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## The Diffusion of New Media Scholarship: Power, Innovation, and Resistance in Academe

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The University of South



**THE DIFFUSION OF NEW MEDIA SCHOLARSHIP: POWER,  
INNOVATION, AND RESISTANCE IN ACADEME**

by

**JUDITH R. EDMINSTER**

**A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
Department of English  
College of Arts and Sciences  
University of South Florida**

**May 2002**

**Major Professor: Joseph M. Moxley, Ph.D.  
Committee Members: James A. Inman, Ph.D.  
Debra Jacobs, Ph.D.  
Rosann Webb Collins, Ph.D.  
Barry Maid, Ph.D.**

**Florida ETD Pilot  
Project**

**Sound Files and Sample  
ETDs**

**References**



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Electronic theses and dissertations (ETDs) are an evolving genre of graduate student research that is gaining widespread acceptance among universities in the international community. ETDs are also beginning to diffuse slowly among American universities; however, a number of issues continue to work against more rapid adoption among institutions in the United States. This dissertation examines ETDs as an evolving electronic research genre by (1) historicizing the situated development of its predecessor, the traditional print dissertation, in nineteenth century German and American Universities; (2) reporting on the current state of the Networked Digital Library of Electronic Theses and Dissertations, an initiative of Virginia Polytechnic University; (3) analyzing ETDs as a technological innovation undergoing the diffusion process according to Emmet Roger's Diffusion of Innovation Theory; and (4) presenting the results of an ETD pilot project ethnography carried out at the University of South Florida.



## Overview

The work of scholarship is inseparable from the practice of writing. The Greek alphabet itself was devised with the goal of creating a means of representing reality that would foster and cultivate the cognitive capability of abstraction essential for rational thought. For hundreds of years, scholars labored to produce written scholarly work by hand. With the coming of print culture, not only were they able to produce knowledge more efficiently, but the nature and process of scholarship itself was in many ways transformed by the new medium. Today, information technology promises a new wave of change for the practice of knowledge production. Powerful search engines speed the process of data collection in every discipline; synchronous and asynchronous online communication facilitate the rapid dissemination of conversation within scholarly communities; electronic publication promises an unprecedented proliferation of new scholarship at the same time it threatens the conventions of “gatekeeping” and peer review. And, resistance to this rapid and revolutionary transformation of professional scholarship resounds in every corner of the university.

As academe continues to move cautiously toward adopting various forms of digital scholarship, graduate students will play a key role in moving beyond this resistance. At the opening reception of a recent Computers and Writing conference entitled, *Evolution, Revolution, and Implementation: Computers and*

*Writing for Global Change*, Professor William Condon of Washington State University noted that it is graduate student research and publication in the computers and writing community which is the most active and productive site for the construction of new knowledge. Although I agree with Condon and am inclined to think that his statement holds true for many other fields of study as well, it is also true that traditional models of graduate research production, particularly the print dissertation, impose significant constraints on both graduate research and its availability to the scholarly community. Despite the transformative, (r)evolutionary potential that electronic forms of writing and publication offer new scholarship, graduate theses and dissertations are still written and published in linear print and subsequently shelved away in university libraries where the vast majority simply gather dust, read by perhaps one or two interested researchers who access them in print, often for a fee. Most are never read at all.

Digital libraries of electronic theses and dissertations (ETDs) offer an alternative to this waste of valuable scholarship. In addition, they offer researchers new opportunities to explore the possibilities electronic writing offers for developing new genres of academic scholarship. The Networked Digital Library of Electronic Theses and Dissertations ([NDLTD](#)), housed at Virginia Polytechnical University servers, is one such digital initiative that has gained the



support of several international and American colleges and universities since its inception in 1996. Their several objectives include: increasing the availability of student research to scholars; preserving theses and dissertations electronically without a paper copy; and empowering graduate students to convey a richer message through the use of multimedia and hypermedia technologies.

Not unexpectedly, resistance to such innovative efforts to transform or, in Jay Bolter and Richard Grusin's conceptual terminology, to *remediate* academic scholarship, is fairly widespread (5). Despite the growing number of pilot projects at American universities that address the need to prepare graduate students to conduct and publish their research utilizing new technology, academic administrators and faculty continue to struggle with moving beyond the traditional modes of research and publication, citing everything from the superiority of acid-free paper, to the dangers electronic publication poses for the protection of intellectual property rights in support of their resistance.

My argument for the remediation of the traditional print dissertation, the primary genre associated with graduate student research, both acknowledges and addresses the nature of this resistance. I suggest that some resistance to ETDs is analogous to the resistance toward the mass reproduction of art voiced by Walter Benjamin. In his 1935 essay, "The Work of Art in the Age of Mechanical Reproduction," Benjamin expresses his ambivalence toward the mass

reproduction of original works of art. On the one hand, mechanical reproduction of an original work of art destroys the “aura” of the historical context in which it is embedded; on the other hand, “technology creates a new kind of political or revolutionary potential for mass art, a potential that can also be dangerous” (Bolter and Grusin 73-4). The aura produced by an original work of art confers a kind of authority on both its creator and the particular representation of reality the work offers. Mass access to art thus creates the potential for the interrogation of that authority. Benjamin’s central question becomes: “What are we entitled to ask from a work of art?” Must it remain original, unique, and relatively inaccessible as it hangs on a museum wall? The same question can be asked in the context of academe: “What are we entitled to ask from a work of scholarship?” Must it remain original, unique, and relatively inaccessible as it gathers dust on a library shelf? And further, does the revolutionary potential of unlimited access to knowledge by multiple audiences via the World Wide Web perhaps pose the same threat to the scholarly elite as the mass reproduction of art once did to the artistic elite?

Just as the remediation of art through mass reproduction brings audiences closer to the work, the digital remediation of scholarly publication will bring both scholarly and general audiences closer to the research; in the case of multimedia works, audiences are presented with the opportunity to construct knowledge on

multiple cognitive levels. One of the most popular electronic dissertations published in the NDLTD is an architectural student's research into the space of Middle Eastern Turkish coffee shops; what could be a more immediate experience of the environment of a Turkish coffee shop than an embedded digital video clip of the space accompanied by sound files? Only a visit to the coffee shop itself. Though clearly mediated by the technology required to produce it, the video clip brings researchers closer to the sensory experience of the coffee shop's environment, and allows them to construct new knowledge using both textual and visual information.

Moreover, just as the artistic elite in Benjamin's time were obliged to come to terms with the power mechanical reproduction had to level existing hierarchies of artistic expertise, scholars within the community of academe will be obliged to come to terms with the potential that highly accessible knowledge in digital form has to level existing hierarchies of academic expertise. As Morton Winston notes in "Prospects for a Revaluation of Academic Values," what counts as knowledge within disciplines is paradigmatic in nature; researchers within disciplines are viewed "as the masters of their particular disciplinary paradigms and thus as the source of epistemic certification" (53). These existing disciplinary paradigms are continually reinscribed in scholarly publication; and the system of peer review on which scholarly publication is based functions both to legitimize

and constrain the construction of knowledge within disciplines. Those who typically engage in writing, peer review and editing for scholarly publication are often what Morton has referred to as “disciplinary elites...[who] have advanced to their current position of power within the academy by successfully developing their own disciplines’ dominant paradigms...The journal article is the unit of capital in the academic marketplace; it is the record of ones ‘research’ at the frontiers of knowledge of one’s discipline, and it is thus the basis of any credible claim one might have to be one of the keepers and shapers of the disciplinary paradigm” (53-55). As open access to digital scholarship increases the flow of information about current research, professional scholars will face the challenge of relinquishing their relatively exclusive production of and access to knowledge, as well as their preference for the limited textual forms in which it is currently produced. How they meet this challenge may refashion not only the work they do, but the terms of their own survival in the new knowledge economy of post-capitalism as well.

## **Methodology**

The methodologies I employ in the work that follows include new historicism, genre theory, new ethnography, innovation diffusion theory, and what James Porter, Patricia Sullivan, Stuart Blythe, Jeffrey T. Grabill and Libby Miles term institutional critique (610-639). In chapter one, a new historicist approach to

analyzing the intellectual and political situatedness of the emergence of the Ph.D. dissertation as a scholarly genre is used, together with useful insights from the North American School of genre theory. Chapter three discusses ETDs as innovations through the lens of Everett Rogers' innovation diffusion theory, which identifies and generalizes the process by which new ideas come to be adopted within particular communities. Chapter four, which is an ethnography of an ETD pilot project at the University of South Florida, employs techniques of new ethnography to report on the pilot project from a graduate student perspective. Throughout all the chapters, the methodology of institutional critique is finely woven, as I examine the nexus of knowledge and power relations embedded in the discursive practices associated with producing the dissertation as a text within the community of academe. And, as Porter, et al. note, the rhetorical methodology of institutional critique requires the enactment of the alternative practices it hopes for; it "demonstrat[es] how the process of producing the publication or engaging in the research [itself] enact[s] some form of institutional change" (628). For this reason, my research is presented in the electronic form I argue for—as a critique of the institution of the print dissertation itself. As an ETD, this work then becomes the site of a larger institutional critique of the hierarchical structures of knowledge and power that underlie the system of scholarly publication, as well as the production of knowledge itself. These

theoretical perspectives and practices are more fully outlined in the more detailed section on methodology that follows this overview.

## **Chapter One**

Chapter one begins with a review of several articles published in various disciplines over the last fifteen years that question the usefulness and appropriateness of the dissertation in its standard form. These articles point out that since the dissertation is typically written only once in the career of an academic, it is not generalizable as a model for future scholarship. It must be substantially revised for publication in other scholarly venues, and consequently, graduate student research frequently remains unpublished; those who do spend time substantially revising their dissertations necessarily take longer to move on to new scholarly projects once they become employed as research faculty.

Moreover, its univocal structure and distanced objectivity do not accommodate poststructuralist conceptualizations of the researcher as a situated, multiply positioned self who constructs knowledge subjectively.

Next, the origins of the traditional print dissertation are historicized, beginning with the oral tradition of the medieval universities of northern Europe, paying particular attention to the highly public nature of the “convincing expression of knowledge” required of Masters of Arts candidates by 13th century schools (Strasser 17 ). These early candidates for the profession of teacher/scholar

engaged in oral demonstrations of knowledge whose purposes continue to shape the purposes for which doctoral students write dissertations today. The history of the dissertation as it developed in the United States follows, emphasizing the ties its essential nature has not only to the development of science and technology, but also to the larger project of empiricism.

Because the print dissertation is a distinct genre with distinct origins, the work of several prominent genre theorists is also used in this node as a lens through which to analyze the traditional print dissertation. Genres inscribe the various discursive purposes of the social communities from which they arise; they serve as conventionalized forms that transmit both value and meaning. In the community of academe, the dissertation functions as such a conventionalized form. It is structured by a specific social occasion—the doctoral student's demonstration to the academic community that the skills necessary to independently produce legitimate research/scholarship have been acquired. Viewed through the lens of genre theory, the production of dissertations by graduate students functions to reinscribe the values and meanings expressed by the discourses operating within individual disciplines, as well as the values and meanings of the larger community of academe. Moreover, the successful socialization of students into a particular discipline's discourse community is reflected in the dissertation's use of the largely tacit and inexplicit language norms specific to those discourse

communities.

## **Chapter Two**

Chapter two reports on the current state of American and global ETD initiatives.

To date, American universities have been slower than their international counterparts to embrace electronic theses and dissertation initiatives. Here, I provide an overview of the international efforts to develop a world-wide digital library of theses and dissertations, focusing on (1) the need to provide developing countries with equal access to current international scholarship; (2) the collaborative development of training materials to facilitate wider global participation in the NDLTD; (3) the work of multi-university/library and corporate collaborations to establish centralized metadata for ETDs; and (4) the development of multi-language search interfaces.

The initiatives of early adopters in the United States, together with the results of a survey of best practices are discussed. New ways in which the writing of graduate student research is being reconfigured by the possibilities electronic writing offers are presented. Challenges to widespread adoption of ETDs in the United States are analyzed, including concerns about preservation, cultural attitudes toward intellectual property, and the need for partnerships with educational institutions at the national level. Finally, this chapter examines the training challenges involved in deploying technology to present new research



using multimedia and interactive perspectives.

### **Chapter Three**

The practice of writing is undergoing profound change as we begin to explore the possibilities of expression offered by the electronic medium. As Jay Bolter has described in Remediation: Understanding New Media, “Older electronic and print media are seeking to reaffirm their status within our culture, while digital media are challenging that status. Both new and old media are invoking the twin logics of immediacy and hypermediacy in their efforts to remake themselves and each other” (Bolter and Grusin)

<<http://www.lcc.gatech.edu/%7Ebolter/remediation/book.html>>. More importantly for discussions about writing within the academic community, Bolter and Grusin assert that the process of remediation always operates within the constraints imposed by a culture’s current assumptions about immediacy (the erasure of mediation) and hypermediacy (the multiplication and foregrounding of mediation).

Within the culture of academe, print scholarship has for many years been perceived to function as a transparent window on reality, allowing its readers to enjoy an immediate, mediation-free apprehension of knowledge. Despite widespread recognition among many disciplines that, in the light of new critical theories of representation such a view is questionable, large numbers of students,

scholars, and university administrators continue to value and require the production of scholarship almost exclusively in the form of text published in print. Belief in the immediacy of print text is still very strong. Foregrounding the mediated nature of research is a practice which has only just begun to be explored by a very few disciplines in the social sciences and humanities. Using hypermedia and electronic genres to report such work seems natural to its content, and may contribute to experimentation with its use.

Change is not new to the technology of writing. As Jay Bolter has described in *Writing Space: The Computer, Hypertext, and the History of Writing*, “All forms of writing are spatial...Each [new] technology gives us a different space” (Bolter 11). The papyrus roll used by writers of the ancient world, the codex of medieval scholarship, and the printed book of modern times all worked to shape the writing and reading of those who used them, offering both possibilities and constraints for the production of new knowledge. The ideologies, discourses, and genres made available through language and writing were also shaped by changes in these various writing spaces. Today, as Bolter notes, the conceptual space of the printed book, “...one in which writing is stable, monumental, and controlled exclusively by the author” is being challenged by “[t]he conceptual space of electronic writing [which is] characterized by fluidity and an interactive relationship between writer and reader (11).

Linguist and education scholar Gunther Kress foregrounds the coming revolution which the ubiquity of electronic communication and publication renders inevitable in Hawisher and Selfe's anthology, *Passions, Pedagogies and 21<sup>st</sup> Century Technologies*. He calls for a new theory of semiotics and language, one that has as its base the transformation of representational resources in the construction of knowledge. He notes the ever-growing reliance in multimedia authoring on the rhetoric of the visual, the marginalization of text, the move toward text as a pointer to rather than an explanation of visual information. He calls for intensive research in the area of *synaesthesia*—the human capacity to switch back and forth between visual, auditory and textual modes of representation. Current theories of representation are inadequate to this task, and the future of writing depends on the development of new theories of meaning.

Richard Lanham makes note of the fact that most of the writing students will do in their working lives will be done online; that reading and writing in online genres are significantly different practices from reading and writing in print; and that currently academe is doing little to prepare students for the fundamental changes that technology will bring to these practices. He strongly advocates that new research in writing needs to focus on the ways in which electronic text, which is composed of not only alphabetic text, but also a multitude of visual images and sound, requires that students be taught a different set of skills for

composing online. Electronic writing is far more self-conscious of the fact that when we read, we typically treat print text as a transparent window on reality, looking through it rather than at it. Electronic text requires that we do both—that we oscillate between visual, auditory, and abstract (textual) perception—between images, sound files, and text (Lanham 121, 43-44).

Robert Horn, author of *Visual Language: Global Communication in the 21<sup>st</sup> Century*, asserts that “a wide variety of visual and verbal representation systems are coming together. . .Boundaries are disintegrating between smaller sub languages—diagramming, cartooning, advertising, graphical computer interfaces, and countless others. These dialects or vocabularies have begun to encounter one another and integrate into a larger, more inclusive language” (Horn 5). He terms this integrated phenomenon visual language, and declares that “[i]t is being born of people’s need, worldwide, to deal with complex ideas that are difficult to express in text alone” (5).

I argue that the ways in which the practice of writing is changing in response to the radically different writing space that has been created by new technology need to be explored to determine how they can be most effectively applied to academic research.

I also explore the benefits of ETDs and how the realization of those benefits is affected by some of the cultural norms operative in academe. This is discussed

within the framework of Everett Rogers' innovation diffusion theory. Rogers' analysis of the adoption of technological innovations over time reveals particular processes and influences associated with an innovation's acceptance or rejection by specific communities of users. Some of these processes and influences can be seen to operate within the academic community with regard to the use of ETDs.

## **Chapter Four**

Chapter four is an ethnographic study of an ETD pilot project that included an interdisciplinary group of graduate students who are currently in the process of preparing electronic theses and dissertations at the University of South Florida. The purpose of this research was to study the processes graduate students engage in, including the technology they use and the effects that technology has on the final product, as they worked to create electronic theses and dissertations. Their own perceptions of these processes, tools, and effects were also the subject of study, as well as the ways technology influences graduate faculty members' mentoring with students and interactions with colleagues.

This community, in which I was a participant/observer, included the registered membership for workshops offered by USF's Digital Media Institute, directed by Dr. Joseph M. Moxley of the English Department, and the interdisciplinary faculty and administrators who conducted or visited the workshops. The purpose of these workshops was to familiarize graduate students with the technology

available to design and facilitate the successful completion of their electronic theses and dissertations. All subjects volunteered to participate in the study. They were required to sign a consent form available at the University of South Florida Institutional Review Board (IRB) Website. As some of the data collected came from public online discussion lists, and as subjects understood that this dissertation would link to some of their electronic dissertations published online, confidentiality was neither possible nor desirable. Formal application to the IRB was made in order to secure the approval necessary for conducting research on human subjects at the University of South Florida, and approval was subsequently issued by the IRB.

My report is constructed from the field notes taken during workshop meetings, the September 2000 NDLTD Steering Committee Meeting in Washington D.C., the ETD 2001 Conference in Pasadena, California, online discussions on ETD pilot project listservs, and interviews of graduate students and others close to the project. These interviews were digitally recorded and are embedded as sound files in the text and in the appendix.

Ethnographic approaches to conducting research bring an ethical responsibility not only to protect subjects from risk, but also to provide benefits to subjects if such benefits are possible. As a result of their participation in this study, those graduate students who were interviewed received the opportunity to clarify for

themselves some of the perceived benefits to designing, creating and publishing their dissertations as electronic documents. Additionally, because this dissertation includes links to some of the participants' own electronic theses and dissertations, their research will enjoy greater visibility.

This chapter also includes recommendations for meeting the training and information needs of graduate students as we move rapidly into the age of electronic scholarship, as well as recommendations concerning necessary changes in graduate school policy with regard to the composition and filing of electronic dissertations, particularly those which contain hyperlinks, sound files, video, and other streaming multimedia which cannot be reproduced in print. The political, rhetorical nature of some of the institutional changes made necessary by ETDs is also analyzed.

## **Structural Intentions**

As an electronic document, this dissertation can, and most likely will be read in a non-linear fashion. Although some chapters refer briefly to content that appears in others, it is not necessary for readers to progress through the document from beginning to end. Each of the links that appears in the sidebar takes readers to separate sections, chapters, or headings within chapters. Each chapter contains its own recommendations for action or further study in the successful implementation of ETD initiatives. Therefore, a separate "conclusion" to the

entire document, which would be redundant and unnecessary, has been intentionally omitted.



## **Methodology**

Part of my project in writing this dissertation has been to resist the construction of a univocal text, to avoid where possible the privileging of alphabetic text as a form of information (particularly print), and to explore ways in which I might include multiple voices in my text. Thus, I have included sound files, external links to sites that contain images integrated with alphabetic text, and the voices of those who contributed their knowledge and experiences to my research project. In this effort to resist univocality, I have also chosen to study the genre of the dissertation and ETDs from multiple methodological perspectives; this has not only allowed me as a researcher to engage with my subject from several different positions, but will afford my readers the opportunity to do the same as they navigate through the text. These multiple methodological perspectives of new historicism, genre theory, new ethnography, innovation diffusion theory and institutional critique have, I believe, produced a much richer and more valuable account than would otherwise have been possible. Yet, they are not without connections to one another, and these connections will be discussed at the conclusion of this section.

### **New Historicism**

New historicism, like much of modern critical theory, draws heavily on Foucault, who showed how history can be used critically to reveal the specific and

contingent nature of knowledge construction (Colebrook 4). Apart from this connection, however, defining the specific tenets of new historicism has often proved difficult, even for its proponents, who sometimes seem to deliberately resist attempts to essentialize their practice. Yet there appears to be some consensus with regard to two important points, as Catherine Gallagher notes:

Although there has been a certain amount of controversy over just what the new historicism is, what constitutes its essence and what its accidents, most of its adherents and opponents would agree that it entails reading literary and nonliterary texts as constituents of historical discourses that are both inside and outside of texts and that its practitioners generally posit no fixed hierarchy of cause and effect as they trace the connections among texts, discourses, power, and the constitution of subjectivity. (37)

New historicism as a methodology is not a coherent, unified school of thought; in fact this is one of the most frequent criticisms leveled against it by its detractors. However, new historicism's resistance toward theorizing itself is actually a demonstration of its own practice, which is to "remain skeptical of the notion that we should formulate an abstract system and then apply it to literary works" (Gallagher and Greenblatt 3). Indeed, new historicism insists that overarching critical theory cannot and should not be constructed outside of individual cases—outside of individual texts. Our understanding of texts depends upon our

specific encounters with them and upon our exploration of them as particular texts (6-7). Yet, new historicism does not ignore, but rather foregrounds the cultural matrix from which these individual texts emerge; and it frequently works to expose the fantasies texts as representations articulate (9). As a result of this exposure, a text begins to lose at least some of the special power ascribed to it, its boundaries begin to seem less secure, and it loses "exclusive rights to the experience of wonder" (12), or in the case of a scientific or scholarly text, it loses exclusive rights to the representation of reality. The project of new historicism, then, is to discover the power that shapes a text outside its own boundaries, as well as within them (12) in order to critique the power the text wields within its particular domain.

New historicism grew up within the Marxist tradition of textual interpretation, and thus its readings are frequently skeptical or adversarial; but over time, its proponents have turned from ideological critique toward the analysis of the various discourses that participate in the construction of individual texts (9). Texts may be drawn from several domains in order to identify the resonances and oppositions operative among these discourses (Colebrook 24). In exploring this web of historical discourses, new historicists seek to understand how some texts escape societal surveillance; how they achieve their status; how they survive over time and maintain their meanings (Gallagher and Greenblatt 16-17).

Practitioners of new historicism suggest that the worlds upon which texts draw have left traces of themselves that can be tracked—traces of “social energies that circulate very broadly through a culture, flowing back and forth between margins and center” (13). Moreover, they believe that texts themselves are cultural artifacts that can reveal conflicts within specific cultures. Analyzing these conflicts, which are situated in particular times and places, also entails adopting the self-reflexivity necessary not only to identify the textual traces of a culture, but also the motives for researchers’ own selections of particular texts as significant, either to the culture (past or present), or to themselves (13-15).

In a new historicist analysis, texts and historical events often seem to merge as “it becomes increasingly difficult to maintain a clear, unambiguous boundary between what is representation and what is event” (15). Thus new historicism challenges any division between text and history; instead it “focuses on the way in which social forces produce boundaries between reality and text . . . [and] investigates the ways in which texts [themselves] produce boundaries” (Colebrook 24-26).

It is this aspect of new historicism, its investigation of boundary production at the level of social forces that produce a text and at the level of the text itself, which makes it most appropriate for my analysis of the origins of the print dissertation in chapter one. As I discuss there, social forces working toward establishing the

hegemony of science at the end of the 19<sup>th</sup> century drew boundaries between what could be known about the ‘reality’ of nature and what could be known by appealing to the authority of religious and classical texts. As I show, early dissertation texts reproduced these boundaries. Similarly, by suggesting that the boundary between texts and the events they represent is ambiguous, new historicism as a methodology facilitates examining the ambiguous boundary between text and event that emerged in the recording of scientific experiments—the first dissertations.

Moreover, practicing new historicism allows me to identify my own position as a graduate student researcher of electronic theses and dissertations. My selection of the print dissertation and the electronic dissertation as particular and significant texts, both to me as researcher and to the culture of academe, is motivated by my situatedness within the subject position of graduate student. Finally, new historicism allows me to investigate the ways in which the dominant form of the dissertation genre “is qualified by the specific conjunctures of professional, class and personal interest of individual cultural producers” (Montrose 22). As cultural producers, faculty, graduate schools, libraries, and graduate students all have a stake in the future of the dissertation, and all have power to transform it both at the collective and the individual level.

## **Genre Theory**

Within the field of composition studies, the category of genre has undergone a reinterpretation that describes it as “a complex pattern of repeated social activity and rhetorical performance arising in response to a recurrent situation” (Pare and Smart 146). Rather than viewing particular genres as the products of certain formal features, contemporary genre theorists study them instead as products of recurring social actions. The purpose or action which is accomplished by a genre’s use then becomes the unit of analysis, as well as the interactions of its users, who are in turn understood to be acting as members of particular systems of activity (Miller "Genre as Social Action" 266).

As a methodology, genre theory is particularly useful in examining the role writing plays in those activities where it mediates work in powerful ways, such as the knowledge making activities of academic disciplines (Russell 224).

