be tailored to an individual's skill level. That is, the

computer automatically selects questions based on the test

taker's response to previous ones. The next generation of

computer-based testing, the researchers predict, will

introduce multimedia elements such as audio, video, and

animation that they believe will allow for an increase in

the test's ability to measure traditional skills as well as

increased ability to measure new ones. They argue,

> In both paper and computerized tests, we often
> assess skill in getting information from print.
> We do this assessment because we consider reading
> critical to success in school, in most jobs, and
> in activities of daily living. The importance of

> electronic media in communicating information is clearly growing. (Witness the fact that most Americans get their news from TV and also note the rapid ascent of the World Wide Web.) Consequently, we will increasingly expect students to be able to process information from a variety of sources. Given this expectation, perhaps we should evaluate not only how effectively people handle print but how well they reason with information from film, radio, TV, and computers. (Bennett)

The third generation of computer-based testing will more than likely include "interactive environments" as educational and assessment functions merge, according to the report (Bennett). The focus of both teaching and assessment, they believe, will be on "[t]he ability to pose the right questions and find, analyze, and organize relevant knowledge." Thus, "deftness in deploying virtual assistants" becomes a critical skill (Bennett). And yet most of our writing classrooms are not teaching the skills that these tests measure. For the most part, that is, we are still encouraging students to seek out only that information which has already been evaluated for them.

This is due in part to the fact that, even where our educational institutions have "adequate" access to technology,[8] most teachers today still have little or no training in how to incorporate this technology into their teaching (Basinger). Cheryl Lemke, Executive Director of the Milken Exchange which commissioned a recent study of teacher education programs in our colleges and universities,

believes that the results of the study should be a "wake-up call" to educators: "Today's students," she says, "live in a global, knowledge-based age, and they deserve teachers whose practice embraces the best that technology can bring to learning" (i). According to the study, however, even though stand-alone courses in instructional technology (IT) may already be part of many teacher-preparation programs, "formal stand-alone IT coursework does not correlate well with scores on items dealing with technology skills and the ability to integrate IT into teaching" (Milken Exchange 3). The study strongly recommends, therefore, that IT be incorporated into other courses. The integration of technology into the graduate curriculum in literature and composition studies, then, is essential for the future of teacher-education programs as well as for the preparation of future university-level faculty in our own field. Integrating new technologies into our pedagogy, not merely as add-ons to facilitate traditional pedagogies but as crucial elements of the classroom, is therefore necessary if we are to foster the kind of skills that all of our students will need to cope in a changing environment. Only by so doing can we help students to acquire not only the technical and cognitive skills requisite for its use but, at the same time, empower them to think about technology and its effects critically.

But a commitment in our universities to train teachers to integrate technology into their classrooms in meaningful ways will not come unless we value the study and production of new forms as much as we do that of traditional forms. In other words, tenure and promotion criteria, assessment criteria, and other determinants of value in the academy must change as well. Of course, this does not mean that we simply toss tradition to the winds--at least, not until it falls by the wayside of its own accord. Ours is an era of multiple literacies. As such, we are in a unique position to reinvigorate English studies, and especially composition studies, by the study and teaching of new and existing forms of literacy side by side even as they continue to evolve and change. Over one-third of American homes currently have computers (Anson 264), and yet most of our classrooms exist in a time warp, in appearance, structure, and content not dissimilar to the classrooms of fifty years ago. Anson predicts that the effect of increased use of technology on writing (and, I would add, on reading as well) may be "quite dramatic" (265), in effect, a paradigm shift of sorts, as we move from a view of writing as process to one of writing in a social context (Miller). Obviously, such a shift in the location of writing also requires that we consider ways in which our teaching and assessment practices need to change as well.

All writing is, of course, collaborative in nature, as writers enter into the conversation of other writers. In the electronic age, however, this notion of writing as social is often made explicit by the use of synchronous and asynchronous modes of communication that, albeit textual, nonetheless are often perceived of as oral in nature--speech written down, as it were. Nonetheless, many of us in the academy persist in seeing orality as a "discourse mode of a lesser nature than literacy" (Blair 327). Thus, these communicative modes are either ignored in our writing classrooms or, at best, used merely as heuristic or community-building devices. In looking at some of the problems and opportunities of multiple discourse forms in the multicultural classroom, Gerald R. Washington argues that

> By highlighting commonalities instead of differences [between oral and written discourse], by noting situational appropriateness, and by exploiting new pedagogical possibilities, composition teachers can use this alternative manner of communication [i.e., oral discourse] as a starting point for the teaching of writing skills.

While this also seems to assume that oral discourse is a lower-order form, that is, that it can and should be used as a stepping stone to teach the higher-order skill of writing, nonetheless Washington adds, "[D]ifferences in communicative discourse style need not imply superiority of one style over

the other, but it [sic] does suggest that different sets of cognitive orientations and types of cognitive organization exist."

Of course, Washington is primarily concerned with oral forms of discourse found among African-Americans, concluding that the real differences in the writing classroom are not the result of a primary-oral culture but rather the result of "differential treatment in formal learning contexts." But the same deprecation of orality he found in the multicultural classroom is also found in many of the responses to forms of electronic literacies. For example, many argue that synchronous communications such as are found in MOOs and chat rooms on the Internet, as well as asynchronous forms such as email, are of a lower order than are more traditional written forms, requiring lesser cognitive skills to apprehend. They believe, therefore, that fostering these types of skills in the writing classroom is antithetical to teaching good writing. Of course, it is true that certain conventions of written discourse such as spelling, punctuation, or capitalization are often ignored in online spaces, and the prolific use of acronyms and emoticons (i.e., smiley faces) often make these kinds of communications seem far too playful to be taken seriously. But these conventions (or lack thereof) serve a purpose in online communications. Since by their very

nature these spaces encourage a more rapid discourse, acronyms, emoticons, lower-case personal pronouns, and other shorthand conventions are necessary elements and may have a distinct effect on the apprehension of meaning as well as the construction of ethos in online discourse.

The communal nature of online communications is such, too, that, over the course of time (often within the space of only minutes), contributors may note or offer corrections to any errors that may have been inadvertently introduced due to the rapidity of the discourse. That is, the nature of scholarship as conversation is readily apparent in online forums, with the result that any one contribution to a scholarly listserv or chat may only be a small part of an ongoing, collaboratively-authored, work-in-process. The peer-review process is, thus, also incorporated into the work (Sorapure et al. 421), just as marginalia in medieval and rabbinical manuscripts became permanent emendments to texts in the middle ages (Wahlstrom and Scruton). Of course, this wreaks havoc with our print-based conceptions of authorship and authority, as we have already considered.

At any rate, the signs (and what they signify) morph in response to the location of the communicative act. As we move toward interfaces that allow us to speak to our computers rather than type our input, the visual symbols of speech (our text) may once again adhere to the conventions

of print-based forms if we program our voice-recognition software to do so. However, it is equally possible that the written forms may become unnecessary––mere embellishments–– as multimedia developments make it possible for us to not only speak the written word but hear it as well. More likely, we will see hybrid forms emerge that use some combination of the textual (i.e., alphabetic characters) and the sensual (including pictures, audio files or video files, or other representational elements). But when the written text is no longer on center stage, will we still know how to approach the teaching and assessment of "writing"?