Contemporary North American approaches to genre study associate themselves fairly closely with critical discourse analysis and its focus on the historical contingency of texts; however, a focus on the power issues involved with texts is less obvious in many genre studies than it is in critical discourse analysis (226), and North American researchers have sometimes been cited by their Australian counterparts as tending to be merely descriptive and uncritically accepting of the status quo (Freedman and Medway 11). Indeed, as C. Herndl notes, genre-based research frequently “lends itself to a mode of reporting that reproduces the

dominant discourse of its research site and spends relatively little energy analyzing the modes and possibilities for dissent, resistance, and revision” (349). Traditionally, many practitioners of genre theory from the North American School have chosen case study and ethnographic methods, augmented by textual and historical analysis. They have tended to look “closely at one specific activity system, and those with which it interacts, to find regularities in the ways people in that activity system write reports, and the history of their language use” (Russell 226). When these activity systems are viewed from a social constructionist perspective,

a written genre can be seen as a broad rhetorical strategy enacted within a community in order to regularize writer/reader transactions in ways that allow for the creation of particular knowledge . . . [it can] provide a community with the rhetorical stability needed to construct a particular type of knowledge effectively . . . [it] can be seen as a way to ensure the production of what could be called ‘community-based discourse’, a discourse whose meaning is created by and for the collective or group”(Pare and Smart 146).

Genre theorist Carolyn Miller finds a connection between genre theory and new historicism in their mutual emphasis on the relationship of textual forms to the beliefs and practices of a culture. Genres, like individual texts, can be seen as

cultural artifacts. “Calling a genre a cultural artefact is an invitation to see it much as an anthropologist sees a material artefact from an ancient civilization, as a product that has particular functions, that fits into a system of functions and other artefacts” (“Rhetorical Community: The Cultural Basis of Genre” 69). Cultures might therefore be characterized by their genre sets. “The genre set represents a system of actions and interactions that have specific social locations and function, as well as repeated or recurrent value...” (70).

In my study of both the print dissertation and the electronic dissertation as genres, it is this view of genre as cultural artifact that I am most interested in following.

As a cultural artifact of the German university laboratories of the 19<sup>th</sup> century, the form of the dissertation that emerged from them reveals the knowledge practices and values of the empirical scientific community at that moment in history, and likewise reveals how those practices and values were reproduced by means of its own textual form. Likewise, the traditional dissertation as cultural artifact of the contemporary academic community can reveal the meanings of the discourses it arises from and reproduce both the values and the power relations operative in those discourses (Kress *Linguistic Processes in Sociocultural Practice* 19).

But perhaps what I am most interested in pursuing with genre theory here is to pose those questions whose absence is the “ideological limitation we see as most needing to be addressed in the next stage of genre studies . . . How do some



genres come to be valorized? In whose interest is such valorization? What kinds of social organization are put in place or kept in place by such valorization? Who is excluded? What representations of the world are entailed?” (Freedman and Medway 11). Within the community of academe, the dominant format of the traditional print dissertation continues to be valorized by those who have an interest in doing so. I attempt to reveal these interests, ways in which the social organization of academe is maintained by the writing of dissertations, and ways in which the traditional dissertation as an academic genre excludes certain representations of the world and certain audiences. I deliberately resist the mode of reporting Herndl exposes as the norm in genre-based research—a mode that reproduces the dominant discourse of its research site. I follow his lead in my attempt to analyze the writing space of the dissertation genre for its possibilities for dissent, resistance, and revision.

### **New Ethnography**

Over the last thirty years, most ethnographers have gradually come to accept the idea that “any claim to directly link fieldwork . . . to the ethnography itself, unmediated or untransformed by narrative conventions, will not hold. No transparency theory can be confirmed by ethnography” (Van Maanan 7).

Moreover, an author inevitably makes choices when composing an ethnographic work, and in fact, “culture . . . is created . . . by the active construction of a text”

(7-8).

New ethnography, the methodology I have employed in chapter four, goes even further toward eliminating any pretense of textual transparency. Ethnographers not only cannot, but should not attempt to stand above or outside the subjects of their research (Ellis and Bochner 19). At the same time, particular researcher perspectives and practices must be acknowledged without privileging those perspectives and practices. New ethnography not only admits but foregrounds the view that researchers are not invisible; that they leave traces of their convictions in the texts they construct; and that by refusing to mask or marginalize their presence in those texts, they accept personal accountability for their perspectives and practices (15).

As a result of this accountability, new ethnography requires researchers to think carefully about how to position themselves within their work; for example, they are ethically bound to look back on themselves through the eyes of their subjects (28), and thus to acknowledge the positions of those subjects within the experiences both share. As a result of this process, “ethnographic research acts back on the ethnographer . . . we . . . learn about ourselves from studying “them” (38). Even more traditional ethnographers recognize that: “The research is . . . virtually always self-transforming . . . fieldworkers themselves are sure to present their stay as highly instructive” (Van Maanan 2). In addition to recognizing the

impossibility of separating the researcher from the research, new ethnography also agrees that the language used to explain or describe an experience cannot be separated from the experience, as the researcher “knows” it (Ellis and Bochner 20). What came to be known as the “crisis of representation,” first introduced by postmodern philosophers such as Foucault, Lyotard, Derrida, and Rorty, created an opportunity for researchers to explore different styles of language use in their reporting. New ethnography’s response to this opportunity has been to “open ethnography to a wider audience, not just academics but all people who can benefit from thinking about their own lives in terms of other people’s experiences” (Ellis and Bochner 18). Similarly, it often seeks to reach across academic disciplinary boundaries (15).

Reaching broader audiences requires that new ethnographers recognize the ways in which they are constrained by the academic writing conventions of their disciplines. It requires them to recognize how what they have read has taught them to write in a way that severely limits who can read what they write (19). It requires them to take risks and imagine new writing styles, new ways of converting data into information readers can make use of (28). Some of these styles may inspire different ways of reading—ways of reading that ask others to care about those whose lives and experiences are depicted by ethnography (23-24). Narrative strategies aimed at transporting readers into new experiences both

cognitively and affectively are employed (18).

There are, of course, critics who suggest that some forms of new ethnography deal more with the experiences of the researchers themselves than with the experiences of their subjects; that this approach is too focused on the self of the researcher and thus, somehow less valuable. But new ethnographers are quick to reply that since the self is socially constructed, since “culture circulates through all of us, how can. . . [ethnography] be free of connection to a world beyond the self?” (Ellis and Bochner 24). How can the world not be present in researchers’ descriptions of it, if they themselves are constructed by that world?

New ethnographers are pragmatic; their focus is not on questions about truth or how to get at the truth, but rather on how their experiences and reports can be used (22). They hope that their work can assist others in understanding what new directions to take (25).

New ethnography can be seen as heir to confessional and impressionist ethnography, whose styles are perhaps best described by John Van Maanan:

[Confessional ethnography is an] unassuming style of one struggling to piece together something reasonably coherent out of displays of initial disorder, doubt, and difficulty . . . The details that matter in confessional tales are those that constitute the field experience of the author . . . Emotional reactions, new ways of seeing things, new things to see, and various

mundane but unexpected occurrences that spark insight are all conventional confessional materials that suggest how the fieldworker came to understand a studied scene . . . The attitude conveyed is one of tacking back and forth between an insider's dispassionate perspective and an outsider's dispassionate one. Perhaps no other confessional convention is as difficult for the writer as maintaining in print this paradoxical, if not schizophrenic, attitude toward the group observed. A delightful dance of words often ensues as fieldworkers present themselves as both vessels and vehicles of knowledge. (75-77)

Impressionist tales present the doing of fieldwork rather than simply the doer or the done... Reflective, meditative themes may develop from the story and spin off in a number of fieldworker-determined directions. . . Impressionist writing tries to keep both subject and object in constant view. The epistemological aim is then to braid the knower with the known. (102).

According to Van Maanan, such "tales" are, by their very nature, blurred and shifting accounts that present partial representations of equally partial ethnographic experiences (91).

As I planned my research, I chose to include a small, casual ethnographic project because so little is known about ETDs or ETD initiatives; even less is known about the graduate students who create ETDs, the faculty who evaluate

them, the manner in which librarians archive them, or the ways in which they are transforming graduate education. Ethnography can be particularly useful in situations where very little information is available about the subject and can lead to the development of useful theories (MacNealy 214). “The term ‘casual’ does not mean unplanned; rather it means that the research design does not rely on prearranged, narrowly defined categories of observation. Instead, a casual project is often a first step in collecting enough information through observation to enable a researcher to establish categories for future data collection” (216). And this is precisely what my study of the ETD pilot project at the University of South Florida allowed me to do. The chapters of this dissertation reflect the different directions my future research on ETDS will take, as well as the different theoretical/ methodological approaches I found useful for my study. All of these directions gradually became apparent to me during my participation in and observation of the USF ETD pilot project. Like Patricia Sullivan and James Porter, I feel strongly that: “Research methodology should not be something we apply or select so much as something we construct out of particular situations and then argue for in the write-ups of our studies (46).

Ethnography is also appropriate when an organization or institution is experiencing change. Change can be documented as it happens, and problems that arise in the process of change can be documented and analyzed, including the

strategies used to resolve them. Other organizations and institutions may then be able to use ethnographers' findings to inform and effect such changes within their own systems (MacNealy 223). ETDs introduce dramatic change at a variety of levels within academe, and the primary, pragmatic purpose of my research has been to construct a report that will prove useful to other universities as they come to recognize the benefits of ETDs and incorporate them into their graduate research programs. I have positioned myself as a graduate student in order to inspire a different way of reading—a way of reading that, following the practices of new ethnography, asks readers to care about the graduate students whose lives and experiences I depict. I am accountable for that position, recognize that it is interested, and do not ask that readers privilege it over the differing positions of some faculty, librarians and administrators that appear in my narrative.

Because ETDs present new opportunities for reporting research in all disciplines, I have explored new ways of using language to present the results of my research, recognizing that it may be useful to do so in appealing to an interdisciplinary audience. My narrative shifts between first and third person as I present myself, in Van Maanan's words, as both a vessel and a vehicle of knowledge, striving to keep both my own experiences and the experiences of the subjects of my research in view (75-77). And perhaps most importantly, I have risked recognizing more clearly "the role of power in the research enterprise . . . and acknowledge[d] as

valid the political and ethical relations between researcher and researched” (Sullivan and Porter Preface xiii). I have chosen to critically examine part of the institutional life of the university—the conventions associated with graduate student research and writing, their history and the purposes they serve within the social system of academe, and the experiences of persons within the university who affect and are affected by these conventions as they are transformed by the possibilities electronic writing offers. As Ellis & Bochner note: “We so willingly accept the role of obliging critic when it comes to examining institutional life, except when it’s the institutional practices in which we ourselves are embedded. We spend most of our life in a university, but rarely do we ever focus our ethnographic and critical eye on our own practices” (36). I have turned my critical eye on some of those important practices.

### **Innovation Diffusion Theory**

Because ETDs are an innovation in composing and presenting graduate student research, innovation diffusion theory provides a useful perspective on some of the support and some of the resistance I encountered in working with faculty, students, librarians and administrators who were part of the ETD adoption process at the university.

Diffusion research is not new to academic environments. As early as the 1930’s, Paul Mort and others at Columbia University’s Teachers College used



questionnaires mailed to school superintendents to show that innovativeness was linked to local school control (Rogers 64). Interestingly, this study found that widespread adoption of new ideas in education involved a considerable time lag: The average American school lags twenty-five years behind the best practice (Mort 200).

According to diffusion theorist Everett Rogers, the most exciting, potential contribution education could make to the theoretical understanding of how innovations diffuse “stems from the fact that organizations are involved, in one way or another, in the adoption of educational innovations” (Rogers 63). It is this particular focus on the role that organizations, as social systems, play in the diffusion process that first interested me in including Roger’s theoretical perspective in my research. The norms and values of the academic community have worked to shape the genre of the dissertation; thus any change in the dissertation itself will be both facilitated and constrained by those norms and values. Likewise, the rate at which ETDs are adopted by the academic community will depend a great deal on the consequences ETDs bring to the work of the scholarly community (24).

Rogers describes diffusion as a communication process involving messages that are concerned with new ideas—new ideas that introduce a degree of uncertainty (5-6). It is also a kind of social change. “When new ideas are invented, diffused

and are adopted or rejected, leading to certain consequences, social change occurs” (6). The four basic elements of the diffusion process are the innovation itself, the channels of communication employed in disseminating information about the innovation, the time required for the innovation to diffuse, and the social system within which the innovation is eventually adopted or rejected (10). These elements are examined in much greater detail in chapter three as they apply to the diffusion of ETDs. Rogers also describes an innovation-decision process, whereby those who play a role in deciding whether innovations will be adopted or rejected pass “from first knowledge of an innovation to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation and use of the new idea, and to confirmation of this decision” (20). Chapter four looks in on this process in a specific university community as they move toward ETD adoption.

### **Institutional Critique**

According to Porter, et al., the aim of institutional critique is to sensitize institutions to those who use them systematically—from within—so that the conditions of those they serve are improved. As a result of this critique, an institution’s perception of its relationship to its public may also change for the better (611.) “Institutional critique insists that institutions, as unchangeable as they may seem . . . do contain spaces for reflection, resistance, revision, and

productive action” (613). Productive action requires a plan, and Porter, et al. see rhetorical action as a powerful means of “re-writing” institutions (610).

Institutional space and structure are also a particular focus of institutional critique as a research methodology; space is important in the writing of institutional identity. These spaces also offer “considerable potential for the interrogation of resistance and agency in institutions” (620).

The dissertation is an important space in the writing of institutional identity. As I discuss in later chapters, within the university, the dissertation inscribes the identities of disciplines, graduate students, faculty mentors and audiences, as well as the identity of academic writing as a means of knowledge construction.

Changes in the dissertation such as those ETDs make possible will elicit changes in these various identities. I suggest that the dissertation is also a space that allows for “the interrogation of resistance and agency,” and have chosen to use it to examine both resistance to ETD adoption and the new level of agency graduate students assume when they choose to write ETDs.

The writing space of the dissertation, both as a print document and as an electronic document, is also a space for reflection on the value of graduate student research within the university. Questions of purpose, audience, value to the scholarly community and accessibility need to be addressed as the genre evolves within electronic writing spaces. ETDs themselves present rhetorical strategies,

such as the use of multimedia and hypertext, which can be used to argue for their own adoption. The dissertation is also an example of what Porter, et al. call “a local manifestation of more general social relations, nodal points in the rhetorical relationships between general social . . . processes and local practices” (621). It is a nodal point in the web of relations among disciplines, graduate programs, students, faculty, libraries, and the larger scholarly community.

This dissertation is, itself, an example of institutional critique in that it enacts the alternative practices it argues for (628); as an ETD, it embodies an institutional change in the content and format of the traditional print dissertation at the same time it argues for such change. My aim as a researcher practicing institutional critique is to sensitize academe to the needs of its graduate student researchers and to the needs of its rapidly expanding public, the global research community.

### **Theoretical/Methodological Intersections**

There are a number of common threads running through all of these approaches. New historicism’s focus on the particular text, as well as the specific encounter with the text, identifies it with new ethnography’s focus on a particular community and the researcher’s particular encounter with that community. Both foreground the cultural matrix in which they find themselves located as researchers. And just as new ethnography suggests that no single voice should be privileged in attempts to represent reality, new historicism suggests that no text

can claim the exclusive right to this representation either. Both approaches look closely at researcher motives—why they select the texts or communities for study that they do, as well as the subject positions they choose to inhabit in their work. Genre theorists frequently choose ethnographic methods in combination with the historical analysis of texts. They, too track the traces of social relations that are inscribed in a text and are concerned with the ways in which particular knowledge is reproduced by texts for particular groups. All texts, both literary and non-literary, are seen as historically contingent cultural artifacts that can reveal the ways in which specific texts achieve their status and maintain their meaning. And the recent calls by some theorists to politicize the study of genre align it even more closely with both new historicism's project and the power of ethnography to reveal the circulation of power within specific communities. Innovation diffusion theory's recognition of the effects of social systems on the diffusion process offers opportunities for ethnographic study; Rogers himself has noted that more research into the nature and workings of these effects is warranted, as relatively few studies of this type have been done. I chose to use the data I had collected in the ethnographic portion of my project to discuss ETDs as innovations going through the diffusion and adoption process. Some of the information I recorded on resistance to ETD adoption at USF appeared to be very much influenced by the norms and practices of the social system of academe.

The institutional critique of Porter, et al. also analyzes social systems—at the level of the institutions they produce. It suggests ways in which these institutions can be changed through rhetorical action. All institutional change is not necessarily inspired by innovation, but that which is may require change at the level of policy, and the writing of policy is always a rhetorical action. In order to effectively diffuse, ETDs as innovations will require change at the level of policy, and will require the communication of information to the academic community about their benefits—communication which is itself always a rhetorical action.

# The Origin and Development of the Dissertation Genre

The form in which knowledge is published by scholars has undergone considerable transformation over time—from the exclusively oral presentation and defense of ideas, to the creation of hand-written manuscripts, to print monographs and journal articles published in serial issues, and currently, to highly specialized electronic databases and online journals. Each of these different media has shaped the knowledge scholars produce; each has both empowered and constrained scholars and researchers in their efforts to share new knowledge with the larger scholarly community. Each has attempted to provide a transparent window on the world, yet in the attempt, has indelibly placed the stamp of its own limitations on what we understand about the world.

As Clifford Geertz has said, that which we seek to know about the world, what some refer to as reality, does not have “an idiom in which it prefers to be described” (Geertz 140). Neither does it have a rhetorical structure, an interface, or a technology in which it prefers to be described. For example, all knowledge is not reducible to alphabetic text, yet that is what we continue to require when we require the writing of a standard six-chapter dissertation, submitted in print to libraries and graduate schools.

Today, a new breed of graduate student innovators has begun to interrogate the reduction of their knowledge to alphabetic text; they are expanding the

presentation of their thesis and dissertation research with the use of hypertext, sound, animation and streaming video. Some wish to allow their dissertations to be continuously appended by critical commentary, to allow them to become expanding networks of information that concretely reveal the multiple connections between facts, theories and disciplines. Many hope that the exponentially increased access online publication affords will allow them to be read by a larger audience, and perhaps, if their research is especially significant, allow them to achieve early recognition and notoriety in their fields.

Research and writing exist in a dialectical relationship. The form of presentation the research takes works to construct the research itself. When we continue to constrain the way in which we imagine research can be written, we constrain the construction of knowledge itself. Understandably, many feel as Professor Howard Gardner does, that “universities are places where masters train apprentices so that they can eventually create a work, which used to be called a masterwork...it’s a very precious tradition, this handing down of how to be a chemist, how to be a historian...It’s very precious, and it’s toyed with at great risk” (Saks 410). And certainly, training in a profession is part of the university experience. However, as we move further toward electronic publication of research as an alternative to print publication, it seems less likely that the traditional format of the dissertation—which was designed for the expression of ideas in a print



medium—will successfully prepare graduate students for their future work as writers of research that will be published in the digital medium.

### **Current Value**

Graduate students are not the first to question the value of the traditional print dissertation. According to J.R. Thomas, et al., although the dissertation is intended to be a vehicle for the publication of new research, its traditional five or six chapter format renders it unsuitable for publication without substantial revision to make it conform to the genre of the journal article. Because of the extensive revision necessary, 1/3-1/2 of all dissertations remain unpublished. Yet, dissertations that do undergo revision and subsequent publication are cited more frequently than other work published by their authors. “An unpublished thesis/dissertation remains information that is the exclusive domain of a few individuals” (Thomas, Nelson and Magill 123). Clearly this represents a substantial loss of opportunity to communicate new ideas.

In the field of education, Nell Duke and Sarah Beck contend that the traditional dissertation format consisting of 200-400 pages, including an introduction, literature review, methodology section, and research results and conclusions, is largely ineffectual in either providing adequate training for students or contributing knowledge to the field. They define the dissertation as a genre in the Aristotelian sense; its form is highly conventionalized, it presents a unified theme,

and “is written with a particular goal (or telos) in mind, and for a particular audience. . . [which] consists of the members of the doctoral student’s committee, and perhaps the few friends, family members and colleagues who can be persuaded to read it” (31).

The authors argue that no matter how accessible dissertations become to wider audiences via new technology, the traditional format precludes their practical use for many audiences, in particular, practitioners in the field whose work often leaves little time for reading documents of this length and style. With such a limited audience, its status as a work of research is questionable. Moreover, the traditional dissertation fails to function as a viable model to train students for future scholarship. It is unlike anything the student has written previously, and lacks generalizability as a model in that “it is difficult to identify any other genre that we are likely to produce only one of in our lives” (32). Finally, the amount of time required to substantially revise it in publishable form may interfere with moving on to new projects, actually limiting the future productivity of new scholars. For Duke and Beck, the two most important issues for evaluating possible alternative formats for the dissertation are whether the formats will be more accessible by a wider audience and whether they will truly prepare candidates for the kind of writing they can be expected to produce throughout their careers.

In a conversation recorded at Harvard University, “Viewpoint: Should Novels count as Dissertations in Education?” which was subsequently published in *Research in the Teaching of English*, Eliot Eisner of Stanford University asserts that “...problems and methods exist in a dialectical relationship, not just a didactic relationship. And so, when we open up, as we are doing at this stage of our history in the educational research community, the exploration of new forms for extending our understanding to others, we’re also redefining the kinds of questions that we can address” (Saks 408-409). Another participant in the discussion, Professor Wasley, provides the following anecdote, which is demonstrative of both the need to include new forms of representation in recording graduate student research and the difficulties students face in doing so.

When I began my doctoral work at the University of Washington, I sat down to discuss the topic with John Goodlad, and I wanted to do a film. And the film was really a sort of Studs Terkelian comparison of teachers’ work lives and the changes that have come about in the last 50 or 60 years. He was thrilled and said “Absolutely, do it, this will be fabulous. This will be something that will be quite usable.” And we thought of 50 different arenas in which we might use this short film. We got funding for it.

Later someone who was on my committee pulled me aside and said, “Do you really want to do this? Because you know, others are not going to agree with

him, and you're going to have to write a dissertation and do a film, which means that you're going to be here, four, six, or eight years. Do you want to do that?"

So I opted not to do the film as a dissertation, but I'm still working on that film! (414).

Post-structuralist theories of research are also influencing many disciplines to imagine new ways to accomplish their work. When distanced objectivity is devalued in favor of notions of the researcher as a transgressive self who is always situated and multiply positioned, a different way of imagining the writing of research is also required (Lenzo 19). Lenzo asks: "How are the multiple and shifting positionings of the poststructural researchers-as-selves to be handled?"

One answer is, I believe, to allow doctoral students to experiment with constructing their dissertations as non-linear electronic texts. In my view, the traditional dissertation format makes the presentation of only certain kinds of knowledge possible—those that operate rhetorically as unified, hierarchical structures produced from a single position.

### **Traditional Print**

In order to better grasp the significance of the changes ETDs as technological innovations introduce to the social system of academe, it is important to historicize some of the features of the earlier technology of the print dissertation.

Although my discussion of the dissertation as a written genre primarily addresses the evolution of its form after 1861—the date of the submission of the first dissertation in America at Yale University—it will be useful to examine the qualifications for the terminal degree in the first universities that emerged in late medieval Europe, as these qualifications are to some degree still inscribed in the organizational structure of the traditional print dissertation.

According to M.W. Strassar, the fact that paper or parchment required for writing was rare and expensive during the 13<sup>th</sup> century necessitated that students' demonstration of learning be confined almost wholly to oral expression.

Nevertheless, the skillful and convincing expression of knowledge that the written dissertation requires today was also required of medieval university Master of Arts candidates. Their participation in a series of public and private oral debates served as an examination prior to academic licensing. For the medievals, demonstration of skill in communicating knowledge was distinguished as the power to persuade, the correct use of grammar, the power to exhort, and the ability to engage in logical and dialectical disputation (Strasser 11-14). Moreover, skill in communication of knowledge completed the mastery of it. As Strassar notes:

...this emphasis on oral expression produced much more than mere fluency of speech. What is was intended to provide, as some of its results clearly

manifest, was mastery of whatever information a student had acquired. It was in this sense that the 13<sup>th</sup> century may be said to have retained the classical idea of education: the idea that our knowledge is complete only when we can express it. (14)

Although the medieval counterparts of today's doctoral students were—due to material constraints—precluded from producing a written document which would serve as evidence of their having met the requirements for academic licensure, their oral demonstration of mastery necessarily included the “work of arranging and re-arranging, [the] activity of comparing pieces of information...of hunting for missing links and deleting the extraneous...of putting one's knowledge in [the] order [that] is required of anyone who would give public expression to his learning” (Strasser 17). In sum, medieval candidates for the Master of Arts were required to show that they could assimilate difficult materials and could communicate them (15).

Strassar's account contains frequent references to the public expression of knowledge required of medieval candidates. Today, many programs among the disciplines do continue to require an oral examination before a committee at the conclusion of the doctoral student's studies; and there is, of course, the oral defense of the written dissertation. But the student's examiners are to be sure, a very limited public. The fact that a written document now exists, a dissertation

which has been laboriously “arranged and re-arranged” to put “one’s knowledge in order” as Strassar describes the medieval oral process, should facilitate making the graduate student’s knowledge more extensively public. It is true that most dissertations are available through inter-library loan when the single university that houses the document is co-operative, and many are. Or they can be purchased from UMI for \$30-\$60 per copy. But, does this mean they are truly public? Are they, as Merriam-Webster defines public: 1a: exposed to general view? And which publics are they made public to?

In historicizing the written dissertation’s origins, it is also important to understand how these origins are inextricably linked to the development of graduate education itself, which, in the United States, was initially patterned after the organization of teaching and research carried out at German universities. During the nineteenth century, a dual migration of (1) American students traveling to Germany to further their studies and (2) German teachers immigrating to the U.S. to teach at American colleges facilitated “the influence of German university methods, forces and conditions, over the teaching given and over the methods and conditions prevailing in American institutions” (Thwing 10-11). Approximately ten thousand American students made their way to German universities from 1815 to 1900 to obtain graduate degrees, including the Ph.D., from institutions which enjoyed considerable prestige in Europe for their contributions to the

advancement of scientific knowledge and for their superior libraries. Likewise, German university laboratories, as well as their investigation and research methods, had strong appeal (Malone 45). Significantly, the work done in these laboratories for which students sought scholarly recognition and status through the granting of graduate degrees “was associated more and more widely with research and writing (and usually publication as well) of a doctoral dissertation . . . disputation, the traditional standard exercise for achievement of the dignity of doctor, died out in this period” (McClelland 198). In the German laboratories, the public expression of knowledge required for the granting of doctoral degrees in the medieval university began its transformation from a series of oral arguments which were necessarily dialogic and polyvocal in nature, to the univocal, linear text—a text on which the enterprise of science itself would become wholly dependent.

Changes in educational philosophy and practice also underpin the development of the dissertation. German university reform begun in the 18<sup>th</sup> century had, by the mid 19<sup>th</sup> century, produced an emphasis on academic freedom and autonomous inquiry that departed radically from earlier scholastic models based on Aristotelian logic, philosophy, theology, and traditional doctrines. As Malone notes, “German professors were no longer content to teach only what was in books. German scholars began to associate good teaching with independent



inquiry” (132). And the nature of this independent inquiry is what most concerns my argument here. If, as McClelland has said, the writing of dissertations replaced the practice of oral disputation during the latter stages of Germany university reform, if the dissertation as a genre took shape as young German and American scientists recorded the results of their laboratory investigations, then the positivist, empirical methods employed in the research universities of 19<sup>th</sup> century Germany can only have had a profound influence on both the structure and content of the Ph.D. dissertation—a genre of graduate student scholarship which continued to evolve along empirical lines following its importation into the American research university. Indeed, Malone concludes that, “Since these initial efforts . . . were of scientific nature, thousands of Ph.D. dissertations have been produced which were scientific experiments. Scientific and technological developments in the United States . . . have influenced the essential nature of Ph.D. dissertations” (141-2); and Bernard Berelson reminds us that “the graduate school came into being under the pressure of science and it has lived its whole life in an increasingly scientific and technological age” (12). The nature of scientific research as it was practiced in the early laboratories of German and American universities, together with all of its epistemological assumptions, produced the form and content associated with what is still, according to one of the most recent “how to write a dissertation” manuals available, the most popular structure for the

document in use today:

Chapter 1: Introduction

Chapter 2: Review of the Literature

Chapter 3: Methodology

Chapter 4: Results/Findings

Chapter 5: Analysis and Interpretation of the Findings

Chapter 6: Summary, Conclusions, Applications, and Recommendations for Further Study (Thomas and Brubaker 29).

The implications of the early development of the dissertation among the sciences deserve particular consideration, as the epistemological assumptions of the positivist paradigm operative in the methods of investigation employed by these sciences, namely physics and biology, have been rigorously called into question in the last sixty years by a number disciplines, including many of the sciences. Let us look then, at some of these epistemological assumptions.

In both German and early American graduate schools patterned after them, recording the results of research performed according to the experimental method—observation, hypothesis, experimentation, further observation followed by interpretation (Schiller 147-152)—was often the primary aim of students writing dissertations to qualify for the Ph.D. as the genre began to take shape. Explicit in the development of the experimental method were two notions that had

a profound effect on the structure and language of the dissertation. They were: (1) that standardization of procedures guarantees validity, and (2) that “the establishment of fact should remain free of subjective contamination; for the participation of the mind would menace the cohesion of the experimental method” (149). Writing up the results of experimentation was a procedure to be standardized; writing was perceived as a recording apparatus which, like any other recording apparatus used to conduct the experiment, “...isolates and makes the observation even more objective than it is when recorded by the senses” (149). But as Charles Bazerman has noted, language, including the writing of scientific discourse communities both past and present, “is not an inert vessel. The ancient philosophic and aesthetic debate over the relationship of form and content should caution us to consider the influences the languages of knowledge might have on the shaping of knowledge” (“What Written Knowledge Does: Three Examples of Academic Discourse” 361). Moreover, in their use of language, all knowledge-bearing documents make representations of knowledge that serve interested social and historical situations (361). The developing genre of the dissertation in 19<sup>th</sup> century German and American universities can be no exception. The changing social and political position of science in both Germany and the U.S. during the 19<sup>th</sup> century also contributed substantially to shaping the genre of the dissertation. According to a dissertation presented to the History of Science Department

at Harvard in 1993 by Keith Anderton, the social agenda of science in 19<sup>th</sup> century Germany was to achieve political hegemony, “to promote in the society at large a skeptical, empirical mindset...advocating educational reform to expand the province and legitimacy of physical science while subtly undermining more traditional spheres of knowledge and authority” (23). Eminent public figures, men of science such as electrophysiologist Emil Dubois and pathologist Rudolf Virchow, were engaged in an ideological mission to declare science’s independence from both metaphysics and the Catholic Church, to free it from external authority, and to further mechanistic science as a popular mindset (19-22). In 1872, Dubois addressed fellow scientists and the general public in a speech entitled “On the Limits of Understanding Nature,” in which he established “limits” for science which, as Anderton notes, were “not only circumscribing but also expansionary. They were barriers intended to wall science in, but also to wall other types of knowledge out” (23). This walling out of other types of knowledge reveals itself not only in the form and content of the genre of the dissertation, but also in the resistance of the academy today to the introduction of substantial change in its form and content.

Correspondingly in the U.S., influential philosophical voices such as those of Chauncy Wright declared the independence of science from religion, arguing that each possessed its own purposes and methods, and that with an “exclusive

focus on material facts and the use of verification, scientists built up concrete knowledge of the natural world, thus showing the superior value of modern inductive research” (Croce 170). Empirical facts possessed an authority that enabled the establishment of undisputed truth. Any other kind of authority was liable to uncertainty (166-177). As in Dubois’ “limits of science” speech, pronouncements such as these made by thinkers like Wright who moved in Cambridge circles and commanded a great deal of influence within the American pragmatic movement, not only “limited” science by divorcing it from religious and metaphysical thought, but also permitted its expansion and the “walling out” of other ways of knowing. By the time educator John Dewey published Democracy and Education in 1915, in which he “endeavored to detect and state the ideas implied in a democratic society and to apply these ideas to the problems of the enterprise of education” (Preface), the development of the experimental method in the sciences had been firmly linked to the growth of democracy in America, and Dewey could unequivocally aver that scientific knowledge, “the outcome of methods of observation, reflection, and testing which are deliberately adopted to secure a settled, assured subject matter . . . is the perfecting of knowing, its last stage” (219). And although as Dewey noted, it would still be some time before the experimental method diffused to become the standard in conducting research in other disciplines (339), science had become the

handmaiden of democracy. By leveraging the ideological power of this association, science claimed hegemony in American education as the privileged means of knowledge production.

However, since the 1950's, critics of scientific method such as Karl Popper, I. Lakatos, Thomas Kuhn, and P. Feyerabend have refuted the notion that science can produce disinterested, value-free "facts" about the nature of reality. Everything from the interested selection of theories to be tested, to the development of "saving hypotheses" that rescue theories in danger of being falsified, is value-laden. All principles of scientific method provide an interested means to realize some interested end (Nola and Sankey 1-12). Science, it seems, has been demoted from the status of handmaiden to democracy to that of an ideology which is simply one among many, and which may in fact pose dangers to democracy (Feyerabend 73, 206). Yet we seem determined to continue to write dissertations in a format and style whose origins are clearly rooted in an empirical and ideological past that no longer carries the day. Graduate students are required—in many cases in direct contradiction to what they have been taught about the polyvocal nature of epistemological enquiry—to impose on their own knowledge a genre whose origin stems from assumptions about the nature of knowing that are now defunct. Moreover, we know that the structures of texts perform a world-ordering, world-creating function. They "embod[y] the type of

order which the writer perceives, or which he wishes to impose on that part of reality which he is presenting to the reader in the text” (Kress *Learning to Write* 26). Still graduate students continue to be required to privilege and impose on their texts the order of the standard six chapter, linear, hierarchical print dissertation; they are encouraged to continue the pretense that this is the best, most effective, the most natural way to present their research.

Such requirements constrain the potential future scholars have to shape the knowledge of their disciplines in ways that are both useful to those disciplines and commensurate with current rhetorical theory. Unfortunately, graduate student potential to transform the discourse community in useful ways does not seem to count as much as their potential to reproduce what counts as knowledge within the discipline. But the transformative process of entering those discourse communities is far from a one-way ushering in of neophytes by the experts. Indeed, as Paul Prior notes:

...graduate students are not entering the autonomous social and cognitive spaces of discourse communities, but engaging in active relations with dynamic, open, interpenetrated communities of practice. Disciplinary enculturation then refers not to novices being initiated, but to the continual processes whereby an ambiguous cast of relative newcomers and relative old-timers (re)produce themselves, their practices, and their communities (xii).

Graduate students are not passive consumers of knowledge; their writing practices in particular “provid[e] opportunity spaces for (re)socialization of discursive practices and mediating the (re)production of disciplinary communities of practice” (xiii). Their multiple motives and personal histories inform their appropriation of research tools and their dynamic representations of writing tasks. “Their images of authorship change as they negotiate . . . disciplinary boundaries . . . and align themselves with—and sometimes reject—powerful disciplinary social practices” (229). But despite what we know about the transformative nature of their entry into various discourse communities, the product required to be produced by graduate students as evidence of their own value to those communities contains little evidence of this transformation. The production of the dissertation continues to be “the representation in language of discipline-specific knowledge shaped by the norms and conventions of a particular disciplinary culture” (Parry 273). The largely tacit and inexplicit language norms specific to the discourse communities of various disciplines are reflected in dissertations, and the successful use of these language conventions indicates successful socialization of students to a particular discipline and successful entry into that discipline’s discourse community (296). Likewise within the field of English Studies, Steven North observes that:

. . .while writing is the primary means by which doctoral students make their



way into English Studies, it is also the primary means by which, through what is always a complex set of negotiations, the discipline is written into the students...while doctoral students are working to make English Studies their subject, English Studies (however we understand the agency of such entities) is at work making doctoral students its subject, too. (xiv-xv)

Part of what makes this function of the dissertation possible is the imposition of the genre's formal structure and conventionalized style on the student's knowing; this imposition guarantees continual privileging of particular types of knowledge, including disciplinary paradigms, and walls out other ways of knowing.

### **Genre Theory**

In order to more fully appreciate the extent to which the genre of the dissertation functions to accomplish this, it is helpful to examine the category of genre itself and to examine ways in which theories of genre may help to explain the academy's resistance to transforming the content and shape of the dissertation through including multimedia or exploring the advantages of non-linear structure.

According to Gunther Kress, genres are conventionalized forms of texts that arise out of specific discourses. Like all texts, they carry the meanings of the discourses they arise out of, reproduce the power relations operative in those discourses, and seek to veil their polyphonic nature—to efface the very

differences from which they are constructed. Moreover, genres are context specific, structured by social occasions that are always conventional. They possess “specific forms and meanings, deriving from and encoding the functions, purposes and meanings of the social occasions. Genres therefore provide a precise index and catalogue of the relevant social occasions of a community at a given time” (Kress *Linguistic Processes in Sociocultural Practice* 19). In the community of academe, the dissertation functions as such a conventionalized form. One of the relevant social occasions which structures the dissertation as a genre is the doctoral student’s demonstration to the academic community that she has acquired the skills necessary to produce legitimate research/scholarship independently. It is also a demonstration of her willingness and ability to reproduce the power relations operative in the discourse of the discipline for which she writes, and to veil that discourse’s polyphonic nature—to attempt to reduce her knowledge to a univocal statement about the nature of something, whether it be an object, an organism, a process, a relation, a text, or an idea.

The North American genre school began with the work of Carolyn R. Miller, who rejected the notion that genre is a category produced by formal features, positing instead that genre is constituted by “recurring social actions that give rise to regularities in the discourse that mediates them”(Russell 226). Thus, genre is a dynamic category, which can be analyzed by studying the interaction of

people with texts, within specific activity systems (226). Miller argues that it is more useful to center a definition of genre on the action accomplished by its use, rather than on any of its formal or substantial characteristics, since action encompasses both form and substance. She draws on Kenneth Burke's notions of motive and situation in order to assert that since the establishment of any genre is a rhetorical act, and according to Burke, such acts strategically encompass particular situations, genre becomes then a pragmatic "point of connection between intention and effect . . . [which is] organized around situated actions" ("Genre as Social Action" 153-155). In her view, the elements of form, substance, situation and motive as conventionalized social purpose all fuse at the level of genre.

The dissertation is a text within the activity system of graduate education in academe. As a genre, it connects certain intentions and effects within that activity system. It is a particular form, filled with particular content, which serves a particular recurring social situation, and it inscribes a particular social, rhetorical and pragmatic act. Currently, for most faculty and graduate school administrators, the successful completion of the dissertation process as a whole, including the production of the written document, serves the conventional social purpose of reducing uncertainty over whether or not the relationship embedded in the traditionally conceived teacher-student relationship has produced the desired

outcome—a certifiably (if only potentially) productive scholar worthy of initiation into the discipline’s discourse community. The characteristics of the traditional print document—its original, appropriate, and adequately developed content, logically coherent hierarchical and linear information structures, and effective use of disciplinary terminology and academic tone all demonstrate the doctoral student’s ability not only to effectively perform meaningful research, but more importantly, to publish the results—in academic forums dominated by text. The print dissertation serves as a tool to demonstrate with an acceptable degree of certainty that faculty have succeeded in their charge to produce new members of the discipline, and that students have succeeded in acquiring the critical thinking and methodological skills associated with productive research. Although it is not often conceptualized as such, the effective communication of research results as text is a methodological skill that graduate students must also evince. They must represent their work primarily with words—words that are arranged in highly conventional ways—in order to show that they can effectively communicate their research and its results to other researchers and practitioners in their disciplines who will read their published work in print.

In her article, “Ordering Work: Blue-Collar Literacy and the Political Nature of Genre,” Dorothy Winsor relies on the work of Miller to argue that “part of the social action implicit in using or recognizing a genre is political . . . among

the factors affecting recognition of genre are how important a social system perceives the text's function to be and (not unrelated) how visible its users are" (156). Kress's description of the reproduction of power relations carried out by genre surfaces here in Winsor's identification of the political nature of genre. Her reference to both the perceived importance of the text and the visibility of its users also provides an interesting dimension to viewing the dissertation through the lens of genre theory. In her article, a genre's users include specifically those who author the document. Graduate students as "author-users" of the dissertation are arguably not highly visible within the structure of academe. The research and teaching they perform are perceived as secondary to that of faculty. The dissertations they write are generally not considered to be important works of scholarship and are perceived only vaguely as contributions to the knowledge of a discipline (Isaac, Quinlan and Walker 6). Moreover, the relative invisibility of their dissertations is a testament to the invisibility of graduate student authors within the organization that is the university.

Winsor's article is not a study of the political function of dissertations in academe; it is a study of blue-collar technicians working jointly with professional engineers. The genre they produce together, which she analyzes for its social and political effects, is the work order. However, the ways the work order in Winsor's study functions to legitimate the work of engineers and maintain the hierarchical

structure of an engineering center suggest ways the dissertation can be seen to legitimate the professoriate and maintain the hierarchical structure of the university. Winsor identifies work orders written by engineers as:

. . . one of the discursive tools that simultaneously allowed the technicians' work to be done . . . and maintained the hierarchical structure of the engineering center because it both triggered and concealed the work the technicians did . . . work orders . . . served as an ordering tool for the relationship between the engineers and the technicians, mediating their relationship and serving as a concrete representation of their interaction (158-159).

The relationship between the engineers who prepare the work order forms and the technicians who provided data by conducting tests and filling in the forms is admittedly not the same relationship that exists between faculty who mentor graduate students writing dissertations and the students who write them. Neither does it seem correct to suggest that the initiation and use of the technicians' work by the engineers—which made it difficult to keep sight of the technician's contribution—parallels the initiation and use of graduate students' work by faculty. However, the dissertation does seem to mediate and concretely represent the hierarchical relationship between student and mentor. Moreover, if we regard the six-chapter print dissertation as a form—sanctioned and privileged by faculty

if not prepared by them—a form for which graduate students dutifully provide content, it then becomes possible to see that at least one function of the dissertation is to legitimize the work of faculty insofar as part of their charge is to prepare and certify graduate students as professional scholars, to assist them in “inventing the university” for themselves by training them “to know what I know and how I know what I know . . . to learn to write what I would write or to offer up some approximation of that discourse” (Bartholomae 140). And just as the work order allows the technicians’ work to disappear (Winsor 164), the dissertation, in most cases, disappears when it is relegated to a dusty library shelf. I do not mean to accuse faculty or anyone else involved in the production of the dissertation of consciously perpetrating any of what I suggest here; these are more accurately identified (or mystified) as ideological effects—the result of powerful social forces for which no particular individuals can be held accountable. I only intend to reveal what I see as a little-considered function of the dissertation in academe, the revelation of which might shed some light on why resistance to the evolving genre of electronic theses and dissertations occurs. Could the changes in the form of the dissertation that electronic writing makes possible be perceived to be disruptive of the dissertation’s function of representing the hierarchical relationship between graduate students and the professoriate? What happens when graduate students begin to use technical tools and modes of representation with

which many faculty are unfamiliar and are highly skeptical of? How will faculty respond to students who wish to create nonlinear, multimedia documents that interrogate the transparency of alphabetic text?

Anthony Pare and Graham Smart extend the constituent elements of a genre to include both “the composing processes involved in creating the texts and the reading practices used to interpret them” (Pare and Smart 146). When the composing process of the dissertation is no longer predictable, its formal features no longer recognizable, the traditional ways in which readers negotiate their way through the text and construct knowledge no longer applicable, how will committees arrive at a decision concerning the student’s worthiness to be formally inducted into particular discourse communities? The writing and the reading of the dissertation are, it seems, a repeated strategy that provides a set of generic roles to ensure the effective and consistent production of discourse and knowledge that is required. Regardless of who acts as the judge of its effectiveness, the genre can be enacted quite similarly from one case to another (150). Faculty “judges” of the dissertation will be required to adapt as changes in the dissertation transform their usual social roles. Mentors may find themselves called upon to become students themselves as they follow and learn from doctoral candidates’ bold and innovative attempts to include new content and alternative structures in their work. Moreover, as Charles Bazerman and James Paradis note: “Once



established, professions maintain their organization, power and activity in large part through networks of texts” (Bazerman and Paradis 4). Within the social system of academe, the dissertation is a node in the network of texts through which organization and power are maintained—both the organization and power of those scholars whose work defines the disciplines, and the organization and power of the knowledge that the disciplines produce. Bazerman further suggests that when professions and sciences that “have gained their persisting structure and function through texts . . . move their communication and information online, their structure and function will necessarily change” (“Politically Wired: The Changing Places of Political Participation in the Age of the Internet” 11). Could the necessary change electronic theses and dissertations (ETDs) will bring to the structure and function of the organizations and power hierarchies the traditional print dissertation supports seem unsettling to those entities and those who serve within them? I believe that they do. When the form, content and rules of production associated with the traditional print dissertation change as they must with ETDs, the use value of the dissertation as a genre that maintains certain relationships will change. And if, as Thomas O. Beebee posits, genre can be regarded as a form of ideology, “then the struggle against or the deviations from genre are ideological struggles” (Beebee 19). The diffusion of ETDs may be facing a series of ideological struggles within academe, including the struggle

against one of the traditional ways in which the teaching work of faculty is legitimated within academe, as well as the struggle to transform the dissertation's nodal position within the network of texts which supports disciplinary knowledge and authority.

There is another network of texts to which the dissertation belongs—a network of texts that supports various administrative activities within the university. As Bazerman notes:

. . . in the modern world most activities are deeply implicated with enduring written texts and systems of texts that provide a conservative, reproductive force on local activities. Every event becomes potentially accountable to a wide range of textual discourses against which the action is inspectable ("Discursively Structured Activities" 298).

The writing and filing of a dissertation involves no fewer than four administrative bodies within the university system: the graduate student's committee of advisors, the department in which the faculty advisors serve, the graduate school, and the library. Traditional print dissertations have for many years existed as a relatively stable node in a larger network of texts that connects and concretely represents relationships among these administrative bodies. They, too, can be seen to participate in providing a conservative, reproductive force on local activities—in this case, the day-to-day administrative activity of graduate schools,

libraries, departments and advisory committees. ETDs, then, take on the status of new events that become accountable to and inspectable by these entities. The institutional roles linked to the genre of the dissertation, their “responsibilities, levels of relative power and influence, division of labor, channels of and access to information . . . determine what can and cannot be done and said by particular individuals, as well as when, how, where and to whom” (Pare and Smart 149).

Dissertations have traditionally been quite limited as to what they can say and do, and even more limited with regard to when, where, how and to whom they are accessible. These limitations are established and maintained in part through policies set by committees, departments, graduate schools and libraries. These policies reflect these regulatory bodies’ limited conceptualization of what the dissertation is and should be. This conceptualization, it can be presumed, is based on what faculty perceive the primary purpose of the dissertation to be—a demonstration of and training in research skills that is only vaguely perceived as a contribution to knowledge (Isaac, Quinlan and Walker 6). As a result, accessibility by the scholarly community has not historically been a priority.

Typically, only two copies of a print dissertation exist and are available without a fee—the archival copy, which remains a permanent part of the university library’s collection, and the circulating copy, which may be available through inter-library loan.

However, this paradigm is currently being interrogated by innovators and early adopters of ETDs who work within these organizations—individuals who find the traditional print dissertation to be a genre that “in terms of the way an organization needs to evolve for its own good, [is] clearly dysfunctional” (Freedman and Medway 14). It is being interrogated by graduate students eager to exploit new technology to re-invent the presentation of their research, and to amplify its availability to a wider audience. For some, it is also an issue of critically reflecting on their participation in the enactment of the existing paradigm. They are assuming the responsibility of the future scholars they will become—the responsibility to examine what it means to read, write, and act as part of an institutional process. They are asking themselves, their committees, their departments, graduate schools and libraries to consider what opportunities electronic dissertations afford for creative action.

If ETD initiatives are to succeed in encouraging and promoting the transformation of the dissertation into an electronic multimedia document, if they are to succeed in loosening the compelling hold the standard, six-chapter print dissertation has on the sensibilities of faculty, graduate schools and libraries, then supporters of those initiatives must acquire a deeper understanding of the origins of the print dissertation, why the regularities associated with the genre emerged and evolved, and what writers and readers of the dissertation accomplish through

their use of these regular features. They would do well to consider the nature of the social occasions and relations within academe that have worked to structure the genre in the past, and will continue to do so as it evolves within electronic writing spaces.

## **Current ETD Initiatives**

The long north wall of the eighth floor conference room in Washington DC, where the Steering Committee for the Networked Digital Library of Theses and Dissertations meets annually, is transparent glass from top to bottom. It overlooks a fan of trees that blow above the flow of Du Pont Circle traffic down below. One by one over an hour's time, members and guests of this international committee arrive each year to take their places at the conference table in the light of that window; all are committed to increased sharing of global knowledge through digital libraries of Electronic Theses and Dissertations. India, Australia, Germany, France and Canada are in the process of implementing policies at the national level in order to guide and standardize the development of local ETD initiatives. Corporate steering committee member UMI (a division of Bell and Howell) has successfully launched an enterprise to make all of its dissertations available online. However, American universities have been slower than their international counterparts to embrace electronic theses and dissertation initiatives, and several continue to struggle with the decision to facilitate electronic access to graduate student research. Yet, as I explore in this chapter, the Networked Digital Library of Theses and Dissertations is leading exciting initiatives to truly transform graduate education in the United States, as well as in the international academic community.

The term ETD refers to a master's thesis or doctoral dissertation that is archived and circulated electronically rather than in print. Most ETDs take the form of straight text uploaded in a word processing format or Adobe's PDF (portable document format), and look much like traditional print dissertations. These documents can be viewed with the free Adobe Acrobat Reader, and are searchable with licensed Adobe Acrobat software (a different version than the Reader).

Increasingly, though, ETDs are uploaded in more sophisticated formats such as HTML and XML, and include color images, streaming multimedia, animation and interactive features. They may reside on CD-ROM or on the worldwide web, where they are highly accessible to broad audiences.

Electronic thesis and dissertation initiatives are an important issue for scholars of writing for two reasons. First, the digital divide is not only a technological divide but an information divide as well; in fact, the two can hardly be separated. Those of us concerned about making information more widely accessible to those on the impoverished side of the gap will find that ETDs and the global initiatives they generate can work to narrow this dual divide. And second, the traditional print dissertation is a genre that has remained relatively unaffected by structuralist and poststructuralist critiques of authorship; indeed one of its frequently stated primary purposes is the making of an "original" contribution to scholarship by a solitary "author." The perpetual reinscription of this Romantic notion of

authorship in almost every dissertation written by graduate students throughout academe has considerable consequences for the shaping of our written knowledge. However, ETDs provide powerful alternatives to the authorial traditions associated with the presentation of research.