Students today show a "heightened spatial intelligence" and "higher scores for visual/spatial awareness" on tests of cognitive skills (Trimbur). Nonetheless, nineteenth-century devices such as the essay and dense pages of black-and-white text are still the focus of our writing courses, even though they no longer constitute the dominant forms of literacy in our culture, and Old Testament injunctions against "graven images" continue to be reflected in our privileging of "The Word," ghettoizing the making and production of visuals and other non-textual elements. Theorists such as John Trimbur, however, see a new current emerging that reflects a resurgence of issues of communication in terms of political possibilities in the current moment. As we have noted previously, both texts and visuals are interpreted (or

"read") in light of a reader's own situatedness. Trimbur argues, therefore, that we need to focus efforts on determining how authority can be invested in visuals. I would take this a step further and argue that we need to learn how *all* communicative acts are rhetorically constructed, whether those acts are composed of visual or oral or other sensual forms.

In a sense, the construction of authority in traditional alphabetic texts is also imagistic. The writer constructs an *ethos*, an image of the author as it were, only partially woven of text. That is, even the appearance of the manuscript may be part of the construction of the author's image:

> If the manuscript is messy, careless, or hard to read, the writer's image will suffer. If, however, the manuscript is readable, neat, and aesthetically pleasing, it will gain the writer ethical appeal. (Connors "*Actio*" 66)

Thus, the ability to create aesthetically appealing documents--in print or on the WWW--that use graphics, fonts, colors, headings, and other devices with skill and authority contribute to the author's *ethos*. In the last few decades, the availability of increasingly sophisticated yet affordable computer hardware and software applications has made it possible for almost anyone to create documents that rival those of professional print shops. However, we have

not seen a concomitant move toward teaching the principles
of document layout and design in our writing classrooms
(with the possible exception of our professional and
technical writing classes). Even such basic elements of
document design as font selection, justification of margins,
the use of emphatic devices such as underlining, italics,
and boldfaced types, or navigational devices such as
headings and links are still not considered part of the
writing process by most compositionists. And, of course,
the creation and use of visual elements such as graphics and
video and of oral/aural elements such as sound files have
been almost totally ignored in the writing classroom. The
capabilities allowed by new technologies are already being
reflected in the forms of literacy our students are used to,
and many students are bringing these forms with them into
our classrooms. All too often, though, we do not know how
to adequately teach or assess the hybrid forms of "writing"
that result.

Faigley notes that literacy education is, after all,
"part of the machinery for sorting people into categories of
winners and losers" (Faigley, *Fragments* 52). Professional
and technical writing classes are often marginalized within
English departments where they may be considered a sort of
"vocational training" and, as such, of a lower order than

more "academic" pursuits. And with few exceptions, these
more "academic" studies in English departments are those
involved solely with the construction (or deconstruction) of
alphabetic text. By relegating oral/aural literacies,
visual literacies, media literacies, and other non-textual
elements of writing to professional and technical writing
classes, speech, communications, art, MIS (Management
Information Systems), or computer science departments,
however, we in English departments are, perhaps, hastening
our own demise. At any rate, we most assuredly are
abrogating our responsibility to foster the acquisition of
literacy skills and thereby encourage critical literacy in
the modern world.

In a recent article in *The Chronicle of Higher
Education*, Michel Chaouli, an assistant professor of German
and comparative literature at Harvard, is cited as saying
that "the value of literary studies lies not in the pursuit
of truth, but in teaching students the rhetorical
conventions that allow writers to convey multiple meanings"
(Schwalm). The convergence of multiple forms of literacy in
our era compels us to explore how literary and composition
studies can work together to foster awareness of how meaning
is constructed in the first place by considering how these
conventions can be applied to a variety of forms. Just as

Lycurgus noted in the sixth century, however, the danger in codifying what constitutes "correct usage" is that such codification may "arrest the course of the language upon which it is imposed and create an artificial language of power divorced from the thought of the people" (Pattison 145). Nonetheless, we need a way to communicate with each other and with our students, a way to apprehend meaning and relevance, a way to recognize the rhetorical constructions of communicative practices, and, yes, even a way to consider what may (or may not) constitute "value," while guarding against the imposition of rigid structures that resist change and privilege the status quo.

Some of the features that most visibly demarcate print-based texts and hypertexts are the ability to link to sources of information outside the text, thereby incorporating them as a part of it and allowing the reader to construct the text anew with each reading; the ability to include graphical or multimedia elements as an integral part of the "text" and not merely as explanatory or decorative embellishments; and the overall structure or design of a composition when it is no longer confined by the technology of print alone. By blending innovative modifications such as the rhetorical structures of electronic texts into the existing system of locating authority in the rhetorical

structures of print we can begin to fashion a discourse that
will enable us to teach and evaluate new forms.

Some attempts have already been made to construct such
a discourse of value and to codify rules for creating and
evaluating online forms, of course. George Landow's
"Rhetoric of Hypermedia: Some Rules for Authors," written in
1991, includes "nineteen rules for creating useful links" in
hypertext documents (Sorapure et al. 420). Just as students
authoring traditional print essays have often been given
advice as to how many cites to include per page, Web authors
are advised to include two to eight links per page (419).
Obviously, the problem with merely translating elements of
print-based discourse, such as the number of references on a
page, to new forms, such as the number of electronic
references or links in a hypertext, is that it creates new
problems. For example, how does one define a "page" in a
hypertext?

Nonetheless, some rules do make sense. According to
Landow, hypertext authors must provide sufficient
information for readers to know where they are in
cyberspace; where links lead to and how to return from them;
how to read a Web-based document (that is, how the site is
structured); and to provide encouragement to readers to
follow those links (cited in Sorapure et al. 420). As is
readily apparent, these same rules--orientation,

information, comfort, and stimulation--are components of
more traditional print-based scholarship as well. We
provide information to allow the reader to know the context
(or location) of our work; we use transitional devices to
help the reader follow our arguments; we provide information
as to our structure and purpose; and we encourage readers to
continue reading by helping them to follow our logic,
providing interesting examples, and ensuring that the
reader's needs are addressed. Rather than forcing
communicative acts to fit into pre-existing forms, such as
the five-paragraph essay or the ever-present research paper,
then, authors must choose from a wide variety of formats--
print-based as well as electronic ones--to suit the purpose
of the communicative act, the potential audience, the time
available to compose it, the author's access to the
necessary information or equipment, and the author's skill
in using that information or equipment.

The design of a project should support the author's
goals: to persuade, to inform, to entertain, to move to
action, and so forth. Quite often, of course, the choice of
format is obvious: a college project designed primarily to
present information will likely follow a familiar academic
format such as that recommended by the MLA or APA style
manuals. But purposes can also be much more narrow and
pragmatic. For example, if one purpose of a project is to

encourage readers to respond, then authors must make it easy

for them to do so--perhaps by furnishing an email address,

telephone number, mailing address, or tear-off or electronic

response form.