This chapter provides an overview of the international efforts to develop a world-wide digital library of theses and dissertations, focusing on (1) the need to provide developing countries with equal access to current international scholarship; (2) the collaborative development of training materials to facilitate wider global participation in the NDLTD; (3) the work of multi-university/library and corporate collaborations to establish centralized metadata for ETDs; and (4) the development of multi-language search interfaces. I report on the initiatives of early adopters in the US, and discuss the results of a survey of best practices. I explore the origins of the traditional print dissertation and ways the genre is being reconfigured by the possibilities electronic writing offers. I analyze the challenges to widespread adoption of ETDs in the US, including concerns about preservation, cultural attitudes toward intellectual property, and the need for partnerships with educational institutions at the national level. Finally, I examine the training challenges involved in deploying technology to present new research using multimedia and interactive perspectives.

## **International Initiative**



ETD initiatives have come a long way since 1987 when the first meeting to discuss the concept of a worldwide digital library of graduate student research took place. The gathering was arranged by UMI and attended by representatives from Virginia Tech (VT) and the University of Michigan. Since that time, VT has led the way in securing and providing the funding, research, and development necessary for generating successful document type definitions for publishing ETDs on the World Wide Web, as well as exploring the challenges associated with producing, archiving and accessing these works. In addition to the overarching goal of amplified access to cutting edge research, the original VT initiative continues to emphasize improved graduate education through requiring students to publish their work as ETDs, providing the training necessary for the production of these highly visible documents, and preparing graduate students to conduct and publish research in a medium which is clearly gaining ascendancy in an information-based economy. The potential for ETD accessibility is demonstrated by VT's download statistics, which can be viewed at <http://scholar.lib.vt.edu/theses/data> . In 1996, there were 25,829 requests for ETD abstracts and 4,600 requests for ETDs themselves; by 1999 (January-August), there were over 143,056 requests for abstracts and 244,987 requests for ETDs. As of October 1999, the most popular ETD at VT had been requested over 75,000 times.

This increased access to graduate level research has garnered the attention of the Organization of American States (OAS) and the United Nations Educational, Scientific, and Cultural Organization (UNESCO). The benefits to the global community of free and amplified access to current research, particularly for developing countries, were quickly perceived by these organizations, both of which are current members of the NDLTD. The use of information technology is one of OAS's primary goals in promoting development in the Americas to eliminate poverty. The OAS is currently involved in developing distance education initiatives for this purpose, and digital libraries such as the NDLTD have much to offer them in their efforts ([NDLTD Steering Committee Meeting, September 15, 2000](#)).

According to Mohsen Tawfik of the United Nations Educational, Scientific and Cultural Organization, of the 187 member states that comprise UNESCO, at least two thirds remain uninformed both about the amplified access to current scholarship ETDs provide and the benefit of their own involvement in ETD initiatives. Therefore, three organizational missions are critical for them at this point: (1) to raise awareness among member states; (2) to create a positive attitude; and (3) to begin a plan of action in each country or region at the national or regional level. Noting that outside the United States, perhaps more than 90% of the universities are government entities rather than private institutions, Tawfik

indicated that the role of national libraries will be key in developing ETD initiatives among the developing countries ([NDLTD Steering Committee Meeting, September 15, 2000](#)).

As part of its commitment to training issues, UNESCO has funded the collaborative authorship of an International Guide for the Creation of Electronic Theses and Dissertations. It will introduce ETDs as a new genre of documents and present their benefits to both graduate students and universities. Written by ETD leaders worldwide, the Guide will reveal diverse best practices, highlighting different universities' approaches to growing ETD practices. Technical issues related to the production and dissemination of ETDs, such as required hardware and software, mark-up languages, style sheets, metadata models for searching, backups and interfaces will be covered in detail. An extensive section on training will provide tool kits for trainers, demonstrations, and valuable information on standards and successful development of broad local teams. Plans are to leverage the Guide into an international training initiative that will continue to be funded by UNESCO ([NDLTD Steering Committee Meeting, September 15, 2000](#)).

Face-to-face annual conferences are frequently the only occasions for many international scholars to present their dissertation research to audiences outside their own countries. Making their research more easily accessible is also a primary goal of the NDLTD. According to Steering Committee member Marian

Bates of the University of New South Wales, Australian universities are eager to achieve better distribution for their dissertations outside the country. Australia has 39 institutions in its university system, 7 of which originated ETD initiatives at their own campuses and subsequently mentored the development of digital theses at 6 more institutions. Regional support structures currently under development should allow for quicker adoption of ETDs. Australia's NDLTD member institutions are working closely with the National Library of Australia on preservation issues. The Australian Digital Theses Program was initially funded by the Australian Research Council and has as its unique feature, a collaborative approach in developing a sustainable method for distributed input to form a central metadata database of digitized theses—a national database ([NDLTD Steering Committee Meeting, September 15, 2000](#)).

Establishing centralized metadata for ETDs that is internationally user friendly is the goal of the current collaboration between the NDLTD and VTLS, Inc., a corporation that develops, markets, and supports solutions for managing library collections and accessing information via computer networks. VTLS has agreed to provide the NDLTD, free of charge, with technology that allows ETD metadata to be entered into a single database in any language, including non-Roman languages like Arabic, Chinese, English, Greek, Hebrew, and Russian. In addition, VTLS will actively promote the NDLTD among its diverse customer

base of more than 900 libraries, located in 32 countries ([NDLTD Steering Committee Meeting, September 15, 2000](#)).

Working with multi-language and multi-script requirements and developing multi-language search interfaces is another challenge the NDLTD faces. Professor Shalini Urs of Mysore University, India, is presently working with her collaborator, Professor K.S. Raghavan, to overcome problems associated with these issues. Because she comes from a developing country that speaks hundreds of languages and dialects in addition to English, Dr. Urs is uniquely qualified to contribute to the UNESCO Guide in this area. Plans are underway to establish a National Centre for ETDs at Mysore, where formal guidelines for language issues will eventually be developed. Dr. Urs is also the Director of VIDYANIDHI, an organization whose name means “wealth of learning.” Their IT action plan calls for mandatory ETDs for all of India’s member universities. Technology training and workshops for ETDs are funded by the Indian government’s Dept of Science and Technology, and many organizations that fund doctoral research in India have targeted funds for ETDs ([NDLTD Steering Committee Meeting, September 15, 2000](#)).

## **UMI Role**

As a member organization of the NDLTD, UMI has been an influential player in institutionalizing ETDs. UMI has been the established central repository and

disseminator for print dissertations in the US over the last 50 years. Currently, UMI scans all the print dissertations it receives and converts them to PDF files which are now available to be downloaded via the Internet for the same fee required for a print copy. It also accepts dissertations submitted in electronic format without a print copy. UMI ETDs are stored on 3-4 different servers with a 3-year refreshing cycle. According to Delphine S. Lewis of UMI Dissertations and Books on Demand, UMI is “looking for a lot of ways to use ETDs” ([NDLTD Steering Committee Meeting, September 15, 2000](#)). Including them as part of coursepacks in which they may be viewed at no charge (downloadings would be charged), is one idea currently under consideration. In order to accommodate the needs and budgets of the Third World, UMI is looking into the possibility of differential price structures for accessing ETDs. Work is currently underway in this area with African universities ([NDLTD Steering Committee Meeting, September 15, 2000](#)). Another innovative use of ETDs by UMI is their Current Research@ service available at <http://www.lib.umi.com/cresearch/gateway/main>. All users can search citations and abstracts of dissertations and theses submitted by participating institutions and view 24 page previews of dissertations published after 1996; in addition, authorized users from participating institutions can download the full text of dissertations and theses published after 1996 at no cost. Over 190 institutions

participate at this UMI site including Harvard, Brown, Carnegie-Mellon, University of Chicago, and several of the Big Ten state universities <<http://www.lib.umi.com/cresearch/main>> (Current Research@ ). However, unlike many member universities of the NDLTD whose full text works are accessible free of charge to all users, UMI is currently limited in its handling of multimedia dissertations. Almost all those available for preview and downloading through Current Research@ are preserved as PDF files. But a number of those housed at the NDLTD contain images, sound files, animation, video, and other interactive features. According to Lewis, UMI needs to be ready as the genre of the electronic dissertation evolves. Currently, every dissertation sent to UMI is stored in TIF, PDF, and microfilm; and increasingly “we are looking to XML” ([D. Lewis, personal interview \(WAV FILE\) March 25, 2001](#)).

### **United States Innovators**

Although United States participation in the NDLTD has been tentative so far, ten universities do currently require students to publish their dissertations electronically. Virginia Tech instituted the requirement in 1997. West Virginia University, East Tennessee State University, and the University of North Texas followed within three years. The University of Texas at Austin joined this short list of innovators in May 2001, and the University of Florida will join in the fall of 2001. Virginia Tech has developed a multi-faceted website for the NDLTD that

chronicles the history of the digital library's development, assists students in creating and submitting ETDs, provides links to member university ETD libraries and initiatives, as well as links to and citations for recent conference presentations and publications about ETDs <[www.ndltd.org](http://www.ndltd.org)> (*Networked Digital Library of Electronic Theses and Dissertations*). This site is an invaluable resource for those institutions just beginning to explore the potential of digital documents. At East Tennessee State University, communications with faculty, students, and policy making bodies have been the most important and effective measure taken to facilitate the success of ETDs and the achievement of a mandatory requirement, followed closely by linkage with the library and careful staffing of the early initiative (W. Brown).

In August of 1996, the Graduate Council at North Texas University concluded that "Given the increasing use and sophistication of technology and the increased movement toward distance learning education, electronic transmission of theses and dissertations is inevitable" (*Electronic Transmission of Theses and Dissertations at University of North Texas: A Report from the Ad Hoc Committee* 1). Following a careful study of the advantages, challenges, costs, appropriate ETD format, technology requirements, library involvement, and impact on (1) the roles and responsibilities of graduate committees, and (2) graduate school and university policies, the Council recommended that UNT "develop policies and



procedures permitting, encouraging, and ultimately requiring electronic filing and archiving” (3). PDF was chosen as the standard format, with the acknowledgement that other file formats permitting the use of hypertext, video and other complex media might be feasible in the future.

The University of Texas at Austin was first prompted to consider submission of dissertations in forms other than the traditional print medium when a doctoral student in speech communication asked the Graduate School to permit her to submit a CD-ROM dissertation without a print copy. After a thorough study of the advantages and challenges associated with ETD production, UT instituted a limited program operating with a small number of students whose participation would be studied in order to determine the kinds of support they would need in order to create dissertations in digital formats. From the beginning, tools training for students was viewed as vital to the project. Mandatory attendance at workshops on intellectual property issues was also recommended (*University of Texas Office of Graduate Studies Electronic Dissertations* ). Currently, an informative collection of pages on electronic dissertations exists as part of the UT website where students can go to find answers to questions about Adobe Acrobat (the software required to produce PDF files), how to create links in PDF files, and acceptable file formats for images, video, audio, and text <<http://www.lib.utexas.edu/etd> >.

## **Best Practices**

Over a one-year period (2000-2001), I conducted an online survey of NDLTD member institutions designed to collect information about best practices that are emerging among developing ETD initiatives. Twenty-eight of 101 members asked to participate responded to questions about faculty and student education and training, funding and administration, digital library content, accessibility and preservation, and submission guidelines and requirements. According to the current data, workshops and web documents are most often used to educate students about ETDs, while faculty and administration learn about them mainly through presentations and university publications. Sixty-six percent report that in general, faculty are supportive of ETDs at their institutions. Two thirds of the technology training students receive is associated with using PDF in the submission process, but fifty-four percent also provide training in Microsoft Word, and forty-one percent train students to use web authoring tools. This training typically takes place in workshops or on the web; however, only eight percent of those responding indicated that such training was available to all graduate students in the form of courses for credit. Few substantial incentives are offered to students to produce ETDs where they are not required, with only six percent offering any funding for individual student projects. Funding for the entire initiative most often is provided by the institutions themselves and falls in

the range of 0-50K; much of the work associated with member initiatives proceeds through the volunteer efforts of faculty, students and staff. The majority are coordinated by university library staff and graduate deans, together with strong IT involvement. Over eighty percent of the members permit students to submit multimedia work, and nearly half report that their digital libraries contain multimedia theses and dissertations; but ninety-five percent are the traditional print variety preserved in PDF. Those that do contain multimedia are preserved in a variety of formats, including HTML, jpeg, PowerPoint, PostScript, and ArcView. Students use a variety of tools to write their ETDs; Microsoft Word, Microsoft Excel, Adobe Acrobat, and Adobe Photoshop are the most popular; twenty-seven percent are constructed with various web editors. Encouragingly, over twenty percent of those surveyed reported that their institutions allow annotation of ETDs, facilitating the development of dynamic, continuously interactive research documents. Twenty-eight percent expect ETDs to be required at their universities within ten years (*NDLTD Member Survey* ).

## **Graduate Education**

As we saw in chapter one, in the German laboratories, the public expression of knowledge required for the granting of doctoral degrees in the medieval university began its transformation from a series of oral arguments which were necessarily dialogic and polyvocal in nature, to the univocal, linear text—a text representing

the independent inquiry and authorship of a single individual. Its purpose in graduate education remains the same today across the disciplines, despite serious critiques of both the Romantic notion of authorship and the epistemological assumptions that inform traditional notions of independent scientific and scholarly inquiry. The most popular, six-chapter structure for the dissertation in use today, consists of (1) introduction, (2) review of the literature, (3) methodology, (4) results/findings, (5) analysis and interpretation of findings, and (6) summary, conclusions, applications, and recommendations for further study (Thomas and Brubaker 29). This structure continues to follow very closely an empirical model of research—a model in which the “reality” under investigation speaks for itself and assumes the role of univocal authorship. The text is merely a transparent window through which a stable reality may be viewed. Although some modification of the six-chapter format occurs in dissertations in the humanities, its influence is still clearly visible in most graduate work. And the view that such work represents original thought by an individual author who merits recognition and reward for that originality continues to prevail.

Across the disciplines, the traditional print dissertation fails to acknowledge or address what Gunther Kress sees as a dramatic transformation of representational alternatives and resources which is taking place in the construction of our knowledge ( "'English" at the Crossroads: Rethinking Curricula of

Communication in the Context of the Turn to the Visual" 68-69). This is true despite the fact that in many disciplines, knowledge is being constructed in a far more self-reflexive, less "objective" fashion; in the social sciences, Kate Lenzo has argued that pursuing the Foucauldian based concept of validity as an "incitement to discourse" requires scholars to abandon the "traditional forms of closed narrative with tight argument structures [in favor] of more open forms with holes and questions and explorations of situatedness and partiality" (Lenzo 19). I see electronic text as an alternative representational resource that can provide students with a way to refuse a singular subject position within their dissertations. Because it is often a series of linked texts—a de-centered, less unified text—it can enable them to "understand [themselves] reflexively as persons writing from particular situations at specific times," and thus liberate them from having to "write a single text in which everything is said to everyone" (Richardson 518). Moreover, including external links within the text foregrounds the polyvocal nature of scholarly work, reifies writing as a network of texts (Bolter 23), effaces the univocal assumptions that underlie traditional readings of scholarship. Electronic text allows readers far greater flexibility in navigating a text for specific information—essentially creating their own text—and thus provides a means for graduate students to successfully reach more diverse, perhaps more interdisciplinary audiences. Color images, streaming video, animation and sound

files extend the representational limits imposed by the single mode of text so prevalent in dissertations, offering “an enormous potential enrichment, cognitively, conceptually, aesthetically and affectively” (Kress *Before Writing: Rethinking the Paths to Literacy* 29). This transduction across modes encourages transformative, creative action on the part of both researcher and reader, and represents “an essential skill for the social and economic futures of the post-industrial western world” (29). And because the composition of the dissertation serves in substantial ways (though certainly not exclusively) as a model for composing future scholarship (Parry 280) composing it in electronic media can prepare students to productively facilitate the inevitable *remediation* of print scholarship. Most of the theses and dissertations published in the NDLTD are PDF files uploaded to the web that remain faithful to the conventions of traditional print. However, the digital medium has the power to be more aggressive in its remediation, refashioning the older medium entirely. Media theorist Steven Holtzman argues that once new media find their authentic aesthetic, their “unique qualities...will ultimately define entirely new languages of expression. And it’s those languages that will tap the potential of digital media as *new* vehicles of expression” (Holtzman 15). And as Marcy Bauman has argued:

In this time of unprecedented change, the genres we can invent and the genres we allow ourselves to use as a profession will determine the ways we

can act in the world. We owe it to ourselves to draw the parameters as broadly as we can (281).

## **Challenges to Diffusion**

Given the potential national and international impact and importance of the benefits of electronically published current graduate student research, why is the concept of ETDs slow to diffuse, especially in the United States? What are some of the more salient concerns graduate schools and libraries have with moving toward exclusive electronic publication of theses and dissertations?

Permanent and secure preservation of documents is often an issue; the tension between libraries' two-fold responsibility of providing access to and preserving information takes on particular significance with ETDs. Many universities balk at the idea of allowing students to submit their work exclusively in electronic form and continue to require what is perceived to be a more "permanent" print copy for archival purposes, even when to do so places an additional burden on students whose dissertations are nonlinear and contain multi-media files. Moreover, such print versions of native hypertexts and other electronic representations of information often result in a document that may record the data, but fail to accurately reproduce the meaning (or possibilities for meaning) contained in the original. In lieu of print, some universities will accept an archival version on CD-ROM, but there are concerns as to the long-term durability of this technology as

discs begin to deteriorate in fifteen to twenty years. Archiving documents electronically also raises concerns about the logistics of their eventual and inevitable migration to new formats. The long-term preservation of digital scholarship at all levels is an ongoing concern that we do not intend to minimize unduly. However, the concept of permanence as it has traditionally been understood in the field of library science is beginning to show signs of undergoing transformation:

The digital age has led to a widening of the concept of permanence. There was a stage in which we worried mostly about the physical longevity of the information carrier itself because we are used to the idea that if the carrier of the information survives, then the information it carries will survive also. In fact, this has never been true . . . We are now sensible enough to realize that we need to be concerned about the permanence of the information itself, rather than its carrier. (Exon Definitions of Permanence and Durability section, para. 1)

Information's best chance of survival is high accessibility and continued use. Both data and meaning survive when new generations of scholars can access and incorporate the work of others into their own, continually reproducing and developing ideas the culture finds useful. Amplified access to an international network of ETDs can contribute much to the dissemination and preservation of



knowledge by facilitating its current and expansive use.

Creating conditions that favor the production of useful ideas introduces one of the most complicated matters associated with ETDs—that of intellectual property protections for authors. I discuss this issue at length here, as its resolution may be crucial to achieving high levels of accessibility, which is arguably the most important benefit of electronic publication of theses and dissertations. Moreover, the contribution of the Romantic construct of the “author-genius” to copyright law is substantial, and “we should . . . beware of efforts to regulate the digital environment as if it were simply a new vehicle for individual ‘works of authorship’ rather than a potential cultural ‘commons’” (Woodmansee *The Construction of Authorship: Textual Appropriation in Law and Literature* 13).

Questions about intellectual property are often tied to concerns about whether electronic publication of a thesis or dissertation constitutes prior publication with respect to future efforts to publish student research as a book or a journal article. Much confusion surrounds these discussions, and since web technology and the publication opportunities it affords are so new, the answers to the questions that arise in these areas do not often appear simple or clear-cut. Although the Digital Millennium Copyright Act of 1998, an amendment to existing US Copyright law, has addressed many of the newer issues concerning electronic publication, most of the intellectual property considerations graduate students and their advisors raise

are of a more traditional nature. Romantic notions of authorship again come into play, as amplified access in and of itself appears to increase uncertainty about protecting the originality of scholarly contributions.

The difference between copyright violation and the threat of plagiarism is often confused in discussions about intellectual property. Plagiarism occurs when someone poses as the author of a work; copyright infringement occurs when someone uses another's work without proper authorization. There is a distinction between the two, and neither necessarily implies the occurrence of the other. Sources are cited in order to avoid the charge of plagiarism, and permission of the author is obtained in order to avoid the charge of copyright infringement (Scheftic Plagiarism section). The notion that amplified access to ETDs via the web somehow increases the likelihood that both plagiarism and copyright infringement will occur is apparent in discussions about intellectual property issues. At Virginia Tech, one third of students required to submit ETDs have elected to restrict public access to their work. No archival copies of their dissertations are available, nor does UMI receive a copy. Restrictions are renewable on a year-to-year basis.

Graduate students have for some time now been permitted to retain the sole copyright for their print dissertations (except in some situations involving outside funding for research, in which case copyright may be held jointly with the

funding institution and/or the university), and this does not change with electronic publication. Graduate students have also been able to restrict their university's or UMI's circulation of copies of their work in order to protect patent right applications in progress, to secure future publication in another form, or for any other reason deemed necessary to protect student interests. Such dissertations essentially remain unpublished. Again, this does not change with ETDs. What does change, however, is the *degree* to which students can restrict access to their work. In the past, ordering a copy of a dissertation through interlibrary loan or from UMI meant ordering a full and complete copy of the document. With an ETD, however, students can elect to allow access to certain portions of their work, and at the same time control or monitor access to more sensitive material in the dissertation by securing those pages with passwords. They can also restrict access to local users, e.g., students and faculty at their own universities.

In a professional paradigm where the publication of original work is the coin of the realm, students and their faculty advisors can be expected to have concerns about providing open access to dissertations which may or may not count as prior publication, or which contain information that is considered sensitive in fields where competition for original credit is high. However, in a recent survey of journal editors and publishers, eighty-two percent said that an online thesis or dissertation widely available through a web-based archive would not be

considered prior publication according to their journals' existing policies; only four percent said that an online thesis or dissertation with access limited to campus or institution would be considered prior publication (*Electronic Theses and Dissertations: 2001 Survey of Editors and Publishers*). Yet forty percent of graduate students who publish ETDs are advised by faculty to restrict access to their work in order to protect their professional interests (*2000/2001 Author Survey*). Such restricted access threatens to undermine the very purpose for which the NDLTD was created. Although student rights to restrict access are quite legal, an emphasis on those rights can perturb the balance between private interest and public access that US copyright laws, together with World Intellectual Property Organization treaties, were originally designed to achieve.

Interestingly, the primary purpose of US copyright law as set forth in Article I, Section 8 of the Constitution is to “promote the Progress of Science and the useful Arts.” Securing the rights of authors and inventors for a limited time is but the means devised to achieve this end. Author rights are intended as an “inducement to develop new work . . . not to promote the author’s own interests or increase the author’s own wealth” (Scheftic Intent of Copyright Protection section). As early as 1909, the United States Congress indicated that:

The enactment of copyright legislation by Congress under the terms of the Constitution is not based upon any natural right that the author has in his

writings, for the Supreme Court has held that such rights as he has are purely statutory rights, but upon the ground that the welfare of the public will be served and progress of science and useful arts will be promoted by securing to authors for limited periods the exclusive rights to their writings. . . . Not primarily for the benefit of the author, but primarily for the benefit of the public, such rights are given. Not that any particular class of citizens, however worthy, may benefit, but because the policy is believed to be for the benefit of the great body of people. ("H.R. Rep. No. 2222, 60th Cong., Sess. 7" )

And as recently as 1984, in *Sony Corp. of America v. Universal City Studios Inc.*, the seminal copyright case that made home viewing of film industry productions on video-tape possible, the Supreme Court wrote: “The monopoly privileges that Congress may authorize are neither unlimited nor primarily designed to provide a special private benefit. Rather, the limited grant is a means by which an important public purpose may be achieved” (*Sony Corporation of America V. Universal Studios, Inc.* 782). Copyright law strikes a critical balance between authors’ rights to produce and protect their original work (with society as the intended benefactor of such author protection) and society’s rights to both the free flow of information and the freedom to build on the ideas of others. However, as Martha Woodmansee and Peter Jaszi note in their *College English* publication, “The Law

of Texts: Copyright in the Academy,” more recently,

courts have taken their charge to safeguard ‘original authorship’ ever more seriously, with the result that the intellectual commons on which we may draw freely as writers and readers, scholars and teachers, is shrinking fast. This enclosure of the public domain is making itself felt both locally and globally, and the chief engine of this trend is the Romantic authorship construct” (“The Law of Texts: Copyright in the Academy” 772).

This construct, which emerged from literary and artistic culture and was subsequently mobilized in legal discourse, is still powerful and persistent in the structure of copyright doctrine today. Indeed, Jaszi names it as “the specific locus of a basic contradiction between public access to and private control over imaginative creations” (Jaszi 457). Uncritical assumptions about the moral rights of authors—as “creators” in possession of undisputed authority over their works—fuel the legal sanction of what amounts to “a charter for private censorship” (497).

If the potential ETDs have to further an equitable distribution of the information wealth many cultures in the West take for granted is to be realized, then perhaps a more studied consideration by graduate students of the ethical limits of authorship rights is warranted. When professional futures depend on original contributions to scholarship made by solitary student authors, it is admittedly difficult to weigh the

social benefits of amplified access to information against the private costs of neglecting its protection. However, if students and their advisors continue to perceive electronic access to their work as a threat to future publication or employment, many will continue to lock readers out of their documents, precluding even fair use by those seeking to productively transform or build on the ideas of others. Currently, restrictive views of fair use provisions limit access by scholars to unpublished archival source materials (Woodmansee *The Construction of Authorship: Textual Appropriation in Law and Literature* 72). Although the fair use section of the Copyright Act states that “the fact that a work is unpublished shall not itself bar a finding of fair use,” unpublished archival works are also protected by copyright law’s extension to the author of the right of first publication (“Copyright Act of 1976” Fair Use section). It is this right which seems to be at the heart of most concerns graduate students and their faculty advisors have when deciding whether or not to publish a dissertation as an archived document which can be obtained via interlibrary loan, purchased through UMI, or simply viewed in a browser window at no charge through the NDLTD.