The intended audience also influences the choice of

design. For instance, academic audiences have expectations

that differ substantially from those of business executives

or more general readers, and the expectations of online

audiences may be different still. Navigational devices are

essential for any type of project, but these also must

acknowledge the needs and expectations of readers.

Navigational cues may be as basic as transitional words and

phrases or headings and subheadings, or they may be more

complex, such as referring to graphs, tables, or appendices

to illustrate important concepts or information. For

electronic documents, navigation requirements may also

include hypertext links, instructions for downloading any

necessary software applications, or providing alternatives

to electronic files. Authors may need to avoid using JAVA

scripts or other advanced programming techniques, or they

may need to ensure that information in an electronic

document will translate readily into print or oral forms

when appropriate. Thus, authors must also choose the best

media to reach their intended audience, whether it be by

mail, by telephone, in person, in print, via email or the

WWW, or in some as-yet-to-be-imagined format. Sometimes it may also be necessary to combine or overlap formats, for instance by providing a text-only version of a Web page or by offering a file in both text and audio versions.

The time available to complete a project may also determine how it will be presented. Authors must weigh the benefit of trying a new technology against the time it will take to learn, for example, while readers' time constraints must also be kept in mind. Large electronic files can be time-consuming to download or access online; breaking complex information into manageable chunks, offering a table of contents or index page, or including an abstract or summary can help to ensure that readers have ready access to important arguments or information. Alternatively, print publishing is a time-consuming process; making files available electronically can provide quicker, more expedient access to information, and the choice of medium will also dictate some design considerations. For instance, documents intended for print may need to adhere to traditional formats, they need to be produced with a quality printer, usually on plain white paper with black ink, and multimedia elements such as animated graphics, video, or audio files must be presented separately. The author's choice of fonts and colors may depend on printer or browser capabilities as much as on the rhetorical needs of a document or file, and

the decision to include graphics or multimedia elements may also depend on an author's access to or proficiency with graphics applications or on artistic capability.

Knowing how to create and/or incorporate graphics, fonts, hypertext links, and other important elements of page design, making sure all the pieces work together to deliver information to readers, and understanding how these elements work rhetorically in a given situation thus become essential components of writing. Whether the pattern is as straightforward as that used for a traditional research report or a more complexly designed online help document, authors must choose a structure appropriate for their purpose. Obviously, understanding the conventions of various types of projects can help to facilitate the composing process. However, even when no such conventions are available, we can strive to help students understand how the elements of effective communication are constructed so that they may approach even unconventional forms with authority. That is, helping students learn to read and evaluate the sources upon which they rely can also help them come to have a better understanding of how their own writing is evaluated by their readers. Thus, it makes sense to foster these evaluative skills in the writing classroom, helping students to read their own work as critically as they do that of others.

MLA has attempted to formulate guidelines to help
researchers evaluate online forms by classifying them into
several categories: scholarly projects; professional sites;
personal sites; online books and poems; articles in
reference databases, journals, or magazines; and postings to
electronic discussion lists. Practically speaking, however,
this taxonomy is difficult to apply. As a matter of fact,
even MLA does not define what these terms should mean. Part
of the confusion seems to stem from the relative
unfamiliarity with Internet protocols on the part of most
scholars. For example, in the *MLA Style Manual and Guide to
Scholarly Publishing*, Joseph Gibaldi argues that "Electronic
media [. . .] lack agreed-on means of organizing works [. .
.]. References to electronic works therefore must provide
more information than print citations generally offer"
(209). As a result of this assumption about online sources,
most style manuals such as APA's and MLA's include
extraneous or redundant information in their forms for
citing electronic sources and approach electronically-
accessed forms with extreme caution. However, the URL or
Internet address, document information screens and
"metatags" in HyperText Markup Language (HTML) source code,
signature files in email messages, and other features of
electronic forms can often provide essential clues to

authority and reliability. For documents published on the World Wide Web, learning to recognize the structures of HTML forms can thus be helpful in ascertaining the authority of a given source. Of course, many personal home pages can be found on University servers and many commercial sites may be maintained as a public service or may be used by scholars to provide useful and serious work. Nonetheless, just as the publisher of a book offers some clue to the reliability of a given work (we tend to rely more on works published by university presses, for instance), so, too, the domain where an electronic source resides may also offer us important information. Teaching our students these skills is, thus, imperative if they are to be able to adequately evaluate the sources contained in online spaces.

Many organizations are exploring ways to organize information in the online world as well. One of the earliest attempts was the gopher protocol, a menu-driven system to find and retrieve documents and files. Powerful new Internet search engines and directories such as AltaVista and Yahoo! make use of more recent technological developments to achieve these same ends. The Library of Congress, the Internet Public Library, the Voice of the Shuttle, and other organizations are also focusing efforts on categorizing and archiving the mass of information that is finding its way into cyberspace. However, no one has yet

achieved this goal for all print sources and, likely, we will not soon be successful in this effort online. Electronic databases, however, are far superior in many ways to the card catalogs--even most electronic ones--that we currently use. For example, scholars can use a search engine online to locate words or phrases in files hosted on Web servers throughout the world; the library catalog is far more limited, usually only searching works in a discrete physical location for only those keywords designated by the catalogers.

Rather than encouraging researchers to explore new forms and learn to evaluate them, however, organizations such as MLA instead encourage scholars to seek only those sources which emulate existing print forms. By so doing, they may also unwittingly be encouraging scholars to ignore important information simply because it cannot be made to fit into archaic structures. Instead, we need strategies that will supplement existing print-based criteria to facilitate evaluation of both print-based and emerging forms. The wheel does not need to be reinvented. However, the material of which it is composed may need to be reconsidered in light of changes in the production process.

We can begin by opening up a discussion of how existing terms apply to both forms. I believe further that these terms must be negotiated based on the situational

requirements of the communicative act. That is, we must negotiate what constitutes successful communication depending on the author's purpose, message, and audience, as well as the medium in which the communication takes place. In this way, we can work toward fostering a definition of literacy that transcends differences in discourse styles, whether those differences are the result of the medium or of cultural and ideological differences or other factors that interfere with the successful transmission and reception of a message. As Kristine Blair notes, the "electronic contact zone" can offer a chance to help us "understand the practices of other cultures as well as [. . .] offer students from diverse backgrounds a chance to gain access to the newest communication practices of academe and the workplace" (327).

Consider the criteria for successful speech acts identified by Habermas: the speaker must have something to say, have a desire to be understood, speak (or write) in a way that the listener (or reader) can understand, and be speaking (or writing) *to* someone (Roberts). That is, in order for communication to take place, we must know who our audience is and what their needs are. In electronic files such as hypertexts, this means we must consider the effects of including (or not including) links, tables, frames, JAVA

scripts, graphics and animations, multimedia, color, font
selection, and other components of electronic compositions
as well as considering the effect of cultural practices,
ideologies, linguistic practices, and other features on the
reception of our message. Negotiating what constitutes
effective communication in a given situation can help
students learn to critically engage the text (regardless of
how we define that term) in their academic as well as
professional and personal lives.