The Romantic aesthetic of the solitary author has worked to shape both Continental and US copyright law, and it continues to remain unaffected by literary criticism’s pronouncements of the death of the solitary author or composition studies theories of social construction (Woodmansee and Jazsi “The

Law of Texts: Copyright in the Academy" 773). And as I have noted earlier, the dissertation itself continues to count as a text by a single author who makes an original contribution that becomes private property. Dissertations continue to be written and defended, doctoral degrees granted, and faculty positions awarded according to these terms of evaluation. And as Candace Spigelman has noted: "Students who believe that their evaluation will be based on their text's originality may be quite protective of their texts and fearful of having their ideas stolen. Anxiety about originality may produce a competitive climate of hoarding and hiding" (Spigelman 9). Whether or not limiting or precluding access to ETDs constitutes behavior which can be characterized as hoarding and hiding, interpretations which privilege the private rights of authors over those of the public will produce an environment in which it is increasingly more difficult and expensive to undertake scholarly projects.

Finally, American universities seeking ways to facilitate adoption of ETDs must address their need to foster the kinds of relationships many other countries in the NDLTD have with their governments and national libraries. For example, the National Library and the Canadian Initiative for Digital Libraries are currently working with upper level university administrators towards formulating a national recommendation concerning the implementation of ETD initiatives at all Canadian universities. Together they are working to centralize ETD metadata on



a national level. Australia, too, continues to work closely with its National Library to develop regional support structures for ETD initiatives. Although the US Library of Congress receives a digital copy of all PDF files of dissertations that exist at UMI, these documents can only be accessed from within their own network. Ironically, one must travel to the Library of Congress itself to view digital copies of dissertations archived there.

On a more positive note, the Online Computer Library Center (OCLC) is a national organization that has extended ongoing support and involvement with electronic dissertations and the NDLTD, facilitating access to many ETDs through their online database. They are represented on the NDLTD Steering Committee, and have taken an active role. Beyond the university, at the state, regional, and national level, we need to work out appropriate partnerships, ensuring common authoring and archiving and metadata standards, and sharing best practices and training resources.

### **Training Issues**

Theses and dissertations reflect an institution's ability to lead students and support original work. In time, as digital libraries of ETDs become more commonplace, students and faculty will make judgments regarding the quality of a university by reviewing its digital library. Universities must respond accordingly, ensuring they provide the resources and training students need to incorporate new literacy tools,

such as animation, graphics, sound, and streaming multimedia. Graduate students trained to use new communication technologies can be provided with an integrated set of faculty reviews, regardless of their location in time and space; when dissertations in progress are made available on the web, students can invite other scholars to contribute to the development and presentation of their ideas and to share the information contained in literature reviews and bibliographies. At the Universite de Montreal, a pilot project to help train students in the efficient use of word processors to construct their ETDs is currently underway. Although most graduate students have been using the basic features of word processing tools such as Microsoft Word to produce print versions of their dissertations for several years now, Guyllaine Beaudry of library services reports that many are still unfamiliar with the use of style sheets and other more sophisticated features that can significantly reduce the amount of time spent organizing text (NDLTD Steering Committee Meeting, 2000). Offering credit for courses designed specifically to address these needs early on in graduate study would give students the incentive and opportunity to increase their technical skills before they begin to develop their research projects.

Tools training must also involve instilling an awareness of the new ways that meaning can be made when we creatively exploit tool capabilities. What we mean by the practices of reading and writing are changing in response to new

communications technology. As Richard Lanham has pointed out, because electronic text is composed of not only alphabetic text but also a multitude of visual images, students must be taught a different set of skills for reading and composing online than is traditionally taught in writing classes. For instance, electronic text is far more self-conscious of the fact that when we read, we typically treat print text as a transparent window on reality; we look through the text rather than at it. Electronic text requires that we do both—and it requires us to oscillate between visual, auditory, and textual perception (Lanham 43). One of the most popular hypermedia dissertations published in the NDLTD, an architectural student's research into the space of Middle Eastern Turkish coffee shops, is an example of how these dual concepts of immediacy (looking through) and hypermediacy (looking at) can play out through the use of video. Here, the sense of immediacy is actually produced by the hypermediacy of the video clip, which makes no pretense of concealing itself. We look at it and through it all at once. Multimedia versions of published research can be simultaneously more hypermedic and more immediate than print text.

Moreover, as linguist Gunther Kress notes, there is an ever-growing reliance in multimedia authoring on the rhetoric of the visual and the marginalization of text—a move toward text as a pointer to rather than an explanation of visual information ("English" at the Crossroads: Rethinking Curricula of

Communication in the Context of the Turn to the Visual" 70-77). As scholars who have traditionally written and published almost exclusively in text, we do not yet, perhaps, perceive the need to take such developments into account in preparing graduate students for the profession. But as our practices of writing continue to undergo transformation through the use of digital media, future scholars in all disciplines will require more specific training in the use of tools that allow them to effectively present their research.

## **Recommendations**

Academic scholarship is currently undergoing the process Jay Bolter and Richard Grusin term remediation—the process by which one medium is reformed and improved upon by another. ETDs can help speed this process in academe, where innovation is many times (and quite ironically) slow to diffuse. As Jay Bolter and Richard Grusin note, we at the beginning of the twenty-first century

...are in an unusual position to appreciate remediation, because of the rapid development of new digital media and the nearly as rapid response by traditional media. Older electronic and print media are seeking to reaffirm their status within our culture as digital media challenge that status (Bolter and Grusin ) (5).

Outside academe, the professions of medicine and law, business, government and even the arts are undergoing an electronic revolution. Physicians and lawyers

now rely on electronic databases. Interactive video is used for medical training and diagnosis, and CD-ROM has been recommended to replace periodicals in law libraries. Yet, in academe, we continue to train future scholars to write books; we persist in requiring the authorship of a linear, hierarchically structured print dissertation, grounded in conceptions of Romantic authorship, which has historically been underused by the worldwide scholarly community. It is time to move on.

In a time when developing countries' needs for new knowledge have never been greater, when graduate students' needs for richer, more effective means of presenting research are becoming more and more apparent, when digital technology provides the capability to meet those needs, graduate schools, faculty and administration need to develop and support initiatives to institute the electronic publication of theses and dissertations at their universities and colleges. Graduate school's efforts to research ETDs and to update their policies to include important guidelines and standards for electronic publication of student research must be stepped up. The world needs broader access to the knowledge of its scholars, and graduate students need access to the training and tools that will allow them to present that knowledge effectively in a digital world.

# The Diffusion of ETDs

Electronic theses and dissertations are a technological and organizational innovation. As a technological innovation, they may redefine the content, structure or audience of the traditional print dissertation; as an organizational innovation, they may redefine faculty, student, graduate school, and library perceptions of graduate student research and the purposes it serves within the university. The inclusion of content in visual and/or audio form, the use of hyperlinks to provide alternative reading structures, and the potential broad accessibility of ETDs via the WWW are all “new” features typically not associated with the writing of dissertations, which have for many years been almost exclusively text-based. As universities accept the challenge of accommodating students who choose to write ETDs that reflect new content, structure, and audience choices previously unavailable to seasoned faculty, change will inevitably occur:

- traditional faculty/student mentoring relationships may transform;
- students themselves may realize the opportunity to achieve earlier notoriety within their fields;
- graduate schools will be faced with creating new standards for the presentation of research documents that bring new visibility to their programs;

- libraries will be charged with creating prominent new digital collections that showcase their universities' production of new research.

Part of my purpose in researching and reporting on the development of this new academic genre is to examine some of the resistance to its adoption, particularly in the United States where adoption appears to be slower than in several other member countries of the [Networked Digital Library of Theses and Dissertations](#).

Innovation produces change, and some resistance to change seems inevitable in the human arena. In this chapter, I examine ETDs as an innovation currently undergoing the *diffusion process*, as defined and elaborated by Everett Rogers in his seminal work, *The Diffusion of Innovation*.

According to Rogers: “Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system . . . [it] is a kind of *social change*, defined as the process by which alteration occurs in the structure and function of a social system” (Rogers 5-6).

The characteristics of the innovation, the nature of the communication of the innovation among members within the social system, and the structure and norms of the social system all affect the rate at which the innovation diffuses (15-24).

This discussion is primarily concerned with the characteristics of ETDs as a technological innovation, the structure and norms of the university as a social system undergoing change during the

diffusion process, and the effect of this structure and these norms on the rate of ETD adoption. Communication will be discussed only in terms of information exchange between libraries and academic departments, faculty, graduate students, and graduate schools.

The characteristics of innovations that Rogers has outlined include *relative advantage, compatibility, complexity, trialability, and observability*. Relative advantages of innovations are perceived rather than objective, and represent the extent to which innovations are viewed as superior to the ideas they supplant. If innovations are seen to be consistent with potential adopters' requirements, prior experiences, and values, then they possess compatibility. The degree to which they require adopters to develop new skills and understandings determines their complexity. When they can be tested on a restricted basis, they score high in the category of trialability, and the visibility of their use and effects determines their observability (15-16).

### **Relative Advantages**

What are the relative advantages of ETDs as perceived by the academic community? What makes them superior to print? As an early adopter and proponent of ETDs, my bias in answering this question leads me to list and discuss here aspects of the genre which may be perceived by others to be disadvantages rather than advantages. Their status as disadvantages will be



discussed later in connection with the structure and norms of the university as a social system.

The first and by far the vast majority of all ETDs exist on the Web as PDF files created from word processor files that consist predominantly of text. For the most part, they are identical to traditional print dissertations. Occasionally internal and external links appear; color and graphics are used and still images may be included or appended. A very fine example of a PDF dissertation that makes effective use of all of these features is that of Christopher John Frost: *Comparing Attitudes About Forests Between Young Adults in North-Central Florida and the Peruvian Amazon*. It can be viewed at:

<<http://etd.fcla.edu/etd/uf/2000/ana6139/thesisforpublic.pdf>>. Because the use of color, graphics and images does not require disruption of the hierarchical and linear structuring of information that the text accomplishes, their inclusion within the larger text is generally perceived as advantageous and non-threatening. They add something to the text, while the written text retains its position as the document's center. The superiority of these online versions lies in their exponentially increased accessibility by the global community, and the fact that they require only digital space for archiving. These two characteristics of ETDs provide a boon to developing countries who have always struggled not only to purchase current scholarship in the form of books and journals—some of which

actually publish research done in their own countries by American scholars (Bowbrick ) —but also to construct and maintain buildings in which to archive the books and continuing issues of journals they are able to buy. A substantial number of these books and articles began as dissertations or chapters within them. Providing the developing world with free access to ETDs published by information rich nations gives them access to scholarship that will later be published in print information carriers they cannot afford to purchase or archive. Those who raise the issue of the “digital divide” between developed and developing countries as an obstacle to the realization of this advantage overlook two obvious facts: (1) the information divide that exists between these populations of scholars is due to a large extent on the cost of information published as print media, and (2) once an internet connection is established at a university (an innovation which is rapidly diffusing among university systems in the developing world), a nominal number of connected computer stations costs far less than the construction, maintenance, and perpetual staffing of library space required to archive print materials.

International universities in the developed world also benefit substantially from the increased visibility of institutional research that online access to dissertations provides. Over 100 have become members of the [Networked Digital Library of Electronic Theses and Dissertations](#) and are rapidly developing

extensive collections of ETDs, which they hope will draw more attention to research being done outside the United States in many fields. .

Rogers reminds us that technological innovations appear in clusters (14). As the previous innovations of hypertext and multimedia software have diffused, text-centered ETDs have undergone what Rogers refers to as *re-invention*: “the degree to which an innovation is changed or modified by a user in the process of its adoption and implementation” (17). Graduate students have begun to experiment with the use of hypertext, sound, animation and video in their electronic dissertations.

Hypertext, or hypermedia as it is sometimes called, is text composed of multisequential units of text, visual information, sound, animation, and other types of data articulated by electronic links. As George Landow notes, the conventional scholarly article written and published in print by academics in a variety of disciplines already

embodies the underlying notions of hypertext as multisequentially read text . . . one reads through what is conventionally known as the main text, encounters a number or symbol that indicates the presence of a foot- or endnote, and leaves the main text to read that note . . . [which can] summon up information about sources, influences, and parallels in other literary texts. In each case, the reader can follow the link to another text indicated by the

note and thus move entirely outside the scholarly article itself. Having completed reading the note or having decided that it does not warrant a careful reading at the moment, one returns to the main text and continues reading until one encounters another note, at which point one again leaves the main text. (4)

However, hypertext scholarship possesses an advantage over print scholarship; whereas the print medium tends to obscure the field of relations within which scholarly articles situate themselves and can do little to remedy the difficulty of accessing reference sources that are spatially remote from the text, hypertext reveals the range of texts from which the scholarly article or dissertation is constructed and makes specific references easy to navigate (5). For a researcher in academe, the linking capability of hypertext offers distinct advantages over print. Not only does it reveal connections among the work of researchers and speed up the process of accessing reference notes or even full-text articles in fields such as physics and medicine where current research is made available on the web prior to its appearance in print, it also offers new research possibilities by virtue of its de-centered nature.

As readers move through a web or network of texts, they continually shift the center—and hence the focus or organizing principle—of their investigation . . . Hypertext provides an infinitely re-centerable system

whose provisional point of focus depends upon the reader . . . anyone who uses hypertext makes his or her own interests the defacto organizing principle (or center) for the investigation at the moment . . . All hypertext systems permit the individual reader to choose his or her own center of investigation. (Landow 12-13)

Research generally proceeds with the researchers' own interests (or the interests of those funding the research) serving as the organizing principle of their investigations; however, the print books and articles they consult in the course of their research lock them into particular organizations or hierarchies based on the *authors'* research interests, which may not coincide with those of their colleagues who read them. Research published as hypertext may facilitate the work of other researchers by allowing them to navigate their own paths through the document, organizing the information according to their own research needs. Indeed the paths themselves, apart from the information they connect, may reveal new directions for future research. Collections of ETDs which offer this advantage may not only improve conditions for researchers who typically wade through hundreds of pages of published work in their fields, but their added value as de-centered documents may also contribute to the increased use of ETDs already made possible by their publication on the WWW.

Another relative advantage of ETDs and other forms of electronic

scholarship is that critical commentary, as well as chronologically anterior and later texts, can be appended to them; this produces a document that radiates linked texts in a way that allows readers to experience information within a broader context (Landow 35). Continuous appendage over time breathes ever new life into these documents such that they become expanding networks of information that reveal multiple connections between theories, facts, investigations and even disciplines. As Ted Nelson, one of the innovators who created hypertext points out:

There is no final Word. There can be no final version, no last thought.

There is always a new view, a new idea, a reinterpretation . . . The free-flowing, live documents on the network are subject to constant new use and linkage, and those new links continually become interactively available.

Any detached copy someone keeps is frozen and dead, lacking access to the new linkage. (48)

The majority of dissertations preserved in print and on microfilm, tucked away on remote library shelves or catalogued in metal drawers, are frozen and dead. They are read an average of two times during the lives of their authors, who, if they expect to be read on a broader scale, must re-write their dissertations as books or journal articles, submit them to the gatekeeping practice of peer review, and hope that the disciplinary elite who control the information that flows into the highly

restricted network of print scholarship (Winston 54-55) will find their ideas and research acceptable.

As electronic documents, ETDs offer graduate students the opportunity to be published and read by a large audience, to receive feedback and commentary on their work by other scholars, and perhaps to achieve early notoriety in their fields. Just as the transition from manuscript culture to print culture freed writers “from the need for patronage and the consequent subservience to wealth . . . challenging and reducing established authority’s control of writing” (Kernan 4-5), the transition from print to electronic dissertations will free graduate students and their ideas from subservience to the established authority of their disciplines, in that they will no longer be required to re-write their work and submit it to peer review in order to reach broad audiences. They will still, of course, need to meet the requirements of their individual faculty committees, but the relationships that exist between students and faculty mentors are generally more supportive than the anonymous relationship that exists between writer and reader in blind peer review.

However, while unreviewed, broad publication of dissertation research clearly presents an advantage to graduate students entering their disciplines as new scholars, its effects on some of the hierarchical social relations that exist within academe just as clearly threaten the power structures operative there. What

constitutes a relative advantage for one category of ETD users—graduate students—may in fact be seen as a disadvantage by another category—the disciplinary elite who currently hold power to legitimate knowledge in academe (Winston 54-55). This threat to disrupt the power relations within the social system of academe is, I believe, an important focal point of resistance to the diffusion of ETDs.

As an alternative to “frozen and dead” documentation of ideas, writing historian Jay David Bolter has described the power of living, electronic writing to create vital communities of scholars in terms of its effects on our conceptualization of libraries:

. . . the image of the electronic library as a community of writers in instant and effortless communication—this image will persist, and it will define the next age of writing. Working libraries will continue for some time to be hybrids: combinations of machine-readable materials, computer services, and familiar printed books and journals. But the emphasis will gradually move from the physical to the electronic components. The library as an idea will become as ephemeral as the electronic technology itself: it will no longer be a building or even a fixed conceptual structure, but instead a constantly evolving network of elements. To write and to read in this library will be to move through the network examining and altering elements.



Writer and reader will be “connected,” and each act of writing and reading will leave a trace for future writing and reading. (*Writing Space* 103-4)

ETD collections which are permitted to contain documents that incorporate continuing scholarly commentary can serve as prototypes for the future libraries Boltor envisions. They can assist in ushering in the concept of fully electronic libraries that will define not only the next age of writing, but the next age of research and scholarship as well.

Perhaps one of the most important advantages ETDs offer is their capability to incorporate visual information of a non-textual nature. Robert Horn asserts that as we enter the 21<sup>st</sup> century, “a wide variety of visual and verbal representation systems are coming together . . . Boundaries are disintegrating between smaller sublanguages—diagramming, cartooning, advertising, graphical computer interfaces, and countless others. These dialects or vocabularies have begun to encounter one another and integrate into a larger, more inclusive language” (Horn 5). He terms this integrated phenomenon *visual language*, and declares that it “is being born of people’s need, worldwide, to deal with complex ideas that are difficult to express in text alone” (5). For centuries, text has labored to transmit information that it simply does not carry well; however, the writeable elements of ETDs may be words, images, sounds, video, or even actions, such as linkages, that the reader directs a computer to perform. As

electronically produced documents, they can carry other scholars through aural landscapes of recorded sound or take them on tours through specific geographic regions which the investigating author has photographed (Bolter *Writing Space* 26). These hypermedia elements are part of the document's structure, and like blocks of text, can be restructured by readers in ways that contribute most effectively to their own research interests. This combination of alphabetic text with visual and aural information engages readers on multiple cognitive levels in ways that alphabetic representations of information alone cannot. Hypermedia ETDs invite readers to perform different cognitive actions, to construct different representations, to participate in the construction of different worlds, with different orders (Kress "'English" at the Crossroads: Rethinking Curricula of Communication in the Context of the Turn to the Visual" 81). As Kress notes: "The single, exclusive and intensive focus on written language has dampened the full development of all kinds of human potentials, through all the sensorial possibilities of human bodies, in all kinds of respects, cognitively and affectively" (85). All modes of representation offer both opportunities and constraints for constructing knowledge and meaning; but if the limits of one mode of representation are reached, it should be possible to make use of another mode better suited to the nature of the information a writer seeks to present. If one mode of representation exploits human cognitive potential to only a limited

degree, then there is no justifiable reason for sustaining its exclusive use (Kress *Before Writing: Rethinking the Paths to Literacy* 29). Alphabetic text is such a mode. As John Culkin, one of Marshall McLuhan's major interpreters has written:

The alphabet is a funnel. All sense data must henceforth be squeezed into and through the narrow passage of print. The audible, the pictorial, the tactile, the olfactory—all get translated into the visual and the abstract. . . .

Reality is squeezed through the funnel of the alphabet. . . . [it] comes out one drop at a time; it is segmented; sequential; it is fragmented along a straight line; it is analytic; it is abridged; it is reduced to one sense. (Culkin 42-43)

Yet, as Horn notes, “the funnel can be circumnavigated. Reality and understanding can be poured back into our midst” (241). Non-textual, visual information conveys information about the world in ways that text alone cannot. Indeed, neuroscientists estimate that eighty percent of the information we glean from our environment is obtained by visual means (21). Thus, ETDs that employ images and video integrated with text can more effectively exploit the cognitive potential of their readers. Those that make use of sound extend their effectiveness even further. According to Horn, when text and image are effectively integrated, documents

provide better anchors to meaning . . . display overview, context, and deep

connections at once . . . portray underlying relationships with higher fidelity . . . [are] more efficient and effective in discriminating levels of detail and keeping track of them . . . [offer] more flexibility in thinking [as] both visual and verbal skills [are] continuously called upon. (247-8)

At the same time, ETDs provide greater opportunity for readers to engage in the highly creative, transformative, meaning-making process known as *synaesthesia*—the constant transition and translation between different modes of representation. Focusing exclusively on text as an information carrier suppresses synaesthetic activity and thus, constrains cognitive activity (Kress *Before Writing: Rethinking the Paths to Literacy* 39). ETDs with integrated modes encourage synaesthesia and promote cognitive activity. And at the same time scholarly audiences benefit from the use of multimedia in the documents they read, scholarly writers will clearly benefit from the freedom to choose modes of representation that seem best suited for their purposes. ETDs provide a stepping-stone to the future of digital scholarship—to a time when academics will no longer be cognitively constrained by the funnel of alphabetic text.

The relative advantage of ETDs, however, is not the only criterion to consider when analyzing their diffusion as an innovation. The social structure of academe affects the diffusion of ETDs in several ways. The academic system's norms and values, the positions held by those who act as agents of change (or

resistance to change), the communication structure that exists in both the formal and interpersonal networks linking members of the system, and the consequences of an innovation to the operation of the system all effect the rate of ETD adoption (Rogers 24). Academics' perception of ETDs concerning their compatibility with system norms, values and objectives, their complexity, trialability, and observability, all contribute substantially to their rate of diffusion. Although relatively little research has been done on how social structure influences adoption because "it is a rather tricky business to untangle the effects of a system's structure on diffusion" (25), I will attempt to reveal, if not untangle, these effects on the diffusion of ETDs within the culture of academe.

### **Compatibility with Academic Norms**

Academic institutions carry out, in general, two basic activities: research and teaching. Many of the relative advantages explored earlier were concerned with enhanced publication of research; the following discussion of social system effects will begin with a focus on some of the norms and values associated with the university's teaching mission as it is traditionally (and still widely) conceived, and on the compatability of ETDs with these norms and values. First, however, it is important to examine Rogers' definition of technology as innovation and the function that technology, new or old, performs within any social system.

Rogers notes that the terms innovation and technology are often used

synonymously, and defines technology as “a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome” (Rogers 12). Somewhat ironically then, technological innovation both creates uncertainty by virtue of its “newness” at the same time it reduces the uncertainty of the desired outcome of its use (13). Secondly, new technologies often emerge in clusters: “A technology cluster consists of one or more distinguishable elements of technology that are perceived as being closely interrelated” (15). It is therefore useful to investigate technological innovations not as independent events, but as elements of a set of innovations that diffuse interdependently (15). ETDs are an element in the larger set of innovations that can be described as “digital scholarship.” Virtual libraries, online catalogues and reference databases, electronic journals and full-text availability of print journal content online are included in the set as well. The role university libraries play in ETD adoption is a significant one, and will be discussed in greater depth elsewhere in this chapter.

It is important to discuss some of the features of the earlier technology of the print dissertation in order to better grasp the significance of the changes ETDs as technological innovations introduce to the social system of academe, specifically its design as an instrument to reduce “uncertainty in the cause-effect relationships involved in achieving a desired outcome” (Rogers 12).

In chapter one, I discussed the evolution of the print dissertation from what was essentially an experimental research report to a demonstration of and training in research skills that is only vaguely perceived as a contribution to knowledge. As a demonstration of training and research skills, the dissertation can be seen as a means to reduce uncertainty about whether or not the desired outcome of the faculty-student relationship has been realized. In general, that desired outcome is the certification of a potentially productive scholar within a particular discipline. The dissertation demonstrates that faculty have succeeded in guiding students toward this end, and that students have succeeded in acquiring the skills associated with productive research. Perhaps one of the most salient of these skills is the ability to represent their work primarily with words—words that are carefully and skillfully arranged according to the conventions of their discipline. Representation of dissertation research as text has become a well-established norm within the community of academe. The six-chapter structure outlined by -----R. Murray Thomas and Dale L. Brubaker in chapter one is regularly required of and produced by graduate students in nearly all disciplines (29-30). Faculty mentors are familiar with it as a genre, because most were required to write one themselves, and they are generally comfortable in evaluating its effectiveness as a research report/argument. However, most are not familiar with multimedia ETDs. Their variable, non-linear structure and non-textual elements

require changes in the evaluation process—changes that faculty at universities who already accept multimedia work from graduate students have only just begun to explore. Mentors may find themselves called upon to become students themselves as they follow and learn from doctoral candidates' bold and innovative attempts to include new content and alternative structures in their work. This shift may be perceived by many faculty to be incompatible with established mentor/mentee norms within the university. Even those ETDs that contain only text and are uploaded to the web as PDF files may appear threatening; some faculty are concerned that broadly accessible online dissertations which reveal underdeveloped basic language and writing skills may draw unfavorable criticism of faculty mentors or departmental and graduate programs.