Instead of faulting the Net for the garbage it contains
and ignoring it, then, we must ensure that we teach our
students to seek information wherever it is most likely to
be found, and to evaluate the sources they use critically--
all sources, not just the ones they find online. In that
way, they are not at the mercy of the gatekeepers.
Obviously, not all sources are created equal. Whereas most
books and journal articles have gone through a review and
selection process prior to being published and especially
prior to being included in a college or university library
collection, nonetheless careful consideration of published
work will often still reveal biases, faulty logic, or other
inconsistencies that need to be addressed. This does not
mean they are not valuable resources, but it does mean we
need to read with a critical eye. As we move online,

critical reading skills are even more important. Many
online sources, like their print counterparts, have gone
through stringent review and selection processes. However,
on the WWW, it is sometimes difficult to determine what, if
any credentials a given site may have. The ease of
publication on the Internet makes it possible for virtually
anyone with the necessary technological skills to become a
"published" author. However, teaching students to consider
the authority of the structures of a file or text rather
than looking outside of it, to the author's or publisher's
credentials, for instance, can be one way of ensuring that
students learn to approach all sources critically. Learning
to read and evaluate sources critically is perforce an
important part of research and can have the added benefit of
helping students learn to form their own compositions in
light of these same evaluative criteria. That is, focusing
on critically engaging sources in a variety of formats can
help foster a sense of how meaning is constructed that is
not dependent on a specific technology. Broadening our
concept of the "text" to encompass all texts--including
oral, visual, print, or electronic ones--that are artfully
crafted for a rhetorical purpose, in the Burkean sense,
rather than exempt any "forms" from a course aiming to
develop skills in reading and writing, can thus help

students anticipate the many different ways their own readers might engage theirs.

However, many of us in the composition classroom have not felt compelled to focus on evaluation of sources. Instead, all too often we have relied on the gatekeepers to do our job for us. That is, instead of teaching students how to evaluate sources, we have simply required that they use specific types of sources from university libraries; that is, we ask students to use sources that have already been evaluated for them. The present moment, however, forces us to rethink our approach. While the considerations for evaluation of online sources are not far afield from those we already use to evaluate print-based ones, nonetheless, as Madeleine Sorapure, Pamela Inglesby, and George Yatchisin note in "Web Literacy: Challenges and Opportunities for Research in a New Medium," "it is important that these criteria be applied flexibly to the Web's broad range of rhetorical situations" (410).

Furthermore, as we teach students to approach their own texts from the reader's stance, it is important to avoid the charges of sophistry that this may readily entail by focusing on the author's ethical responsibilities. Communication does not occur in a vacuum. We urgently need, as Anson suggests, "institution-wide dialogues about the effect of technology on teaching, particularly between

students, faculty, and administrators" (276). Thus, rather
than hard-and-fast rules, such as requiring a certain number
of links or a certain structure (i.e., the five-paragraph
essay or a five "page" Web site), we can recognize that
these terms, too, must be negotiated, that writing and
communicative practices, including "writing" orally, writing
with graphics or animations or sounds, or whatever "writing"
may come to mean, are indeed rhetorical and situational, and
that assessing value in these practices must also recognize
the site of discourse.

Textual literacy is merely one mode of communication,
one form of literacy; that is, oral, visual, technological,
textual, and other forms of literacy are not hierarchically
structured but rather co-exist, feeding upon and reinventing
each other as our communicative needs demand. Anson
predicts that

> Within a few years, the disparate channels of
> video, audio, and computerized text and graphics-
> -channels that come to us via airwaves, TV cable,
> phone cable, CD-ROM and computer disks--will merge
> into a single set of bits sent back and forth
> along one electronic highway at lightning speed.
> (265)

In some arenas, this future world is already upon us. For
the rest of us, we need a way to bridge the gap between the
present and the future. Teaching our students to recognize
the situatedness of discourse and to negotiate the terms

necessary for effective communication regardless of the
medium can help.

Short of turning back the clock, we have no choice but
to consider how to best use the tools at hand to
communicate, and to teach our students the skills--
technological, communicative, and critical thinking--that
they need as citizens of the twenty-first century and
beyond:

> As society approaches the 21st century, urban
> education, especially language arts instruction,
> cannot be approached in traditional ways. Whether
> or not children become competently literate will
> ultimately be decided by our willingness to
> change. Therefore, the challenge is to the
> field--to continuously explore how orality and
> literacy can be integrated within a framework that
> takes into account differential modes of cognitive
> functioning, different cultural language
> experiences, and different discourse styles.
> (Washington)

Washington's conclusions regarding the multicultural
classroom apply equally well to the multiple-technology
classroom--where the use of graphite interfaces (pencils) to
inscribe alphabetic characters on pieces of dead trees
(paper) contends with the use of computer interfaces to jack
into the "consensual hallucination" that is cyberspace
(Gibson, *Neuromancer* 5). What we are left with is the need
to figure out how to apply what we know about communicating
in writing (however we define it) to what students and
society are already doing. After all, we are the experts.

If all of our study has only prepared us to analyze, appreciate, and teach forms of text that are dependent upon antiquated Gutenberg technology, then perhaps literature and writing programs more rightly belong in history departments, and we may find ourselves in a state of shock, like Joseph Conrad's character intoning, "The horror! The horror!" while we try to figure out what has happened. However, I believe that we can--and must--apply our knowledge and skills to new forms and, in so doing, perhaps we may discover that our own professional lives are revitalized within our institutions and within society at large.

Regardless of whether we view the convergence of literacy and technology in our time as leading through the Pearly Gates or the Gates of Hell, we cannot at any rate afford to sit idly by and allow the other Gates--those who have most to gain from the imposition and continued development of technology--to decide these issues for us. In the end, then, it all boils down to one simple question: If not us, who?

NOTES

1. By *status quo*, I do not mean a static position; the status quo is itself in a constant state of flux. Nonetheless, I use the term here to refer to the more-or-less accepted tenets that inform our tenure-and-promotion, hiring, assessment, and teaching practices, whether enacted by administrators, legislators, scholars, or others.

2. According to Patricia Bizzell and Bruce Herzberg, *langue* "is a kind of social contract, the general grammar and lexicon that particular speakers must use to communicate successfully" (908).

3. In my discussion of classical rhetoric, I have chosen to use masculine pronouns in recognition that at this time in our history, the study and practice of rhetoric was very much a masculine pursuit.

4. See, for example, Rebecca E. Burnett and Helen Rothschild Ewald's "Rabbit Trails, Ephemera, and Other Stories: Feminist Methodology and Collaborative Research."

5. Wizards, sometimes known as Janitors, are the keepers of the MOO database; that is, they are responsible for maintaining the security of the MOO.

6.   Netiquette is the etiquette of the Internet. See, for example, Gloria G. Brame's "Netiquette: A Concise Guide to Good Manners On-Line" at http://gloria-brame.com/glory/jour3.htm.

7.   In addition to the ability to talk in MOOs, characters can represent non-verbal activities by use of the emote command. Characters can smile, frown, or otherwise express body language, thoughts, and so on (for example, "Kiwi smiles" or "Kiwi shuffles uncomfortably in her seat"). These commands help to lend a more lifelike atmosphere to communication in MOOs, but they can also be distracting. Imagine, for example, how it would feel during a dissertation defense to read the thoughts, emotions, facial expressions, and body language of your audience.

8.   A study of over 416 teacher preparation programs by David Moursound and Talbot Bielefeldt reports that K-12 schools average one computer for every five students, a substantial increase from the one computer for every one-hundred twenty-five students reported in 1983.

Works Cited

Alliance for Computers and Writing Listserv. acw-
l@ttacs6.ttu.edu. ACW-L Archives.
http://www.ttu.edu/acw-l/ (13 March 1999).

American Psychological Association (APA). *Publication
Manual of the American Psychological Association.* 4th
ed. Washington, DC: APA, 1995.

Anson, Chris M. "Distant Voices: Teaching and Writing in a
Culture of Technology." *College English* 61.3 (1999):
261-80.

Bakhtin, Mikhail. "The Problem of Speech Genres." *The
Rhetorical Tradition: Readings from Classical Times to
the Present.* Trans. Vern W. McGee. Ed. Patricia
Bizzell and Bruce Herzberg. Boston: Bedford, 1990.
944-63.

Baron, Dennis. "From Pencils to Pixels: The Stages of
Literacy Technology." Mod. 1997.
http://www.english.uiuc.edu/baron/aitg/pencils.htm (20
Nov. 1998).

Basinger, Julianne. "Colleges Don't Show Teachers How to
Use Technology, Report Says." 26 Feb. 1999. *Chronicle
of Higher Education.*

http://www.chronicle.com/daily/99/02/99022601t.htm (26
Feb. 1999).

Bennett, Randy Elliot. "Reinventing Assessment:
Speculations on the Future of Large-Scale Educational
Testing." 1998. Policy Information Report. Princeton,
NJ: Educational Testing Service.
http://www.ets.org/research/pic/reinvsec1.html (27 Feb.
1999).

Berlin, James. *Rhetorics, Poetics, and Culture: Refiguring
College English Studies.* Urbana, IL: NCTE, 1996.

Birkerts, Sven. *The Gutenberg Elegies: The Fate of Reading
in an Electronic Age.* Boston: Faber and Faber, 1994.

Bizzell, Patricia, and Bruce Herzberg. *The Rhetorical
Tradition: Readings from Classical Times to the
Present.* Boston: Bedford, 1990.

Blair, Kristine. "Literacy, Dialogue, and Difference in the
'Electronic Contact Zone.'" *Computers and Composition*
15 (1998): 317-29.

Bolter, Jay David. "Hypertext and the Rhetorical Canons."
*Rhetorical Memory and Delivery: Classical Concepts for
Contemporary Composition and Communication.* Ed. John
Frederick Reynolds. Hillsdale, NJ: Lawrence Erlbaum,
1993. 97-111.

---. *Writing Space: The Computer, Hypertext, and the History of Writing.* Hillsdale, NJ: Erlbaum, 1991.

Burnett, Rebecca E., and Helen Rothschild Ewald. "Rabbit Trails, Ephemera, and Other Stories: Feminist Methodology and Collaborative Research." *JAC: A Journal of Composition Theory* 14.1 (1994). http://www.cas.usf.edu/JAC/141/burnett.html (22 Feb. 1999).

Business Coalition for Education Reform (BCER). "Hiring Smart: An Employer's Guide to Using School Records." *Making Academics Count.* http://www.bcer.org/folder/folder.htm (23 June 1998).

Camp, Roberta. "New Views of Measurement and New Models for Writing Assessment." *Assessment of Writing: Politics, Policies, Practices.* Ed. Edward M. White, William D. Lutz, and Sandra Kamusikiri. New York: MLA, 1996. 135-47.

Campbell, Jay R., Kristin E. Voelkl, and Patricia L. Donahue. "Report in Brief: NAEP 1996 Trends in Academic Progress." Rev. May 1998. National Center for Education Statistics. http://nces.ed.gov/nationsreportcard/96report/97986.shtml (27 Feb. 1999).

Clanchy, M. T. *From Memory to Written Record: England, 1066-1307.* Cambridge, Mass.: Harvard UP, 1979.

Clinton, President William Jefferson. State of the Union Address. Washington, DC. 7 January 1999.

Connors, Robert J. "*Actio*: A Rhetoric of Written Delivery (Iteration Two)." *Rhetorical Memory and Delivery*. 65-77.

Conrad, Joseph. *The Collected Letters of Joseph Conrad.* Vol. I. 1861-1897. Ed. Frederick K. Karl and Laurence Davies. New York: Cambridge UP, 1983.

---. *Heart of Darkness.* Ed. Harold Bloom. Modern Critical Interpretations. New York: Chelsea House, 1987.

Coover, Robert. "The End of Books." *New York Times Book Review* 21 Jun. 1992, sec. 7, 1:1.

Derrida, Jacques. *Of Grammatology.* Trans. Gayatri C. Spivak. Baltimore: Johns Hopkins UP, 1977.

DeWitt, Scott Lloyd. "The Current Nature of Hypertext Research in Computers and Composition Studies: An Historical Perspective." *Computers and Composition Journal* 13 (1996): 69-84.

Dorwick, Keith. "Building the Virtual Department: A Case Study of Online Teaching." Diss. U of Illinois at Chicago, 1998.

http://www.uic.edu/depts/engl/projects/dissertations/kd
orwick/ (6 March 1999).

Eisenstein, Elizabeth L. *The Printing Press as an Agent of
Change: Communications and Cultural Transformations in
Early-Modern Europe.* New York: Cambridge UP, 1979.

Eldred, Janet Carey, and Ron Fortune. "Exploring the
Implications of Metaphors for Computer Networks and
Hypermedia." *Re-Imagining Computers and Composition:
Teaching and Research in the Virtual Age.* Ed. Gail E.
Hawisher and Paul LeBlanc. Portsmouth, NH: Heinemann,
1992. 58-73.

Epstein, Samuel Latt. "WOODS - Web Object Oriented
Distributed Server." *MOOniverse.*
http://sensemedia.net:8080/sprawl/MOOniverse.html (31
Dec. 1995).

Faigley, Lester. *Fragments of Rationality: Postmodernity
and the Subject of Composition.* Pittsburgh: U of
Pittsburgh Press, 1992.

---. "Judging Writing, Judging Selves." *College
Composition and Communication* 40 (December 1989):
395-413. Rpt. in *Landmark Essays on Voice and Writing.*
Ed. Peter Elbow. Davis, CA: Hermagoras Press, 1994.
107-20.

---. "Literacy After the Revolution." *College Composition and Communication* 48 (1997): 30-43.

Farr, Marcia, and Gloria Nardini. "Essayist Literacy and Sociolinguistic Difference." *Assessment of Writing: Politics, Policies, Practices.* Ed. Edward M. White, William D. Lutz, and Sandra Kamusikiri. New York: MLA, 1996. 108-19.

Flores, Mary J. "Computer Conferencing: Composing a Feminist Community of Writers." *Computers and Community: Teaching Composition in the Twenty-First Century.* Ed. Carolyn Handa. Portsmouth, NH: Boynton/Cook, 1990. 106-17.