But there is an even more important and subtle undercurrent that informs this perceived incompatibility with established relationship norms—the flow of power through the network of social relations in academe.

In her article, “Talking about Research: Are We Playing Someone Else's Game?” Elizabeth Blake suggests that two value systems operate within the university: the community of power and the community of learning (Blake 30-31). In the university's community of power, “scholarship today can become a kind of high-stakes game played for money, power and prestige” (27). In contrast,



within the community of learning, competition does not need to be invoked to prove the worth of scholarly research and publication. Instead, both research and publication are viewed as learning activities. In the community of learning, “Scholarly publishing is important . . . not because it brings prestige, but because it disseminates ideas, revealing to one scholar how another scholar *thinks*” (33). ETD’s represent a new opportunity to “bring today’s colleges and universities out of what one might call their captivity to the overly dominant values of the Community of Power and to rethink our work in terms of creating the best possible learning situation for our students and ourselves” (37). Because they furnish global access to new knowledge, promote sharing and collaboration, and engage readers on multiple cognitive levels, ETDs provide improved learning situations for both authors and readers.

However, the community of power to which Blake refers poses a substantial threat to the contribution ETDs can make to the “community of learning. As Morton Winston notes,

The dominant academic ethos that values research above teaching, publication above pedagogy, and academic prestige over social relevance has been created and is perpetuated by powerful forces within the academy—mainly by “disciplinary elites” whose members wield power within the academy disproportionate to their numbers within the

professoriate . . . The power that the disciplinary elites exercise within their academic communities depends essentially on their ability to perform the “certification function.” According to the dominant ethos, since only members of these elites can authoritatively lay claim to being real “experts,” only they possess the authority to certify what counts as knowledge. Disciplinary elites use their control over epistemic certification to maintain their hegemony within the academy by deciding which practitioners will be certified as “professional experts,” whose works will be published, and, what other activities of professors will be rewarded within academic institutions . . . they control the graduate curriculum, and consequently they define what it means to be a scholar in a particular field . . . they also control who gets to hold the Ph.D. offered in their discipline and thus control access to the basic credential needed to enter the academic job market . . . the greatest rewards go to those students who most completely adopt the values and beliefs of the local disciplinary elites—that is, those who most completely buy into the dominant ethos. (53-55)

Graduate students who choose to transgress the boundaries of alphabetic print text in writing their dissertations do not “buy into the dominant ethos,” and thus are suspect in terms of whether or not they can qualify for Ph.D. certification. The norm their advisors impose on them is the traditional publication of

dissertations as hierarchical, linear, alphabetic text, which they (the advisors) are comfortable with evaluating as part of the Ph.D. student's certification process. Even those students who simply choose to make their traditional dissertations globally accessible online are repeatedly told that they must restrict access to their work in order to protect their intellectual property rights. Moreover, they are strongly cautioned against incurring rejection by future publishers of respectable print journals and books, as online publication may count as "prior publication." In short, they are routinely admonished to protect their opportunity to achieve prestige as one of the disciplinary elites in the academic community of power (*2000/2001 Author Survey, 2001*).

The results of this protection of professional interest are easy to observe. At Virginia Tech and the West Virginia University (WVU), where online publication is required, over 40% of all dissertations allow only restricted access. At WVU, students have four basic access options to choose from: (1) World, (2) Campus Only, (3) Campus-Encrypted (password protected file), and (4) No Access. In addition, "no access" dissertations submissions are withheld from UMI archiving and publication until one year after the submission date (Hagan ). In a world driven by information, material over one year old may be obsolete by the time it becomes accessible. During that year, it will remain unused by other researchers, and therefore necessarily decline in value, since information that is

unused holds little value for anyone but the author who seeks prestige among the disciplinary elite. “No access” restriction guarantees his/her right of first publication. “Campus Only” restriction likewise results in far less efficient use of information and research. At Virginia Tech, students also have the option of restricting access to portions of their documents, rather than restricting the entire document. ETD’s submitted to the graduate school with partially or totally restricted access are not sent to UMI at all, (McMillan ) and are therefore unavailable to anyone outside VT. Although abstracts of restricted dissertations are sent to UMI, their publication in Dissertation Abstracts International (DAI) represents no improvement in the level of access that normally occurs with traditional print dissertations, whose abstracts are published by DAI as well. According to research librarian Monica Metz-Wiseman at the University of South Florida, if such restrictions continue to be encouraged by faculty and imposed by graduate students, the diffusion of electronic dissertations as an innovation may result in less overall access to dissertations than is now the case with traditional print dissertations (Metz-Wiseman). The gains made for access in absolute numbers will be overshadowed by the fact that only a little more than half of United States collections may be available outside our campuses.

Students who remain persistent in their efforts to provide broader access to their research and/or to challenge what counts as knowledge in the academy by

experimenting with non-linear structure and visual or auditory forms of information in publishing their work defy assimilation to the cultural model of the research professor. However, refusal to assimilate may mean that they cannot earn the terminal degree, secure teaching jobs, receive grants, be published or promoted. They often learn that “unless they pay obeisance to the research ethos and to the members of their disciplines’ elite” (Winston 57), they will not be permitted to enter the academy. Hence, the dominant research paradigm in the academic community of power—“publish [in print] or perish”— maintains significant resistance to the diffusion of ETDs.

Established norms governing processing and archiving of dissertations are also challenged by the advent of ETDs. Graduate school standards for the presentation of dissertation research are all based on the assumption that dissertations will exist in print. Formats for the appearance of these documents include requirements for content, organization, headings and subheadings, text font and size, line spacing, margins, page numbering, and references that may not be appropriate outside the medium of print text. Online, the writing space can evolve in nonlinear and visual ways that cannot be depicted within one-inch margins. The University of West Virginia, the second university to require ETDs in the US, currently deals with this issue by asking that

. . . ETD submissions with multimedia applications be thoroughly

documented in the main “text” portion of the document, and that supplementary files be submitted for these special applications (in addition to the main document). Where possible, we ask that students include written equivalents . . . (Hagan )

However, multimedia content cannot be funneled into linear alphabetic text without spending substantial amounts of time describing content at length in words. Clearly such time-consuming requirements are prohibitive to experimentation with non-textual content. At the University of South Florida Graduate School, a dissertation format check that was required two months prior to graduation remained an obstacle for over two years. Two students from the ETD pilot project there were required to produce print versions of their HTML theses in order to satisfy the long-standing requirement of a format check, whose specifications could not accommodate anything other than a print document. This requirement was adapted (albeit in a makeshift way) to the needs of pioneering graduate students only after sustained effort on their part was finally joined by a vocal and influential department chair in support of his own student’s work. However, much more thoughtful and careful consideration of this issue must occur before new standards and requirements can be developed for the presentation of ETDs within university library collections.

Because university libraries have, over the last decade, already realized the

benefits of digitized information, they have begun to make available vast collections of full-text, online journals and books to faculty, students, and the public. The Association of Research Libraries (ARL) has taken the lead in communicating information about how library operations and services are being transformed by technology. It's efforts and those of several prestigious academic libraries are reported regularly in [\*Transforming Libraries\*](#)—a print publication and corresponding website containing links to the pioneering work of major institutions. For university librarians, making the switch from print dissertations to ETDs may be perceived as less of a compatibility problem and more of an exciting challenge. Indeed, librarians working at universities in countries all over the world have been among the most eager and dedicated proponents of ETD adoption. At the international [ETD 2001](#) conference held at Caltech, valuable information was exchanged by several library administrators on topics ranging from copyright and digital dissertations to XML archiving of ETDs. Librarians will likely be far more receptive to considering how the creation and publication of electronic theses and dissertations can facilitate the evolution of digital libraries beyond mere storage and access to digitized information, as research librarian Gail McMillan has asserted is necessary “if the digital library is actually to be a library and not a soulless, heartless construct” (McMillan [The Digital Library](#) ) ><http://www.vala.org.au/vala2000/2000pdf/McMillan.PDF>>. At the

same time many academics view ETDs as an invasion of traditional information ecologies, librarians will be more inclined to explore in an interested way how ETDs can work to transform the ecological relationship between technology, library practices and scholars in positive ways. Moreover, as Macmillan notes, “Scholarly research is not necessarily a linear, highly structured or logical process,” but is often “cyclical, organic and intuitive” (*The Digital Library, User Studies*). It may be possible that the hypermedia structure of some ETDs could mirror and facilitate the cyclical, organic and intuitive research processes of scholars who access them. They may better address the searching needs of the diverse population of library users whose research practices, as McMillan notes, cannot be easily categorized (*User Studies*).

## **Communication**

Perhaps it will be librarians, acting as agents of change within the social system of academe, who will work most successfully to accelerate the process of ETD adoption. The communication channels that connect libraries to graduate students, academic departments and graduate schools are fruitful forums to engage in dialogue about ETD adoption issues, because the degree of *homophily* that exists among these groups of individuals is quite high. Rogers defines and explains *homophily* as

the degree to which two or more individuals who interact are similar in



certain attributes, such as beliefs, education, social status, and the like. . . .  
*More effective communication occurs when two or more individuals are homophilous.* (authors italics). When they share common meanings, [and] a mutual subcultural language . . . the communication of new ideas is likely to have greater effects in terms of knowledge gain, attitude formation and change, and overt behavior change. (19)

Libraries, faculty working within academic departments, graduate students, and graduate schools all have a common commitment to support the activity of research. Libraries provide access to and preserve research; faculty and graduate students produce research; graduate schools certify students to become research scholars. All are familiar with and use language about research that is distinctive to academe. Because this homophily is present, libraries with open and active communication channels among these groups within the academic social system possess significant potential to succeed as agents of change in the ETD adoption process.

### **Complexity, Trialability and Observability**

As ETD pilot projects have been launched across the US, those involved have had to consider the *complexity* of the process of adopting ETDs. In addition to the evaluation archival, and administrative issues previously discussed, training students to make use of new tools for writing and creating visual content presents

a tremendous challenge—one that requires not only obvious funding commitments, but also a commitment to providing students with far more than just hands-on training with hardware and software tools. If the benefits to scholarship of living electronic writing are to be realized, information must be provided to students that enables them to create rhetorically effective documents—documents that arrange and integrate elements of the text in ways that facilitate fuller cognitive processing of these elements as parts of wholes. Yet, providing such instruction to graduate student writers may prove difficult, as even rhetoric and composition scholars themselves, thoroughly versed in methods and processes for producing rhetorically effective alphabetic texts, have only recently begun to consider how these processes might (or might not) apply when composing electronic texts. Composing processes take on a whole new dimension in the electronic realm. For example, in “hybrid://literature/cognition/design,” Daniel Anderson notes that, “the finished texts that we find online display only part of the real work that is Web composition,” and students must be guided to consider “not only the polished surfaces [of online documents], but also the work that lies beneath and comes before”(Anderson <<http://english.ttu.edu/kairos/3.2/features/anderson/bridge.html> >).

Navigation and page structure that provide cognitive efficiency require careful planning, followed by continuous and calculated revision of both form and

content (Anderson Prototypes and Iteration Section). When students become the publishers of their own writing, “the work that lies beneath and comes before” (which has typically been the concern of publishers, and in the case of graduate students, graduate school format checkers) becomes part of their own writing and composing process. But for almost all of their writing lives, they have been instructed only on how to compose hierarchical, non-linear, alphabetic text. In addressing this culturally imposed deficiency in most writers’ knowledge about and use of different modes of information and structure, we may need to consult the work of pioneering semioticians such as Kress, who has observed that a young child just learning to write seems not to make

a distinction between drawing and writing, between print and image . . . I do not think that it occurs to her to think: I’ll first do some writing and then illustrate it with some drawing, or the other way round. I imagine that she is drawing both the print and the image; or writing both print and image. It is probably not a distinction that is sensible to her . . . she prefigures accurately the state of public communication in the decades to come. (*Before Writing*, 61)

Compositionist Anne Wysocki has also noted the connection between drawing and writing. In *Monitoring Order*, she makes use of theories of painting from the visual arts which address the formal aspects of two-dimensional surfaces as well

as the different versions of order that viewers construct from these surfaces. Humans tend to orient themselves spatially on a two dimensional surface (canvas, page, or screen) in ways that mirror how they perceive their bodies to be oriented in three-dimensional space. It follows that teaching composers of ETDs about how their readers will attach different importance to the placement of images (or icons that link to them) in two-dimensional space according to whether they appear at the top, bottom, or center of the screen will assist them in effectively integrating these visual elements with text and any other non-textual elements they choose to use in presenting their research (Wysocki).

Horn has also emphasized the importance of what he refers to as visual syntax: “the patterns of arrangement of elements in two-dimensional space on pages or screens or in three-dimensional space in virtual reality” (71). He analyzes the effect of different combinations of words, shapes and images, as well as their properties of value, texture, color, size, orientation to each other, orientation in 2 and 3-dimensional space, thickness, motion and illumination (72). Horn draws on Gestalt principles of perception in his analysis; these principles are founded on research results in the early 20<sup>th</sup> century that suggested that humans tend to split their perception between foreground and background. Extensive further research allowed Gestalt psychologists to describe six general ways in which our perception allows us to organize the world into meaningful

units and clusters of units in a visual composition.

- Proximity—grouping together elements or units that are closest to each other
- Similarity—grouping together elements or units that are similar in visual properties (size, shape, color)
- Common region—seeing as a single unit those elements or units enclosed by a line on a surface
- Connectedness—perceiving any uniform, connected region as a single unit
- Good continuation—grouping together elements or units that appear to be aligned with or smooth directional continuations of one another
- Closure—grouping together components that constitute a closed entity rather than an open one

These human “tendancies” affect the cognitive process of constructing meaning from visual elements (75-80). Similarly, visual topologies such as the matrix and the network in all its permutations are based on Gestalt concepts and communicate meaning accordingly.

Because western, text-centered culture has regimentally and consistently worked to suppress any other form of expression than alphabetic text in teaching students to compose (Kress Before Writing: Rethinking the Paths to Literacy 39), the majority of graduate students (and the majority of publishing research

scholars for that matter) have little expertise in composing in visual modes. Clearly, graduate student authors need to be trained in principles of visual design in order to present research that includes visual elements effectively. They need to receive authoritative instruction in how to integrate these visual elements with text and sound so as to cognitively engage other researchers in compelling ways. But where will this training come from? Which discipline or disciplines within the academy will be looked to for guidance in providing such training? Teachers of technical writing, one discipline that has traditionally included composition with visual information, may be one possible and highly profitable source of expertise on which to draw. Technical writing scholars have been among the first to recognize that

digital technologies have accelerated the generation and storage of data, as well as the convergence of verbal and visual modes of communication, both of which are related because the generation of unprecedented amounts of data requires sophisticated combinations of verbal and visual language if anyone is to convert that data into something more meaningful . . . technical writers have long been interested in converting data to information and the role of visual and verbal communication in that process. (Kynell 347)

A number of books and articles have recently been published in the field of technical writing which address this accelerated convergence of the verbal and

the visual. For example, Eric Kumpf's article published in *Technical Communication Quarterly*, "Visual Metadiscourse: Designing the Considerate Text," discusses the role of linguistic metadiscourse in visual design.

*Metadiscourse* consists of verbal cues and indicators authors provide their readers in order to assist them in constructing order and meaning as they read through a text. According to Kumpf, metadiscourse can and should be expanded to include providing readers with cues that help them to interpret meanings in visual elements. He suggests that the same categories Vande Kopple generated to describe textual metadiscourse can be adapted to working with visual information:

- First Impression—influences a reader's reception of a document before the first word is read.
- Heft—the bulk or length of a document.
- Convention—what readers expect from the appearance of a document.
- Chunking—the arrangement of text into discrete visual parts.
- External Skeleton—page numbers, headings, tables of contents, paragraph indentations and other visual organizational cues.
- Consistency—visual and other cues that invite a reader to see unity in a document.
- Attraction—the document's ability to maintain reader interest.

- Interpretation—text that improves the use and understanding of visuals.
- Style—the selection of visual cues and information complementary to the tone and subject of the document (401-424).

Developing programs to train students to create rhetorically effective multimedia ETDs presents a degree of complexity in the innovation diffusion process that can be perceived as quite high by the academic community. For in addition to student training, faculty training in the evaluation of ETDs to determine whether they are in fact rhetorically effective will also be necessary. But the *trialability* of ETDs may work to mitigate concerns about their complexity as a technological innovation. Pilot projects involving small groups of faculty, students, administrators and librarians have been launched at various colleges and universities across the United States. Some of these projects are described in more detail in chapter two. Many of these schools look to the programs of early adopter institutions like Virginia Tech and West Virginia University for guidance as they continue to study ways to make ETDs a part of their disciplinary and graduate programs. [\*The ETD Guide\*](#), published by UNESCO provides an invaluable online resource for institutions that have decided to commit themselves to trial programs of various kinds.

Finally, by their very nature, ETDs themselves as well as their advantages are highly *observable*. Digital collections of ETDs all over the world can readily



be accessed and searched online in multiple languages using the NDLTD Union Catalog at <<http://hercules.vtls.com/cgi-bin/ndltd/chameleon>> or the Open Archives Initiative (OAI) Union Catalog at <<http://rocky.dlib.vt.edu/~etdunion/cgi-bin/index.pl>>. Those who wish to explore these collections for information and ideas about how to create their own digital repositories for ETDs have ample examples to guide and direct them in their efforts. International collections that have generally been in place longer than those in the United States and frequently offer English versions of their sites are particularly useful.

Understanding the diffusion process and how academic norms and values affect ETD adoption is, I believe, key to understanding how to market the concept of ETDs to academic audiences. Further research in identifying groups and individuals who possess the characteristics Rogers has identified as typical of early adopters may allow ETD proponents to locate more successfully those pockets of support among their communities which will prove most useful to them in their efforts.

# The University of South Florida ETD Pilot Project

I found out about my university's ETD pilot project on the elevator; I was moving into the first office I would occupy as a teaching assistant in the Rhetoric and Composition program. Professor Joseph Moxley—a faculty name I knew, but until now had no face to connect with—was the elevator's other occupant. As we rode together to the third floor, I introduced myself as a third year doctoral student beginning to fish around for a dissertation topic. “How about an ethnography of an interdisciplinary ETD project?” he suggested matter-of-factly. I struggled to seem mildly puzzled rather than patently ignorant.

The door opened onto the third floor, and we continued to talk as we made our way down the corridor of English Department offices. Moxley explained that in 1997, the University of South Florida (USF) had become one of the early members of the [Networked Digital Library of Theses and Dissertations](#) (NDLTD). A twenty-member committee convened by the Graduate School had recommended that USF move toward mandatory electronic submission of theses and dissertations. Although the university had funded the purchase of server and search software for the library to host ETDs, no substantial funding or support for students or faculty who might be interested in ETDs had been forthcoming.

However, he had recently obtained a small amount of funding from Microsoft's Faculty and Professional Development Initiatives program that he planned to use

to support an interdisciplinary, collaborative pilot project. Four faculty members from the English, Engineering, Biology and MIS departments would explore the opportunities for innovation that Office 2000 and related technologies might present for graduate student research and reporting. Graduate students working with these faculty would be included in the project, receive training in the use of various tools, and be encouraged to design electronic theses and dissertations (ETDs) which incorporated color, hyperlinks, still images, animation, sound files, streaming video, and nonlinear structure. Was I interested in participating?

I had an old MacIntosh I could barely use to word process research papers for my classes, I had never been online, I knew only vaguely of the existence of the WWW, I was afraid of machines, and I had been planning to write my dissertation on some topic in the area of cultural studies. But over the next few months, as I spoke regularly with Moxley about the benefits of a worldwide network of ETDs, the NDLTD, and the future of digital scholarship, I began to realize that my participation in the pilot project would be an opportunity to engage in pioneering transformation on many levels.

First, I would need to transform myself from a hesitant technophobe, cowering in the void of cyberspace, into someone who could make use of the powerful new tools that were beginning to redefine the space in which I lived and worked. I bought a computer and began to move with a mix of enthusiasm and trepidation

into the online world. I read Bolter and Landow, Lanham and Baudrillard; I made the leap from poststructuralist theories about print text to their concrete realization in electronic text; I began to use e-mail, to access the web, to require my students to submit their writing electronically so I could embed much more extensive comments. I joined the Alliance for Computers and Writing and began to lurk and eventually post on their list. I became fascinated by intellectual property issues associated with electronic writing, with electronic communities and the situated knowledge they construct, the selves they construct, the ideological struggle that manifests itself in their conversations. I began to construct a kaleidoscopic lens through which I could view the entire context of my research into working collaboratively online to produce electronic theses and dissertations.

A significant theoretical influence that came to be included in the grain of this lens is the work of Michel de Certeau, whose emphasis on consumption and production in relation to the reading and performance of texts has become important for new historicists (Colebrook 112). Certeau takes issue with the perception of mass consumption of products and information as a passive, receptive phenomenon. He subverts the production/consumption binary by asserting that consumption is a transformative process—a "making do" with that which is produced in a manner different from producers' intentions. These

transformations of products and information, which occur in the everyday practices of ordinary people, are highly contingent and contextual in nature. They are tactical rather than strategic, and therefore partial rather than totalizing. These transformations are capable of seizing opportunity in the moment in order to escape the surveillance of the producers of the dominant ideology. Since these transformations occur at ordinary, mundane levels of everyday practice, they are able to remain either invisible or unacknowledged by both consumers and producers. What sorts of tactical, partial transformations of the traditional genre of the print dissertation might graduate students required to make use of it perform? How might they transform soft-ware technology while they used it to transform the dissertation? What benefits might my work with these graduate students provide by making these transformations more visible?

Certeau characterizes consumers as tricksters who insinuate their tactical, transformative powers in the webs of ideology in which they find themselves netted, or networked. These tactical capabilities make possible a degree of local and contingent autonomy which, because of its location in everyday practices, escapes the surveillance imposed by producers on a mass culture of consumers whom they take to be passive receivers of products and information of every kind. Could graduate students using technology to write multimedia electronic theses and dissertations be characterized as such tricksters?

Certeau likens the acts of writing and reading to those of production and transformative consumption. The “body” of mass culture as well as the individual bodies within it constitute the blank pages upon which are written the texts of the producers; whatever access such bodies have to autonomy is gained through a tactical reading of the texts they inhabit (Certeau 1-70). I wanted to observe and experience the effects of this overdetermined autonomy that Certeau offers to users of all kinds of texts—to observe and experience how graduate students and their faculty mentors might use, resist and transform both the traditional print dissertation and the technology they made use of in accomplishing its transformation. Could graduate students exercise autonomy by tactically reading those texts written on them by both the producers of academe and of technology? Could ETDs count as tactical, transformative readings and re-writings of these producers’ texts?

For many doctoral students, particularly in the humanities where fifty percent of all candidates never finish, the project of the dissertation looms forebodingly as they approach the end of their coursework. A great deal of my own trepidation in preparing to run the gauntlet of this rite of passage was the result of not actually knowing what a dissertation was. I had never read one. I had never been referred to one by anyone during the course of my scholarship. I had never received copies of an excerpt of one among the countless handouts of scholarly articles I

had been provided in my classes. What was this mysterious document I was required to write and why was it so invisible?

As we began to discuss plans for the project, Moxley explained that the dissertations of participating graduate students would be published electronically as part of the NDLTD at [www.ndltd.org](http://www.ndltd.org), an initiative begun by Virginia Polytechnic University (VT) in 1996. VT had instituted a university wide requirement for students to submit their dissertations electronically to the NDLTD in 1997, and he recommended that I take some time to browse their collection. VT encouraged students to experiment with multimedia in presenting their research he said, but most opted to submit PDF versions of what was essentially a standard print dissertation. At last, I thought, at the touch of a few keys, I will see exactly what this curiously obscure document looks like.

I opened my browser and keyed in the URL for the NDLTD. I followed the link to search and browse their digital library, [www.theses.org](http://www.theses.org), and was taken to a page containing a list of links to the twenty-one official nodes in the library, as well as links to several other sites that publish ETDS, including University Microfilms, Inc. (UMI). I navigated to Virginia Tech's collection first; I could either use a search engine to enter key words that might appear in a dissertation's title or text, or search by author. I chose the search engine. Prominently figured at the top of the page was the image of this open lock.



I entered the keyword “marketing,” a business discipline whose students I thought might be savvy enough to add some multimedia effects to the standard dissertation fare, whatever that was. The software turned up 750 results.

All of the titles and brief annotations thereto that appeared on my screen contained the word “marketing.” I chose one and followed the link to its title page, <http://scholar.lib.vt.edu/theses/available/etd-080599-214218> , where a full abstract of the work appeared in a table along with other useful information, including the author’s email address and a list of suggested keywords for searching the document. And then I saw it: in the table cell next to the main column entry labeled **Availability** appeared the word “restricted.” Restricted? I scrolled down to the bottom of the title page where another table containing information about the filename, size and download time had been entered as well as a direct link to the PDF file of the dissertation itself. The letters **VT** preceded the link, and underneath them appeared the following explanation: *VT indicates that a file or directory is accessible from the Virginia Tech Campus network only.* Undaunted, I ignored the restriction notice and clicked on the direct link to the dissertation. The screen I received in response appears at the following link:

<http://scholar.lib.vt.edu/theses/available/etd-080599-214218/restricted/DISS.PDF>



Part of my interest in this research project had to do with promoting the accessibility of new research, new information, new knowledge—using technology to facilitate the creation of a Habermasian public sphere of discourse. Why did Virginia Tech, the institute who had created the NDLTD for the purpose of empowering universities to “*unlock* their information resources” have a picture of an open lock on their digital library’s home page when it was now clear that a number of works were inaccessible to most researchers? I soon learned that forty percent of graduate students who publish ETDs are advised by faculty to restrict access to their work in order to protect their professional interests (2000/2001 Author Survey ), and a new avenue of exploration—ETDs and intellectual property concerns—was incorporated into my research plan.