Fox, Roy F. "Image Studies: An Interdisciplinary View." *Images in Language, Media, and Mind.* Ed. Roy F. Fox. Urbana, IL: NCTE, 1994. 3-20.

Franklin, Phyllis. Foreword. *MLA Handbook for Writers of Research Papers.* 4th ed. New York: MLA, 1995. xiii-xviii.

Gawel, Angela. "Subordinating the Other: Illustrations in Dickens's *Old Curiousity Shop*." *Metaphor and Symbolic Activity* 8.3 (1993). 169-79.

Geisler, Cheryl. *Academic Literacy and the Nature of Expertise.* Hillsdale, NJ: Lawrence Erlbaum, 1994.

Gibaldi, Joseph. *MLA Style Manual and Guide to Scholarly Publishing.* 2nd ed. New York: MLA, 1998.

Gibson, William. *Agrippa: A Book of the Dead.* Ill. Dennis Ashbaugh. http://www.astro.utoronto.ca/~reid/htmldocs/agrippa.html (27 Feb. 1999).

---. *Neuromancer.* New York: Ace Books, 1984.

Gillette, David. Proposal. "To Tenure or Not to Tenure: Legitimate Publication and the Web." http://www.wilmington.net/cfcc/k/prop.htm#dg (8 Dec. 1996).

Giroux, Henry A. "Slacking Off: Border Youth and Postmodern Education." *JAC: A Journal of Composition Theory.* 14 (1994): 347-66. http://nosferatu.cas.usf.edu/JAC/142/giroux.html (6 March 1999).

Grigar, Dene. "Penlopeia: The Making of Penelope in Homer's Story and Beyond." Ph.D. Dissertation, U of Texas at Dallas, 1995. *DAI*, Vol. 56-10A, 3943.

Grigar, Dene, and John F. Barber. "Defending Your Life in MOOspace: A Report from the Electronic Edge." *High Wired: On the Design, Use, and Theory of Educational MOOs.* Ann Arbor: U of Michigan P, 1998. 192-321.

Haas, Christina. *Writing Technology: Studies on the Materiality of Literacy*. Mahwah, NJ: Lawrence Erlbaum, 1996.

Hairston, Maxine, and John J. Ruszkiewicz. *The Scott, Foresman Handbook.* 4th ed. New York: HarperCollins, 1996.

Hairston, Maxine, John J. Ruszkiewicz, and Daniel E. Seward. *Coretext: A Handbook for Writers.* New York: Longman, 1997.

Havelock, Eric A. *The Literate Revolution in Greece and Its Cultural Consequences.* Princeton: Princeton UP, 1982.

---. *Preface to Plato.* Cambridge: Belknap P, 1963.

Hawisher, Gail E. "Research Update: Writing and Word Processing." *Computers and Composition* 5.2 (1988): 7-27. http://www.cwrl.utexas.edu/~ccjrnl/Archives/v5/5_2_html/5_2_1_Hawisher.html (13 March 1999).

Hawisher, Gail E., and Paul LeBlanc, eds. *Re-Imagining Computers and Composition: Teaching and Resesarch in the Virtual Age.* Portsmouth, NH: Boynton/Cook, 1992.

Hawisher, Gail E., Paul LeBlanc, Charles Moran, and Cynthia L. Selfe. *Computers and the Teaching of Writing in American Higher Education, 1979-1994: A History.* Norwood, NJ: Ablex, 1996.

Heath, Shirley Brice. *Ways with Words: Language, Life and Work in Communities and Classrooms.* Cambridge: Cambridge UP, 1983.

Horner, Bruce. "Students, Authorship, and the Work of Composition." *College English* 9:5 (September 1997): 505-29.

Horner, Winifred Bryan. Introduction. *Rhetorical Memory and Delivery: Classical Concepts for Contermporary Composition and Communication.* Ed. John Frederick Reynolds. Hillsdale, NJ: Erlbaum, 1993. ix-xii.

Hugo, Victor. *Notre Dame de Paris.* Trans. Alban Krailsheimer. NY: Oxford UP, 1993.

Hypertext Hotel. Maint. Tom Meyer. telnet://duke.cs.brown.edu:8888/ (8 Aug. 1994).

In and Out. Dir. Frank Oz. Paramount, 1997.

Jaynes, Julian. *The Origins of Consciousness in the Breakdown of the Bicameral Mind.* Boston: Houghton Mifflin, 1977.

"Jester Project." MOO Admin Meeting. 25 Nov. 1996. *DaMOO.* http://DaMOO.csun.edu/DaMOO/logs/jesters/1125am.html (27 Feb. 1999).

Johnson-Eilola, Johndan. *Nostalgic Angels: Rearticulating Hypertext Writing.* Norwood, NJ: Ablex, 1997.

Jonson, Ben. "Timber." *Works*. Vol. II. London: R.
    Meighan, 1640. University of Toronto.
    http://library.utoronto.ca/www/utel/rp/criticism/timbe_
    il.html (24 May 1998).

Joyce, Michael. *Afternoon: A Story.* Watertown, MA:
    Eastgate Systems, 1987.

Kant, Immanuel. *The Critique of Judgement.* Trans. James
    Creed Meredith. Oxford: Clarendon, 1952.

Katz, Seth R. "One Department's Guidelines for Evaluating
    Computer-Related Work."
    http://bradley.bradley.edu/~seth/one/art2.html (8
    Dec. 1996).

Kent-Drury, Roxanne. "Finding a Place to Stand: Negotiating
    the Spatial Configuration of the Networked Computer
    Classroom." *Computers and Composition* 15 (1998): 387-
    407.

Kuhn, Thomas S. *The Structure of Scientific Revolutions* 2nd
    ed. Chicago: U of Chicago P, 1970.

Lanham, Richard A. *The Electronic Word: Democracy,
    Technology, and the Arts.* Chicago: U of Chicago P,
    1993.

Lehmann-Haupt. "Creating 'the Last Book' to Hold All the
    Others." *New York Times* 8 Apr. 1998, E1-4.

Lemke, Cheryl. Foreword. "Will New Teachers Be Prepared to
     Teach in a Digital Age? A National Survey on
     Information Technology in Teacher Education." Milken
     Exchange on Education Technology. 1999.
     http://www.milkenexchange.org/research/iste_fullreport.
     pdf (1 March 1999).

Lunsford, Andrea, and Robert Connors. *The Everyday Writer:*
     A Brief Reference. New York: St. Martin's Press, 1997.

Lynch, Patrick J., and Sarah Horton. "Yale C/AIM Web Style
     Guide." 1997. Yale Center for Advanced Instructional
     Media. http://info.med.yale.edu/caim/manual/ (21 Oct.
     1998).

Lyon, Arabella. "'The Good Man Speaking Well,' or Business
     as Usual." *JAC: A Journal of Composition Theory* 14.1
     (1994). http://nosferatu.cas.usf.edu/JAC/141/lyon.html
     (14 March 1999).

Macrorie, Ken. "Writing's Dying." *College Composition and*
     Communication 11.4 (1960): 206-10.

Markel, Mike. "What Students See: Word Processing and the
     Perception of Visual Design." *Computers and*
     Composition 15 (1998): 373-86.