A week or so prior to our first meeting with Microsoft representatives, the ETD Pilot listserv was established in the hopes that it would become a medium for “dynamic exchanges” among all project members. Although few of the members actually participated in list discussions, a number of posts reflect the intensity with which some of us debated issues we perceived to be pertinent to the creation of ETDs and to digital scholarship in general. An initial concern aired on the list by one of the faculty addressed the tension between what participating graduate students would be doing—writing their theses and dissertations using new technology—and what at least some of the faculty would be doing—recording the

efforts of graduate students writing their theses and dissertations while using new technology. Prior to the official start-up of the pilot, faculty members had discussed the need to record the efforts of the project, including the need to have students record their own experiences/progress in journal form. Concern was expressed that the focus of the project remain on the benefit to students, not on the recording of experiences. And indeed students balked at the idea of journaling. They were, after all, involved in the project to learn about ways to increase their research and writing productivity, not to be burdened with “extra” writing. Ultimately, these early attempts to get students to write about what they were learning in the tools training sessions and how they were applying it to their research proved unfruitful.

The same faculty member was anxious about the effect of experimenting with new technology to create ETDs with students who would still be expected to fulfill the existing requirements of a traditional program. “Unless we can convince them that working with us is going to help them in accomplishing those goals, their participation will be perfunctory at best” (Cochran). This comment seems to belie a submerged mistrust in the benefits of the pilot project and the writing of ETDs themselves. The tension between experimentation and innovation and departmental or graduate school expectations/requirements, in particular with regard to the finished product—the written thesis or dissertation—would continue

to generate a substantial amount of uncertainty on the part of graduate student participants who, although excited about the opportunity for innovation in their work, were first and foremost interested in completing their programs on time and with as little conflict as possible between themselves, their committees, and most importantly, the graduate school.

As we prepared for the first meeting with Microsoft, tutorials from Microsoft on the Web were posted to the listserv to give participants an opportunity to preview some of the material that would be covered at the meeting, and several tools/features/issues were identified as potentially valuable to participants and therefore worthy of discussion with Microsoft representatives, namely (1) active spreadsheets on the Web, (2) pivot tables, (3) advanced PowerPoint features beyond slide composition, (4) MS Word vs. MS FrontPage for web design, and (5) active server pages and database access. In addition, a preliminary web site was set up for the project and published to the list, along with assurances that once our exchange server was up and running, all participants would be set up with their own MS Outlook accounts. Individual experimentation with new tools and subsequent collaboration via our listserv was encouraged from the beginning, and remained the focus of the ETD pilot project throughout its succeeding permutations.

Our first meeting took place in a dimly lit, paneled conference room in the

university library—an atmosphere less than suitable for the videotaping which had been planned as part of our recording efforts. The scheduled presenter from Microsoft had been replaced at the last minute. Only a few of the graduate students attended. Moxley began with a reiteration of the project’s primary emphasis—the global accessibility of doctoral research. Ancillary emphases would include studying the effects of collaboration with new tools on student productivity, and the facilitation of multimedia work—all with Microsoft Office 2000 and related tools.

One of the many conversations I had encountered while lurking on a computers and composition studies listserv concerned what was perceived to be the encroachment of the “evil empire”—Microsoft—into the new electronic writing space. Aficionados of non-Microsoft programs and tools seemed to frequently co-opt a kind of Marxist rhetoric against the formidable giant who would indeed later be judged by the U.S. Supreme Court to possess an unfair operating system monopoly within the computer industry. They saw the Web as an inherently democratic space in which freedom of preferred tool use should be preserved at all costs. Electronic writers everywhere must be free to construct information spaces with tools of their own choosing. For these composition scholars, the growing ubiquity of Microsoft tools loomed as a dangerous threat on the horizon. I was not quite sure whether I agreed with this view or not. I simply didn’t have

enough information.

Moxley explained that Microsoft tools had been chosen for our pilot precisely because of their ubiquity. Faculty and students both were more likely to have some working familiarity with Microsoft products than any other manufacturer's—a familiarity that would then port over to any new Microsoft tools we might choose to explore. And problems associated with the cost of training in new tool use had been discussed on the listserv:

One of the most common criteria when selecting a product for use in a productivity environment is training. The cost of training (including such resources as time required before the individual is productive and loss of productivity of all participants during training) can be one of the most prohibitive factors in using a new (or different) product. If your students are already using a particular product with adequate (or better) functionality, it can actually be counterproductive to productivity (or success of a project) to use a different product . . . it is much more effective to build upon existing skills than to start from scratch . . . Graduate students in the future can likely be expected to have already acquired basic skills using software such as Word . . . Training emphasis need only be placed on acquiring the additional skills required to use the web-based writing development environment this project is developing (Beavers).

Clearly, we did not want to risk reducing the productivity of graduate students as they worked to complete their research; for the purposes of this particular project, building upon students' existing skills with Microsoft products seemed the most productive course of action. Other key reasons for the Microsoft choice were its capability for data collection and its provision of collaborative space for collaborative action via the Web.

The remainder of the meeting time was spent demonstrating some of the collaboration features of Office 2000, most notably the "discussion" feature which would allow committee members to post their written comments on a student's work directly to the web page where the work was displayed by means of a split screen dialogue space. Discussion items might also be stored outside the documents and outside the network, then threaded for separate access via automatic email. Amid somewhat nervous laughter, students present agreed that such committee "surveillance" and critique of their Web-available work should inspire them to respond to commentary with greater diligence, thus increasing their productivity.

In the ensuing two weeks, the listserv buzzed with discussion about the pluses and minuses of web-based research. An article entitled, "No Computer Can Hold the Past," written by Harvard history Professor Robert Darnton, was posted in its entirety by one of the faculty, with a call for list members to read and respond. A

key point made in the article whose logic clearly overlooked the capability of electronic writing to construct new and multiple meanings was that research done via computer somehow precluded the ability of researchers to “read between the lines,” to see how texts are “related to all the surrounding documents,” and to engage in the process of actively “relating texts to one another” (Darnton ). In fact, the electronic medium presents opportunities to connect texts and their meanings far more comprehensively and efficiently than ever before. If, as Jay Bolter seems to agree “all texts are ultimately networks of verbal elements, the computer is the first medium that can record and present these networks to writers and readers...computer programs can fashion the text into a general network or hypertext...the machine has provided...the technology needed to realize and indeed to reify writing as a network” (Bolter 222-223). It would seem that the relation of texts to surrounding documents that Darnton calls for would be facilitated by digitization rather than hindered. Response to the posted article on the list was quite negative and also raised the issue of traditional scholars’ resistance to the collaborative knowledge-making possibilities that new technology provides—possibilities on which our ETD pilot project deliberately focused.

...we can expect even greater resistance from the professoriate than DARNTON’s knee-jerk, Sven Birkerts-like rejection of Internet research.

Jeez, does this guy know about DLs and OCLC databases? Duh.

Why greater resistance? Because Office 2000's collaboration tools make collaboration much easier than ever; they create an ALN (asynchronous learning network) learning space that challenges the 4 walls of the classroom or hegemony of the professor's lecture. (Moxley)

A research librarian who was also a project participant and frequent poster to the listserv submitted the following:

Why doesn't Darnton see the "Internet" as a mere delivery system? Why doesn't he see digital copies of things as an extremely handy way to rummage through the boxes in Special Collections in libraries? (Frank)

This view of digital scholarship as no more than a new delivery system for traditional print genres of scholarship is a limited one at best; the possibility of creating entirely new genres of scholarship such as the occasional hypermedia texts published in the NDLTD, is subtly resisted. Jay Bolter's and Richard Grusin's concept of *remediation* comes to mind here; remediation is the process by which one medium is improved upon or reformed by another. Because older media achieve a sense of immediacy or transparency over time, their remediation by new media has the potential to call attention once again to their status AS media. But as Bolter and Grusin note:

. . . instead, the computer is offered as a new means of gaining access to



these older materials, as if the content of the older media could simply be poured into the new one...the new is still justified in terms of the old and seeks to remain faithful to the older medium's character (Bolter and Grusin 45-46).

Some scholars eager to explore the concept of new media scholarship may make great strides and indeed quite successfully exploit some of the more obvious capabilities of new writing technology, yet remain faithful to the character of older media. In an exceptional essay by Stevan Harnad entitled "Implementing Peer Review on the Net: Scientific Quality Control in Scholarly Electronic Journals," the concept of "scholarly skywriting" is explored at length. Scholarly Skywriting is interactive publication in the form of open peer commentary on published and ongoing work, which Harnad notes is the Net's real revolutionary dimension. However, he is quick to justify such cybercommentary by noting that it is in effect, only an electronic version of what the print journal he edits already practices. He explains: "Once refereed and accepted, target articles are circulated to as many as one hundred potential commentators who are invited to submit critical commentary, to which the author will respond . . . Each target article is then copublished with 20 to 30 (accepted) peer commentaries it elicits, plus the author's response to the commentaries" (Harnad 113). Thus, what is already accomplished in print is simply ported over into electronic publication. And

Harnad is equally quick to qualify his enthusiasm for exploiting what he calls “the remarkable possibilities of this brave new medium” by suggesting that scholarly skywriting be considered merely a supplement to conventional peer review as the “principal means of controlling quality.” And in a final move to constrain the liberatory nature of skywriting, Harnad suggests that it, too, needs to be refereed (Harnad 114).

Perhaps most importantly from my perspective, the Darnton article failed to recognize that digitized and digital documents, far from being read “in isolation on a screen” where “we miss the context that shapes its meaning,” appear in a new writing space which not only facilitates recognition of the various contexts and relationships from which meaning arises, but also provides a new context for meaning itself, along with the screen or GUI that displays the document; both the space and the interface also have power to shape the meaning of texts.

From the Darnton article, the discussion turned to the questions:

...to what extent can the Web replace print libraries as information resources...what credence can I safely give to materials that may not have been subject to peer review...how do I evaluate a term paper that depends nearly exclusively on one or a small number of web sites, again not having a clear means of evaluating them as sources? (Cochran).

This faculty member, although clearly committed throughout the project to

building a consensus among academics that it will be to their benefit to go beyond traditional values as they begin to explore the use of new technology in their scholarship, proved to be quite resistant himself to the idea that digital scholarship which had not undergone traditional peer review was not to be trusted and therefore of limited value. One of the most convincing reasons for graduate students to publish their theses and dissertations in a digital library is that access to their work by other scholars is unrestricted by the peer review process. Yet this faculty mentor expresses a resistance to the absence of peer review, even as he encourages his students to consider their work worthy of exponentially amplified access without it. Such ambivalence communicated to students may influence their commitment to participation in ETD pilot projects, and the effects of such statements by faculty mentors on graduate students should not be underestimated. We must think beyond the traditional peer review process to explore alternative and perhaps even more effective and efficient ways to evaluate digital scholarship, including ETDs that have traditionally only been evaluated by faculty committees. Paul Ginsparg, author of “Winners and Losers in the Global Research Village,” describes how the intellectual value-added function of peer review might be re-invented for the electronic medium. He suggests that the “...electronic medium should not be constrained by any former print incarnation and, in particular, easily implemented quality appraisal mechanisms in the

electronic realm will be dramatically superior to the binary (i.e. one-time, all-or-nothing) procedure employed by the print medium...” (Ginsparg Abstract <http://associnst.ox.ac.uk/~icsuinfo/Ginsparg96.htm>). He points out that a large amount of information is lost in the conventional peer review process and argues that:

A variety of superficial improvements can easily be implemented immediately in the electronic realm. Since there are no financial or physical barriers to widespread dissemination, we can imagine a relatively complete raw archive unfettered by any unnecessary delays in availability. Any type of information could be overlaid on this raw archive and maintained by any third parties. For example the archive could be effectively partitioned into sectors, gradated according to overall importance, quality of research, or other useful criteria, and papers could be shifted retroactively as dictated by additional information or follow-up research. And rather than face only an undifferentiated bitstream, the average reader could benefit from an interface that recommended a set of “essential reads” for a given subject from any given time period. There could also be retroactively added descriptive information “this paper was important since it drew upon a,b,c, [hyperlinks to source] and led to new developments x,yz [more hyperlinks]” to provide a further guide to the literature...The literature need not be frozen in time as in

the paper medium, but can remain as fluid as the research itself...Even interdisciplinary research...can be easily facilitated by an interface that allows rapid identification of papers that provide pedagogic review material or are otherwise likely to be of specific interest to outsiders. Further possibilities such as moderated comments threads attached to specific points in papers together with more exotic features can be added in successive stages as desired. (Problems and Possibilities sec.

<http://associnst.ox.ac.uk/~icsuinfo/Ginsparg96.htm> )

I can envision a similar system of evaluative “overlays” for an international collection of dissertations such as the NDLTD. Imagine the value added when students’ dissertations can be linked to their continuing scholarship as more and more journals offer electronic versions of their contents. As one of our pilot project faculty members noted, it will

. . .be easy to put research data on the web, in such a way that others can examine, manipulate, and evaluate it...the thesis and dissertation [will] become more than what it currently is in the sciences—a collection of chapters whose validity will only derive from publication in refereed journals. . .[It will be] possible for students and their mentors, when appropriate, to draw on the best national and international expertise available at all stages of graduate education. [Cochran, 1999 #67].

When ETDs are open to continuous evaluation by other scholars, threaded commentary attached to specific methods, results, ideas or arguments that appear in dissertations can generate and facilitate the development of new ideas for further research. It can also serve to identify the value of scholarship that might otherwise have been lost in the process of print-based, conventional peer review. A current example of an ETD which has already demonstrated how scholarly work “can remain as fluid as the research itself” is Simon Pockley’s internationally read dissertation, [\*The Flight of Ducks\*](#) (Pockley [The Flight of Ducks](#) ). Pockley’s dissertation, an on-line documentary about cultural memory that revisits his father’s journey into the Australian Aboriginal outback in the 1930’s, has received over 200 million distinct hits from over one million individual computers. The work is a participatory documentary, continually augmented by reader response. All of the email contact that Pockley receives from his dissertation’s readers is archived and incorporated to become part of the dissertation itself. “Like the stories of journeys in oral epic poetry, it has evolved into a proliferating, evolving organism, shaped by its participants and by a continuous refinement of the poetics of long-term access” (Pockley "Killing the Duck to Keep the Quack: The Poetics of Access and Closure in Australia's First on-Line Doctorate" ).

Continuing and copious interest in a scholarly work has always been a hallmark of

its significance; in the past, however, only peer-reviewed work published in print received the opportunity for this kind of evaluation. It is now possible for work published in raw archives such as Ginsparg describes to receive the same opportunity to be evaluated by the scholarly community, so that no important work is lost to the perils of competition and bias which plague conventional peer review.

The potential that such archives have to level existing hierarchies of power in academe will no doubt be resisted by much of the academic community for some time to come. As Morton Winston notes in “Prospects for a Reevaluation of Academic Values”, what counts as knowledge within disciplines is paradigmatic in nature; furthermore, researchers within disciplines are viewed "as the masters of their particular disciplinary paradigms and thus as the source of epistemic certification." Existing disciplinary paradigms are continually reinscribed in scholarly publication, and the system of peer review on which it is based functions both to legitimize and constrain the construction of knowledge within disciplines. Those who typically engage in writing, peer review and editing for scholarly publication are often what Morton has referred to as "disciplinary elites...[who] have advanced to their current position of power within the academy by successfully developing their own disciplines' dominant paradigms...The journal article is the unit of capital in the academic marketplace; it is the record of

ones 'research' at the frontiers of knowledge of one's discipline, and it is thus the basis of any credible claim one might have to be one of the keepers and shapers of the disciplinary paradigm" (53-55).

But technology is gradually transforming this “unit of capital,” and graduate students throughout the disciplines are now playing and will continue to play an important role in this transformation. The writing of a dissertation models the process and production of knowledge that graduate students who become career scholars will engage in throughout their tenure in academe. It is the "training ground" for scholarly publication. As graduate students begin to critique the existing genre of the dissertation by using technology to transform it into a highly accessible, interactive, participatory document, as they continue this critique and transformation of traditional print scholarship throughout their careers, the relatively exclusive production of and access to knowledge now enjoyed by the disciplinary elite, together with their preference for the limited textual forms in which it is currently produced, will gradually be challenged. How academics meet this challenge may refashion not only the work they do, but also the terms of their survival in a new academic marketplace.

Like Stephen Parks, I see *student* as a political category—one that can act as a lever to reform academic practice (Parks 60). The image of the innovative graduate student has become a rhetorical tool—not only here at USF, but within



the larger global effort to adopt ETDs as well—to validate the politics of those involved in the broader attempt to enable both traditional and alternative representations of knowledge that are highly accessible to the global community. It may also work to form a new hegemonic ideal of the social relations between faculty advisors and students. As a participant/observer in this ongoing project, it became important for me to acknowledge and honor (and to some extent, no doubt, construct) a boundary between *graduate student* as rhetorical tool and graduate students as agents. We were, after all, human—agents for change, certainly, but agents who were also determined to complete programs of study for which we had all made great sacrifices. In allowing ourselves to become rhetorical tools for institutional change, we opened ourselves up to uncertainty: Would our advisors and committees approve or even permit us to use new media technology to present the results of our research? How would our work, which diverged significantly from the traditional model of the dissertation, be evaluated? And what about the graduate school's requirements? Matters as mundane and routine as the dreaded manuscript format check loomed larger than ever. How could we pass a format check for a manuscript that didn't exist? How could we provide the library with print copies of electronic documents that didn't translate into print? These and other questions would continue to generate considerable uncertainty for us.

Nevertheless, we continued to identify new tools to write with. On the listserv, it was becoming apparent that many tools were available to facilitate evaluative reader response to dissertations even during the writing process. One tool feature that caught our attention was the automatic linking of a web page with mentor “chat” users desirous of participating in synchronous evaluation of a student’s work:

While Office 2000 itself does not support this feature, these capabilities, as well as several others, are already available in NetMeeting—which is freely site-licensed for everyone at USF and has been used here for “instant chat groups” for several years. It is also fully integrated into Office 2000 products via simple drag & drop. Drag a “chat with me” link onto a web page and a chat window will open. And you can control who joins your conversation. With just a minimum of coding, you can actually put a live chat box on the page, instead of using a separate window. Chatting is a native feature of NetMeeting and also actually allows live voice conversation as well as written text. These conversations are easily saved for future reference with a click of the Save menu item. This capability is also available via standard IRC which is included with the Exchange server you will be getting. You can not only put a chat box on your page, but Microsoft provides free “detachable” chat box—so you can scroll around the page

without losing sight of the conversation...The chat capability and much more is there in the product set—it is just technically not part of Office 2000 (Beavers).

As a result of this discussion, a training session for NetMeeting was scheduled for mid-July with a representative of USF's Instructional Technology Assessment Group.

The second and final meeting with a Microsoft representative took place in a new Medical College lab outfitted with nineteen computer stations. Although slated as a “workshop” meeting, our presenter apologized midway through his demonstration for his misunderstanding about the nature of the meeting, revealing that he had prepared a sales-specific rather than education-specific presentation and was training us on the fly. Problems also arose with the projector during the “demo” presentation, and I was bemused by the collaborative nature of the troubleshooting session that resulted, with various members of the project piping up intermittently from all corners of the room, offering multiple and often contradictory suggestions about how to resolve the equipment problem. Their participation seemed to underscore the collaborative nature of what we all hoped to accomplish as a team of senior and junior scholars working to promote innovation in the production of scholarship. I began to surmise that perhaps the stand and deliver workshop we had planned and expected was not even the best

way to share knowledge about new tools; that technology training somehow—inexplicably for the moment—required a different kind of learning experience. The traditional one-to-many information delivery mode might not do. It was a fleeting thought, but one I have not lost sight of as I continue to formulate my own conclusions about the most effective way to train graduate students to write ETDs. During the equipment malfunction intermission, “dream” abstracts of dissertation research projects were called for; students were asked to describe what they hoped to produce as a result of their participation in the project, including the form that the presentation of their research would take as an ETD.

As some of us began to compose drafts of our abstracts, one student expressed anxiety about allowing Web access to his data. Spoken almost as an aside, his comment did not provoke much response other than a somewhat blithe reassurance by faculty that the exchange server that was being set up for us provided for the creation of passwords to secure documents if students desired to do so. But this momentary concern, so casually delivered and so casually dismissed, eventually became a major focus for my continuing research as I began to explore other collections of ETDs at United States universities that, as I had already discovered at the Virginia Tech site, restricted access to many of the dissertations in their collections.

I approached two of the biology students after the workshop to inquire about working with them as individual case studies. I explained that their experiences working with new technology to organize their research and write their theses and dissertations would be referenced in my dissertation, and that their written work on the web would be linked to mine, thus allowing their own research to enjoy greater visibility. Additionally, they would have a unique opportunity to clarify what some of their needs for information, education and training were in designing their dissertations. Both agreed, but only one responded to my continuing emails requesting that we meet; she was repeatedly unable to schedule a time to meet; both eventually abandoned not only their participation in the pilot, but unfortunately, their graduate studies as well. Indeed, none of the graduate students who were part of this initial permutation of the pilot actually wrote ETDs. Two finished their research and graduated, but both wrote traditional print dissertations.

Although pilot project activity seemed to ebb rather quickly after the final meeting with Microsoft representatives, over the summer the listserv continued to provide a forum for discussion that took place at a moderate pace. Students continued to identify several applications and features of Office 2000 that would increase their productivity:

The most useful tool in Office as I see it (for my purposes) is Access. With it

and our dedicated web server, I think I can construct some killer surveys, which I will route people via a link in an email message. These surveys will help my project immensely. . . . Once I have the data, I will delve into Excel, NetMeeting, etc. At this point, I am not quite sure how I will use NetMeeting—but I have learned one thing from experience: If you force yourself to use a tool, you will perceive its usefulness only after the first use. (Sullivan)

I think Front Page will be very useful for me. It will be very useful for my committee to be able to access and evaluate my data as I collect it. I also think the comments and tracking features will prove very useful especially when more than one person is reading my work. (S. Brown)

The Microsoft Exchange server was successfully launched; students were provided with email accounts and privileges to author web pages and host academic Web sites on the server, especially their thesis and dissertation work. Web editor Microsoft FrontPage was identified as “the glue that will bring it all together...Given how easy it is to develop [Web pages] directly on the server” (Cochrane)

Once students were able to put their research up on the Web, security became an issue almost immediately. At first, concern seemed to stem primarily from the

need to prevent accidental erasure of one another's work hosted on the same server; separate folders and login identifications were created for each account, and students were asked to write only to their own folders. However, in later discussions, concern shifted to the perceived dangers of putting up sensitive research results without adequate protections.

It was decided that the pilot project needed a "home," a space on campus where students could meet every other week with participating faculty—not for formal workshops, but for writing time and general support. Faculty would also meet separately to discuss their own critique of tool use and how the tools influenced the way they worked with participating graduate students. The graduate school was approached to assign our project a technical support student, and although we did obtain the services of a student in his junior year of studies in computer programming for a short time, we were unable to secure continued funding for his assistance.

By early November, we had secured a space in an older engineering building that would be equipped with ten new Dell computers. By this time, however, student interest in the pilot had dwindled considerably. Calls by faculty for student input on the process of developing tools for graduate research were posted to the list—to no avail. By January 2000, the new computers had been installed in the project's new workspace, but continuing participation by students originally

recruited for the pilot was not forthcoming. I was experiencing scheduling difficulties of my own, working at the university writing center, teaching, studying for the Ph.D. comprehensive exams I would take in March, and preparing to present information about ETDs and our project at both the Conference on College Communication and Composition in April and the Computers and Writing Conference in May. Professor Moxley, undaunted, maintained the fading pulse of the project by enlisting the interest of several engineering graduate students in a scholarly publications class he taught in the project home space. There, he continued to introduce students working on theses and dissertations to Microsoft Office 2000 tools, providing them with accounts on the exchange server and encouraging them to use FrontPage to construct spaces for their research on the Web. But it was clear that a steady pulse would not be enough; our project was in need of new blood.

In March, USF hosted the international [ETD 2000](#) Conference at its St. Petersburg campus, coordinated by Professor Moxley. Three hundred participants from several countries attended the presentations given on topics ranging from the future of digital libraries and academic scholarship to ETDs and hypertextual design.

Over the summer, a new version of the exchange server was set up and a new project website established for our project, which would now be known as the



[Digital Media Institute](#) (DMI). As fall semester approached, an open invitation to all USF graduate students to register for and participate in a free series of ETD workshops was distributed to graduate program directors, deans, department chairs and a major university-wide listserv. These workshops were advertised as venues designed to (1) help students understand the benefits of writing an ETD, (2) introduce them to digital libraries, (3) explore ways software might help them complete their scholarship more effectively and efficiently, and (4) illustrate how multimedia could be used to present their research. Seven students attended the introductory session. As the workshops proceeded, participation was intermittent but steady as students chose to attend those workshops they felt might offer new ideas and/or support for the ETDs they were planning and writing. One student expresses her thoughts about how an ETD might enhance the presentation of her research in a recorded interview [HERE](#).

Still, it was clear that further incentives were needed in order to garner greater student participation in the project. What if students were offered the opportunity to compete for valuable awards that would be useful to their research? What could we give them that would maintain their interest in the project and actually facilitate their continuing participation? What did they need?