Markoff, John. "Microsoft Develops Software to Improve
     Appearance of Screen Text." *New York Times* 17 Nov.
     1998, C4-3.

Massy, William F., and Robert Zemsky. "Using Information Technology to Enhance Academic Productivity." 1995. Educause. http://www.educause.edu/nlii/keydocs/massy.html (24 Feb. 1999).

McLuhan, Marshall. *The Gutenberg Galaxy: The Making of Typographic Man.* Toronto: U of Toronto P, 1962.

Milken Exchange on Education Technology. "Will New Teachers Be Prepared to Teach in a Digital Age? A National Survey on Information Technology in Teacher Education." 1999. http://www.milkenexchange.org/research/iste_fullreport.pdf (1 March 1999).

Miller, Judy K. "How Electronic Tools Affect the Way Students in Composition Classes Use Written Language." http://seamonkey.ed.asu.edu/~mcisaac/emc703old97/spring97/10/mill10.htm (28 Feb. 1999).

Miller, Susan, and Kyle Knowles. *New Ways of Writing: A Handbook of Writing with Computers.* Upper Saddle River, NJ: Prentice Hall, 1997.

MLA Committee. "Evaluating Computer-Related Work in the Modern Languages: Draft Guidelines Prepared by the MLA Committee on Computers and Emerging Technologies in Teaching and Research." June 1995.

http://jefferson.village.virginia.edu/mla.guidelines.ht
ml (24 June 1998).

Moulthrop, Stuart. "George P. Landow, Hypertext: The
Convergence of Contemporary Theory and Technology."
Computers and the Humanities. 28:1 (1994): 53-62.

Moulthrop, Stuart, and Sean Cohen. *The Color of Television.*
1996.
http://raven.ubalt.edu/features/media_ecology/lab/96/co
tv/ (14 March 1999).

Mulford, Carla. "Enlightenment Voices, Revolutionary
Visions." *The Heath Anthology of American Literature*
Vol. 1. Ed. Paul Lauter. Lexington, Mass.: D.C.
Heath, 1994. 705-07.

Murphy, Sandra, and Barbara Grant. "Portfolio Approaches to
Assessment: Breakthrough or More of the Same?"
Assessment of Writing: Politics, Policies, Practices.
Ed. Edward M. White, William D. Lutz, and Sandra
Kamusikiri. New York: MLA, 1996. 284-300.

National Digital Library of Theses and Dissertations
(NDLTD). Rev. 25 May 1998. http://www.ndltd.org (25
May 1998).

Nelson, Theodor. "Transcopyright: Pre-Permission for
Virtual Publishing."
http://www.world3.com/meme1/nelson2.html (2 Jan. 1996).

Norris, Cathie, Jennifer Smolka, and Elliot Soloway. "A
     Practitioners-Oriented Literature Review of the
     Research on Writing Education and Technology."
     *Convergent Analysis: Profiles of Research Studies on
     Technology in Education.* 1998.
     http://hice.eecs.umich.edu/convergentanalysis/science/v
     isitors/default.htm (1 March 1999).

Ohmann, Richard. *English in America: A Radical View of the
     Profession.* New York: Oxford UP, 1976.

Olson, Gary A. "Publishing Scholarship in Humanistic
     Disciplines: Joining the Conversation." *Writing and
     Publishing for Academic Authors* 2nd ed. Ed. Joseph M.
     Moxley and Todd Taylor. Lanham, MD: Rowman and
     Littlefield, 1997. 51-69.

Ong, Walter. *Orality and Literacy: The Technologizing of
     the Word.* New York: Metheun, 1982.

Oppenheimer, Todd. "The Computer Delusion." *Atlantic
     Monthly* July 1997: 45-62.

Palmquist, Stephen. "Glossary of Kant's Technical Terms."
     Kant's System of Perspectives.
     http://www.hkbu.edu.hk/~ppp/ksp1/KSPglos.html (27 Jan.
     1998).

Parsons, Paul. *Getting Published: The Acquisition Process
    at University Presses*. Knoxville: U of Tennessee P,
    1989.

Pattison, Robert. *On Literacy: The Politics of the Word
    from Homer to the Age of Rock.* New York: Oxford UP,
    1982.

Plato. *Phaedrus.* Trans. Benjamin Jowett.
    http://www.spiritweb.org/Plato/Phaedrus/ (17 Aug.
    1998).

Pope, Alexander. *The Dunciad*. Book IV. 1742. Web
    Development Group. Ed. I. Lancashire. 1997.
    University of Toronto Library.
    http://library.utoronto.ca/www/utel/rp/poems/pope16.htm
    l (7 Dec. 1998).

Porter, James E., and Patricia A. Sullivan. "Repetition and
    the Rhetoric of Visual Design." *Repetition in
    Discourse: Interdisciplinary Perspectives*. Vol. 2.
    Ed. Barbara Johnstone. Advances in Discourse
    Processes, Vol. XLVIII. Ed. Roy O. Freedle. Norwood,
    NJ: Ablex, 1994. 114-29.

Postman, Neal. Interview. "*Booknotes* Transcript." August
    1992. *C-Span*.
    http://www.booknotes.org/transcripts/10183.htm (14 Jun.
    1998).

Pratt, Mary Louise. "Arts of the Contact Zone." *Profession 91*. 33-40.

Reiss, Donna. "Re: Help." *Alliance for Computers and Writing.* 4 March 1999. acw-l@ttacs6.ttu.edu. *ACW-L Archives* http://www.ttu.edu/acw-l/9903/msg00050.html (13 March 1999).

Roberts, Patricia. "Habermas' Varieties of Communicative Action: Controversy Without Combat." *JAC: A Journal of Composition Theory* 11.2 (1991). http://www.cas.usf.edu/JAC/112/roberts.html (9 March 1999).

Rostelnick, Charles, and David D. Roberts. *Designing Visual Language: Strategies for Professional Communicators.* Boston: Allyn and Bacon, 1998.

Rothenberg, David. "How the Web Destroys the Quality of Students' Research Papers." *The Chronicle of Higher Education* 15 Aug. 1997: A44.

Royar, Robert D. "Re: San Francisco Chronicle Piece." 24 Feb. 1999. acw-l@ttacs6.ttu.edu. ACW-L Archives http://www.ttu.edu/acw-l/ (13 March 1999).

de Saussure, Ferdinand. *A Course in General Linguistics.* Trans. Roy Harris. London: Duckworth, 1983.

Schwalm, David. "The Light Is Seen." 9 March 1999.

>   *Writing Program Administration.* wpa-
>   l@asuvm.inre.asu.edu (9 March 1999).

Schweller, Ken. "MOO Educational Tools." *High Wired: On*

>   *the Design, Use, and Theory of Educational MOOs.* Ann
>   Arbor: U of Michigan P, 1998. 88-106.

Selfe, Cynthia L. "Technology and Literacy: A Story about

>   the Perils of Not Paying Attention." *CCC* 50.3 (1999):
>   411-36. Preliminary Draft.
>   http://www.ncte.org/forums/selfe/ (14 March 1999).

Selfe, Cynthia L., and Susan Hilligoss, eds. *Literacy and*

>   *Computers: The Complications of Teaching and Learning*
>   *with Technology.* New York: MLA, 1994.

Selfe, Cynthia L., and Richard J. Selfe, Jr. "The Politics

>   of the Interface: Power and Its Exercise in Electronic
>   Contact Zones." *College Composition and Communication*
>   45 (December 1994): 480-504.

Selfe, Cynthia L., and Billie J. Wahlstrom. "Computer

>   Supported Writing Classes: Lessons for Teachers."
>   *Computers in English and the Language Arts: The*
>   *Challenge of Teacher Education.* Ed. Cynthia L. Selfe,
>   Dawn Rodrigues, and William R. Oats. Urbana: NCTE,
>   1989. 257-78.

Shale, Doug. "Essay Reliability: Form and Meaning." *Assessment of Writing: Politics, Policies, Practices.* Ed. Edward M. White, William D. Lutz, and Sandra Kamusikiri. New York: MLA, 1996. 76-96.

Sorapure, Madeleine, Pamela Inglesby, and George Yatchisin. "Web Literacy: Challenges and Opportunities for Research in a New Medium." *Computers and Composition* 15 (1998): 409-24.

Spellmeyer, Kurt. "Response: Testing as Surveillance." *Assessment of Writing: Politics, Policies, Practices.* Ed. Edward M. White, William D. Lutz, and Sandra Kamusikiri. New York: MLA, 1996. 174-81.

Spooner, Michael, and Kathleen Yancey. "Postings on a Genre of Email." *CCC* 47:2 (May 1996). 252-78.

Sutton, Laurel A. "Cocktails and Thumbtacks in the Old West: What Would Emily Post Say?" *Wired Women: Gender and New Realities in Cyberspace*. Ed. Lynn Cherney and Elizabeth Reba Weise. Seattle: Seal, 1996. 169-87.

Taylor, Paul. "Social Epistemic Rhetoric and Chaotic Discourse." *Re-Imagining Computers and Composition: Teaching and Research in the Virtual Age*. Ed. Gail E. Hawisher and Paul LeBlanc. Portsmouth, NH: Boynton/Cook, 1992. 131-48.

Taylor, T. W. "Five Questions for Writing Programs in the
    Information Age." Diss. U of South Florida, 1997.

Thoreau, Henry David. *Walden.* Ed. Stephen Fender. Oxford:
    Oxford UP, 1997.

Tinberg, Howard. Re: Request for Opinions." 23 Feb. 1999.
    wcenter@ttacs6.ttu.edu (23 Feb. 1999).

Tornow, Joan. *Link/Age: Composing in the Online Classroom.*
    Logan, UT: Utah State UP, 1997.

Trimbur, John. Master class. University of South Florida,
    Tampa. 4 Dec. 1998.

---. "Response: How Do We Test Writing?" *Assessment of
    Writing: Politics, Policies, Practices.* Ed. Edward M.
    White, William D. Lutz, and Sandra Kamusikiri. New
    York: MLA, 1996. 45-48.

Turner, Graeme. *British Cultural Studies: An Introduction*.
    Media and Popular Culture: 7. NY: Routledge, 1990.

United States Central Intelligence Agency. "United States."
    CIA World Factbook. Washington, DC: U.S. Government
    Printing Office, 1998.
    http://www.odci.gov/cia/publications/factbook/ (6 March
    1999).

United States Department of Education. Office of Research.
    Office of Educational Research and Improvement (OERI).
    "What's Wrong with Writing and What Can We Do Right

Now?" 1993.

   http://www.ed.gov/pubs/OR/ResearchRpts/writing.html (1

   March 1999).

University of Evansville. "About Argos." *Argos: Limited*

   Area Search of the Ancient and Medival Internet.

   Designed by Anthony F. Beavers and Hiten Sonpal.

   http://argos.evansville.edu/about.htm (27 Feb. 1999).

Vicari, Patricia. "Renaissance Emblematica." *Metaphor and*

   Symbolic Activity 8.3 (1993). 153-68.

Virginia Tech. "Electronic Thesis and Dissertation

   Initiative." http://etd.vt.edu (27 Feb. 1999).

Wahlstrom, Billie, and Chris Scruton. "Constructing

   Texts/Understanding Texts: Lessons from Antiquity and

   the Middle Ages." *Computers and Composition* 14 (1997):

   311-28.

Walker, Janice R., and Todd Taylor. *The Columbia Guide to*

   Online Style. New York: Columbia UP, 1998.

Washington, Gerald R. "The Writing Crisis in Urban Schools:

   A Culturally Different Hypothesis." *JAC: A Journal of*

   Composition Theory 16.3 (1996): 425-33.

   http://www.cas.usf.edu/JAC/163/washington.html (27 Feb.

   1999).

Watkins, Evan. "Intellectual Work and Pedagogical

   Circulation in English." *Theory/Pedagogy/Politics:*

Texts for Change. Ed. Donald Morton and Mas'ud Zavarzadeh. Urbana, IL: U of Illinois P, 1991. 201-21.

Welch, Kathleen E. "Reconfiguring Writing and Delivery in Secondary Orality." *Rhetorical Memory and Delivery: Classical Concepts for Contemporary Composition and Communication.* Ed. John Frederick Reynolds. Hillsdale, NJ: Lawrence Erlbaum, 1993. 17-30.

Whately, Richard. *Elements of Rhetoric. The Rhetorical Tradition: Readings from Classical Times to the Present.* Ed. Patricia Bizzell and Bruce Herzberg. Boston: Bedford, 1990. 831-58.

White, Edward M., William D. Lutz, and Sandra Kamusikiri. *Assessment of Writing: Politics, Policies, Practices.* New York: MLA, 1996.

Winsor, Dorothy A. "What Counts as Writing? An Argument from Engineers' Practice." *JAC: A Journal of Composition Theory* 12.2 (1992). http://www.cas.usf.edu/JAC/122/winsor.html (14 March 1999).

Woodmansee, Martha, and Peter Jaszi. "The Law of Texts: Copyright in the Academy." *College English* 57 (1995): 769-87.

Woody, Todd. "Academics Rebel Against an Online Future."

> *CNN Interactive.* 1998.

> http://www.cnn.com/TECH/computing/9806/15/academics.idg

> / (16 Jun. 1998).

Yates, Frances A. *The Art of Memory.* Chicago: U of Chicago

> P, 1966.

VITA

Janice R. Walker received a Bachelor's Degree in English with an emphasis in Professional and Technical Writing in 1994 and an M.A. in English with an emphasis in Composition and Rhetoric in 1996, both from the University of South Florida. She has taught courses in first-year Composition, Expository Writing, Professional Writing, and Advanced Technical Writing and co-taught graduate-level courses in Computers and Composition Theory while a Teaching Assistant also at the University of South Florida, in addition to serving as Coordinator for the English department's Computers and Writing Program.

She has published numerous articles in the field of Computers and Composition, and is the author (with Todd Taylor) of *The Columbia Guide to Online Style* (New York: Columbia UP, 1998) and two upcoming books with John Ruszkiewicz, *Bookmarks: A Guide to Research and Writing* and *writing@online.edu,* both from Longman.