A continuing problem students involved in the project had experienced was lack of access to bandwidth. As one faculty member put it: “It’s great doing all this

stuff in my office, and I'm sure it is on cable/DSL, but unfortunately many of us, especially students, do not have access to such connections on a 24/7 basis" (Cochrane). Fortunately, Time-Warner had chosen the Tampa Bay area as one of the locations for the roll-out of its high-speed, online cable service, Roadrunner. Since 1998, Time-Warner had marketed its services to USF faculty and students at reduced prices. Could they be persuaded to donate one year of free service to select graduate students who were writing ETDs? If so, would the graduate school match Time-Warner's donation and fund Roadrunner connections for an equal number of students? A deal was struck, and graduate students university-wide were encouraged to submit 75-100 word abstracts of their thesis or dissertation to compete for the new Time-Warner Roadrunner ETD Award. A total of 33 students received these awards and became members of the successfully rejuvenated pilot project, continuing under the name of USF's Digital Media Institute. A new listserv was set up, and a weekly meeting time was established in a new and larger space in the College of Engineering, who continued their interest in and support of our efforts. Indeed one of their departments, ISME, had begun to require students to write ETDs. Although six schools in the United States now required graduate students in all disciplines to submit ETDs in some format, including the University of Florida, our graduate school had not yet been persuaded of the need to require them at USF. The

library, whose reference and virtual collections departments had participated actively in the pilot project from the beginning, was ready to accept ETDs in both PDF and HTML formats. Their sense was that USF needed to take a “program by program” approach to instituting ETDs—that mandatory ETDs were not “USF style” and that there were several pockets of support within programs that could be tapped in an effort to achieve a more gradual diffusion of the requirement (Metz-Wiseman). During the ensuing months of this third permutation of the pilot project, the library staff continued to support student experimentation with multimedia and other electronic effects in their documents. They would accept ETDs in both PDF and HTML formats, and reassured us that print versions of either format would not be required for archival purposes, an issue which had been hotly debated recently on the Networked Digital Library of Electronic Theses and Dissertations listserv. However, the graduate school, whose required “format check” of all theses and dissertations had not been designed with HTML documents in mind, was less than clear on the issue, a matter which would continue to generate anxiety for many students in the project. Redesigning an HTML document that might contain hyperlinks and multimedia to conform to the conventions of traditional print was, we thought, an obviously unacceptable requirement that would ultimately serve to discourage and/or punish students who experimented with new forms of scholarship. However, as the ETD-L listserv

discussion shows, this point, though repeatedly made and supported by some, was also repeatedly minimized or dismissed by others: “Far be it from a school to require things of students that might make them do some small amount of work” (Beaven).

One of the primary activities at the first DMI meeting was to upload students’ personal information into the new participants database at the DMI Website. The same research abstracts that had been submitted in competition for the ETD Awards were copied to the database, where they were available for viewing by anyone interested in visiting the site. Students were also shown how to submit weekly progress reports online at the DMI Website. These progress reports served a three-fold purpose: to allow students to track their own progress; to allow faculty to assess student progress; and to give students the opportunity to indicate what we needed to explore in the workshops in order to meet their needs. We were all encouraged to join the listserv, which would be our primary mode of communication. Information necessary to set up student Web accounts on the exchange server was collected. It was announced that the dean of the graduate school had been invited to attend one of our upcoming meetings in order to learn more about how students were exploring new research and writing tools, and to discuss any concerns we might have about meeting graduate school requirements for our theses and dissertations.

In the next few days, several cross-postings to the DMI listserv from the ETD-L listserv stimulated discussion about preservation of ETDs. Life expectancy of electronic formats, perceived problems with migration of digital information to new formats, future lack of information readability and the death of reference links were among the topics aired. Because I had received more than a few “Error 404” (file not found) messages myself while working on the web and planned to include external links in this dissertation, the possibility that some of those links might disappear in the future, making it difficult if not impossible to access portions of my work, was of some concern. How could I guard against this kind of data loss?

In considering the problem, I decided it might be of some use to think in the context of print. One of the librarians on the ETD-L listserv had argued that 70% of all web sites cited in his university’s most recent theses now turn up “Error 404” (file not found) messages. In contrast, he noted, 80% of all books cited in an 1876 thesis archived in his library were still on that library’s shelf (Beaven). But how much of an argument was this really? How accessible were these vintage books on his library’s shelf? How many other copies of these books printed before 1876 were available at other university libraries? Should his library receive an interlibrary loan request for one of these pre-1876 texts, would it be honored? Or would scholars who desired to examine the reference source need to

travel to the physical library itself in order to view it? These seemed to be important questions. In fact, libraries are continually engaged in both the retention AND disposal of information. As Australian librarian Maggie Exon notes,

We know that we need to ensure the continuation of Newton's writings while vast quantities of poor and derivative scientific writing of the late seventeenth century is forgotten. The same applies, even more strongly, to the products of this 'publish or perish' era. . . . We will need to extend to the whole of knowledge ideas of retention and disposal which are already used to reduce vast quantities of records into useable archives. . . . we need to get rid of the notion that we can save a copy of every work published. That will no longer be possible. There is just too much (Exon par. 19).

It became clear to me that the argument for print as the superior means of enabling access to referenced works was in reality, rather weak. And as another conversant in this thread noted, the printing of theses and dissertations that reference web documents will not overcome "file not found" errors (Gladney). Yet, it would obviously be better to discover a way to mitigate the problem of dead reference links. What if I made screen captures of relevant portions of the referenced web sites and attached them as appendices? I could then link these screen captures to my list of references. This way, readers could view portions of

the reference source, even after it ceased to exist. All of the data need not be lost. I could also migrate the entirety of the referenced sites to CD ROM format, which would preserve them for 20-30 years at least. This seemed entirely acceptable, given that for many librarians, the maximum usable life of many sources of information is ten years. Scientific serials are a case in point; active usage of these articles dwindles considerably after a decade (Exon par. 20).

My experience of these discussions about permanence on both the NDLTD listserv and the DMI listserv is that they stem from what is sometimes interpreted as a binary construction of the library's dual purposes of *access* and *preservation*. Those most concerned with archiving theses and dissertations for use by future generations are more likely to favor requirement of a print version of all graduate student work; those most concerned with making theses and dissertations accessible for use by the current generation of scholars as ETDs are more likely to question the print requirement.

I find Exon's explanation of digital information's transformation of the concept of *permanence* to be useful in exploring ways that the boundaries of the access/preservation binary might be transgressed. She suggests that digitization calls attention to information's existence apart from any specific carrier; that the preservation of an information carrier (such as print) has never and can never guarantee that information will continue to be used; that progressive librarians are

now more concerned about the permanence of information itself rather than the permanence of its carrier. Use is the key to information survival; only information that is reproduced through use is preserved in any important sense (Exon par. 16). Accessibility is the key to use, and thus, the key to preservation of information. Our focus as graduate student writers of ETDs was generally on accessibility: we wanted our research made available to larger and broader audiences; we wanted our research to be accessible in interactive ways; we wanted to be able to receive feedback from scholars who read and built on our work—to reach out and tap into a community. One contributor to the access/preservation discussion from the DMI project, a marketing student from the College of Business, argued that archivists concerned about preservation of information in a digital world should consider the many business and government entities that

. . . deal routinely with storage and access of data records that are just as important as academic dissertations. Irreplaceable records involving taxes, payroll, proprietary research, investments, cash flows, payments, regulatory compliance, etc. are routinely not printed nowadays and entities rely fully on the electronic data forms, printing information only when necessary.

These data forms and processes are often within the IT realm called “mission critical” processes and the challenge for the IT folks is simply to



make sure the entity's data are accurate, retrievable for users and absolutely secure. The standards for being absolutely secure are quite high. Higher than for any paperbound data forms. (Gonzalez)

If other organizations outside academe have already wrestled with this issue and in many instances resolved it to their satisfaction, perhaps academe should get to work and empower its own technical support people to secure its own "mission critical" processes within the archives of the library. As this student put it: "I don't think we are "rushing" on ETDs. We're actually late to the party, IMHO" (Gonzalez).

Another contributor to this discussion, a student in the College of Medicine, posted these remarks:

My experience in the multimedia field leads me to believe that there are no formats in which video clips are saved today that will be inaccessible tomorrow . . . Basically, a digital medium will ALWAYS be readable by any computer, after all, it's just BITS of information . . . The simple fact is that digital information is the most stable, most reproducible, and most comprehensive format for information exchange and it will only get better in the future . . . The National Library of Medicine (NLM) spent \$1.4 million on a project named "The Visible Human Project which produced digital images of an entire male and female body captured in registration from head

to toe. The original intent of this project was to archive these images in a permanent medium . . . to DIGITALLY archive the most important project in anatomical history . . . Where would all this research be if we could someday lose the ability to read the format it was saved in? . . . Just think of the legacy we can leave behind as scientist[s] to our followers with this new digital medium. (Coty)

Another librarian's perspective I find useful in examining technology's impact on archival issues is that of Lester Asheim, a no less than visionary man who wrote the introduction to the published proceedings of a conference entitled, "The Future of the Book." It was the Twentieth Annual Conference of the Graduate Library School of the University of Chicago held in June 1955. Information theory was in its infancy then, but already, forward thinking library scholars like Asheim understood what its implications were for print:

If we follow through on the objective of communication theory, which is to measure the difficulty in transmitting the message from one point to another over different kinds of channels, we may well find that the nature of the channel imposes an encoding element which is ill suited to a particular message or a particular audience . . . the book is no more a universal channel for all messages than is a painter's canvas or a phonograph record. (12)

Asheim saw the library as a social agency that must not isolate itself outside the

flow of social history and development, but must respond to the current trends within that flow. He understood the important effects that improvements in patterns of communication have on libraries, that these effects can be revolutionary, and that libraries must change dynamically to meet society's changing needs. He viewed the library as an agency concerned primarily with communication (1-2). Perhaps it might be useful to conceive of communication as an interstitial "third term," an intervening space in the access/preservation binary that could allow us to transgress its border and look beyond traditional constructions of both terms. Communication both provides access to information and facilitates its preservation through use. The evolving genre of ETDs provides scholars with a new communication channel, a new and more effective means of ensuring both access to and preservation of information. When scholars can access relevant information more quickly through an international database of ETDs, they can more efficiently build on and incorporate the work of others into their own, thus preserving information at the same time they transform it into new knowledge according to their own perspectives.

Asheim warns against "a sentimental devotion to a vested interest" in older communication technologies, naming such devotion as one of the "major deterrents which have always blocked understanding of innovation and change . . . dangerous because [it] could blind us to the shape of the future and tie us to a

superseded past” (2). My experience with our pilot project as well as my participation in NDLTD meetings, their listserv and the ETD 2001 international conference, has revealed that despite intense resistance to eliminating print dissertations, many university libraries worldwide and a growing number in the United States are embracing the concept of digital archiving of these works. Innovative, talented, and enthusiastic librarians at all organizational levels are working to resolve migration, retrieval, and preservation issues in order to ensure the security of digital archives, now and for the future. They are developing expertise and comfort with managing digital assets of all kinds. Standards initiatives are already in progress to develop tools and active migration practices necessary for long-term interpretability of bit-streams. Much of the resistance to ETDs I have seen has come from faculty and administrators rather than librarians. Faculty in particular seem to exhibit the “sentimental devotion to a vested interest” Asheim speaks of, perhaps because their own futures as publishing scholars are so closely tied to the future of print. They view the publishing futures of their graduate students similarly, when in all likelihood, as communication and information technology continues to advance at an exponential rate, the publishing world of their graduate students will look quite different. Faculty reluctance to allow today’s students to experiment with digital writing and publishing technology may actually serve to inhibit their chances for

professional advancement in the future as more and more technologically savvy generations of scholars emerge on the scene of academe.

At the level of the political, disciplinary power structures are also at stake. The print journal article is, as Winston has noted (55), the unit of capital that warrants power in the economy of academe. Yet many graduate students writing ETDs today will likely continue to work to transform this unit of capital into new genres of digital scholarship tomorrow. Print has for many years struggled to include content that paper cannot carry well; now that multimedia, interactive databases and the capability to make them immediately accessible worldwide are all possible, why would the next generation of scholars not take advantage of the opportunity to develop and broaden their use? Even though the ideas and hopes of students like Tom Phillipe of our pilot project—who wanted to build an interactive database that would serve as the results chapter of his dissertation—have been summarily dashed by their committees (Phillipe), others like [Livio Tornabene](#), author of [The Gatun Structure](#) (Tornabene), and [Mark Coty](#) whose dissertation makes use of streaming video and animation (Coty ), will garner support for their projects from mentors who understand the value of their contributions to the field. Published scholarship as we know it will change; traditional structures of peer review will change; and graduate students who innovate with ETDs will play an important role in shaping these changes as they

experiment with new media to transform traditional research genres.

As we worked together in weekly meetings to learn about Microsoft FrontPage and its capabilities when used with the exchange server, we shared online our frustrations with the technical difficulties that occasionally and inevitably arose:

Well ive sat here at my computer for a couple of hours wrestling with frontpage . . . trying to get my page rolling, and no luck . . . each time I try to start a new web, or begin work from an existing one it tells me it cant find the server. . . . ok this is probably not that hard to figure out, and ill look like a fool. But im starting to lose it trying it on my own. (Sterner)

But technical support from our Instructional Technology member of the project, faculty input, and the growing expertise of other students were never more than a post or two away on the listserv. One of the faculty created a “tip” site, <http://dmi.usf.edu/cochrane/tips>, with “how to” instructions for including hot links in the body of text fields in data display pages and other ideas—“it’s where I basically store notes about tricks I’ve discovered” (Cochrane). We were becoming a community of innovators, learning and supporting each other. Sometimes discussions about tools students had discovered research uses for on their own, such as PDAs, popped up:

I am using Palm OS 3 (I think) and it syncs with Outlook Express—also have a document sync soft (third party) that works with Word and Excel—I

find it incredible to edit and create (if you are smart about I) docs on my Palm for printing and other use. (Isin)

Hadn't really thought about it, but now that there is software to sync Word with Palm it could really be useful for notes and such. I could see where you would do a library search, mail the refs to yourself, and then sync with Palm to go to the library for hard copies. . . . You could do all of this with any PDA that has the software. . . . As with most technology, it could be really useful if you remember it is there and use it. The more you use it the easier it gets and the more ways you think to use it. (Burkette)

Here were Certeau's "tricksters" in action, transforming Microsoft FrontPage and Palm Personal Digital Assistants into powerful research tools. My own use of the Sony ICD RPC100 digital recorder, a tool developed and marketed to record voice messages for later attachment to email, was another example of trickster behavior that emerged from the project. I used it to create the WAV sound files of the subjects I interviewed that are embedded in this dissertation. All of us were discovering new ways to apply Microsoft FrontPage features to collect data and present our research. We were, as consumers of technology, producing new uses for that technology, writing as well as being written upon, exploiting the enabling power of technology even as we worked within its constraints.

On March 2, 2001, Dean Dale Johnson of the USF Graduate School visited the Friday meeting of the DMI group to answer questions about the Graduate School's position on ETDs. We felt it was important that he see our faces, understand that we were creating new media scholarship, and view online examples of such work completed by others. We presented [Christine Boese's](#) ethnographic work in an online community; in it she de-centers the authority of the traditional print text by refusing the convention of univocality. Her dissertation enacts dialogism and heteroglossia, minimizing the possibility that any two readers will create the same information relationships within the document as they forge their own paths through it. [Keith Dorwick's](#) dissertation about teaching in online environments contains a chat space that anyone who enters the document may log onto, perhaps encountering others there with whom to engage in conversation about the dissertation itself. We made clear our concerns about how nonlinear, multimedia theses and dissertations like these would meet existing format check requirements at the Graduate School, including whether we would be required to produce traditional, linear print versions of electronic documents which might well require substantial additional work on our part.

Also present was Monica Metz-Wiseman, then Director of the Virtual Library, who assured us that the library certainly would not require a print version of us,



but that it was important for us to understand that the library could in no way guarantee the preservation of our electronic documents over time, as it could not guarantee that arrangements for either maintenance or migration of documents to new formats would occur. She suggested that formal waivers might be signed by students, relieving the library of responsibility for the preservation of their documents.

Dean Johnson, after repeated pressure to answer the question about format checks directly, stated that for those of us whose documents could not and would not be submitted to the library in print, the required Graduate School format check would be waived. However, he was unwilling to acknowledge the need for an official change in written policy. And it is only here, at the level of written policy, that institutional change can take place. As James Porter, et al., note, rhetorical action, often in the form of a simple textual change in a process or policy, can change the way an entire institution perceives its relationship to its users (611). When graduate schools who have always worked with traditional print theses and dissertations are faced with growing numbers of graduate students, faculty advisors, and library administrators who interrogate the need to produce these traditional forms of scholarship, they may find their relationships with these “users” begin to pinch as the demand for change increases. Graduate schools are accustomed, for example, to requiring graduate students to format their

dissertations according to specifications generated by library archival staffs. However, when libraries no longer require print copies at all, when students and their advisors insist that format checks for nontraditional electronic documents must be waived or that new specifications must be generated for these nontraditional documents, the relationships graduate schools have with these agencies and agents are perturbed. The tale of how this perturbation continues to play out at the University of South Florida has so far been a somewhat baffling, frustrating, and perhaps even bizarre narrative.

Over the summer of 2001, I interviewed the first two students from our project to finish their work and graduate with M.A. degrees in architecture and in engineering. [Lilian Menendez's](#) thesis contains many color photos and images as well as streaming video of a therapeutic communal art project at a battered women's center in Puerto Rico; [Tatiana Hernandez's](#) thesis includes a number of color graphs and charts that display technical information. Both had attempted to submit HTML versions of their work to the graduate school, but had been told that they must produce a print copy in order to meet the format check requirement. They would not be permitted to graduate until this requirement was satisfied. Although both inquired about the waiver Dean Johnson had publicly committed to, the graduate school secretary told them that she was unaware of any format check waiver and that no such policy alteration had been made. Both were

anxious to get on with the process of meeting their requirements for graduation, and so both reluctantly agreed to produce linear print versions of their nonlinear HTML documents.

The library did not require these print versions; they were required by the graduate school only for the purpose of conducting a format check—a format check for a document which the library had no need to archive, since it would accept the HTML versions of the theses for both archiving and circulation. The process of producing the required linear text was unnecessary and time-consuming, and both of these students were arguably punished for their innovative use of new media in their research.

Several copies of posts on the DMI list expressing sincere and justifiable concern about this issue had been forwarded to the Dean, a lower level administrator, and the secretary of the graduate school. The Dean declined to respond; the administrator repeatedly foisted the problem onto the library staff, and the secretary reiterated that she had no information and no procedure to follow. One student expressed his outrage at the situation this way:

I was told, time and time again, that a Paperless Thesis / Dissertation would satisfy my requirement for graduation. I figured that the Dean's word would be enough to go on this by. To make matters worse I am now past the point where a paper thesis would even be an option for me, and I certainly

do not have an appointment for a format check. I have spoken to Monica whom

urged me to make a paper document, or at least a print-out of my e-thesis that could be bound, and this is fine by me, however, I have by no means time left to finagle the paper version into the proper format, which doesn't nearly hold the usefulness and the impact that my e-thesis will have once it is completed. I need this e-thesis, and quite frankly, there's no turning back now!

I have been accepted to my PhD. program to commence in this coming Fall. Time is running out. Is this going to be a severe problem for me regarding graduation? Am I going to have to put up a fight to fore fill my requirement, which I believe that my work has whole-heartily done?

Someone

please help to clarify this situation and please let me know what needs to be done, so that I can be merrily on my way by mid-August. (Tornabene)

His faculty advisor expressed his concern as well:

My understanding is that . . . you can do an ETD with no paper, there is no paper format check, and two paper copies do not have to be handed into the Graduate School. If this is not true, then someone in the Graduate School is going to have Hell to pay. I went round and round on this last semester

regarding my MS student Livio Tornabene, who will produce an E-thesis which cannot be generated in any coherent way on paper. . . . Our intent is to turn into the Graduate School two CDs which include Mr. Tornabene's complete thesis in hyperlinked, HTML format. . . . Paper copies defeat the purpose of the E-thesis option—if any organ of the Univ. is going to insist on them, then we should abandon this exercise, as it just makes unnecessary, and unfair, extra work for our graduate students. We need to move on from this. (Ryan)

At a recent meeting of the Graduate Council, Director of Electronic Collections Monica Metz-Wiseman presented a report on ETDs at USF covering their history and background, the current state of our collection, our current practices for handling and archiving these works, and her recommendation that the university endorse and support the current efforts that surround ETDs at USF, including the consideration of mandatory electronic submission. Metz-Wiseman has supported the efforts of the pilot project since 1997-98 when the server and search software were first set up at the library to host an ETD collection. She has often described the server as an empty nursery, anxiously awaiting the arrival of ETD “babies,” who seem to be suffering from an interminable labor. With regard to current handling practices, she revealed that an agreement had been reached with the Dean and other administrators at the graduate school to allow students writing

ETDs in HTML format to submit only a URL and a CD-ROM version of their work to the graduate school. She reminded the council that USF's sister institution, the University of Florida, had begun requiring ETDs in the fall of 2001. The question of whether or not USF should move forward with ETDs was remanded to the Policy Committee for a one-month review.

Although it now seemed that we would no longer be required to submit our work in print, this new and as yet unwritten "policy" has yet to be tested. In a conversation with Metz-Wiseman following the Graduate Council meeting, we joked about her willingness to meet with the Policy Committee "for thirty days and thirty nights, fasting and praying in the wilderness" of the institutional hierarchy (Metz-Wiseman ). As graduate students writing ETDs, we are engaged in what Porter, et. al. refer to as institutional critique:

Institutional critique examines particular institutional formations that are a local manifestation of more general social relations, nodal points in the rhetorical relationships between general social (if not sociological) processes and local practices. . . . We focus, then, on institutions as rhetorical systems of decision making that exercise power through the design of space (both material and discursive) . . . (621).

ETDs are, in and of themselves, rhetorical institutional critiques aimed at change. The traditional linear print dissertation is a nodal point in rhetorical relationships

that exist between graduate schools, libraries, faculty committees, and students; perhaps more importantly, it is a nodal point in the rhetorical relationship between disciplinary elites and emerging scholars. Dissertations are designed, material and discursive spaces through which power is exercised. We wish to re-design them, and such a wish is, for many of us, no less than a wish to rewrite the institution of the university at many levels. Yet, as James Sosnoski writes: “Institutions, like all social contracts, can be rewritten. However this is not a simple process” (Sosnoski 212).

Porter, et. al. admit that dissertations can be instances of institutional critique, with the following qualification:

To qualify as institutional critique, a research project has to actually enact the practice(s) it hopes for by demonstrating how the process of producing the publication or engaging in the research enacted some form of institutional change. . . . It necessitates that changed practices be incorporated into the very design of the research project. . . . This proposition also suggests that we be more patient in judging the effects of research practices and publication (which hopefully includes publication in a number of forums, not just the disciplinary forums that “count”) . . . (628).

Clearly, ETDs meet the qualifications of enacting institutional change both in the process of their production and by incorporating change into the design of their

projects. At the same time, their publication on the WWW guarantees an audience far broader than that of traditional print dissertations. Porter, et. al.'s call for "patien[ce] in judging the effects of research practices and publication" is an admonition appropriate to the cause of new media scholarship as well. Those of us writing and mentoring the writing of ETDs have much to learn; the design of our work is exploratory, and many of us lack the training and resources we need. The core of any institutional effort to encourage graduate students to make use of new media in their research and reporting should be the provision of training in the use of new media tools and in electronic document design. This has been the focus of our pilot project, and many students participating in the training sessions have frequently expressed a genuine gratitude for making the technology accessible to them and dispelling the mystery surrounding its effective use.

In March, the [ETD 2001](#) Conference was held at Caltech in Pasadena, California. I had reluctantly committed to putting together a panel of graduate students for the conference at an NDLTD Steering Committee Meeting in Washington D.C. the previous September. But with Professor Moxley's encouragement, I had succeeded in locating five presenters to showcase their research or discuss their involvement with ETD projects at other universities. The annual conference had never included presentations by the authors of ETDs themselves, and the NDLTD was anxious to include us in the program. In fact,



the conference coordinator was so impressed with our presentation abstracts, we were asked to present at a plenary session in addition to our scheduled break-out session. I had met none of my panel's participants face-to-face; all had responded to my call for participation online, and all of our communications over the past few months had taken place online as well. When I finally arrived at Caltech after a six-hour flight and a harrowing ride on Los Angeles freeways, I was extremely nervous.

But the conference was a tremendous experience. Our plenary session engaged the audience in just the way I had hoped for; Dr. Shannon Bradford's presentation of her recently defended ETD on the *Australian Theatre of the Deaf* intrigued them; doctoral student Rich Gonzalez's demonstration of how online consumer conversations increase the flow of product and service information amused them; and my provocative stance on intellectual property issues solicited discussion about how attempts to protect intellectual property rights through restricting access to ETDs might work to undermine the most important goals of the NDLTD. Many internationals with whom I spoke shared my concern for the growing practice of restricting global access to ETDs—as much as 40% of some United States collections are restricted to campus access only. The problem this poses to achieving broader access is, I believe, an obvious one. Warned by faculty advisors that their future prospects of “legitimate” publication in print may

be jeopardized, students are more and more likely to deny global access to their online research ([2000/2001 Author Survey](#)). The following post from the DMI list expresses an attitude that seems to drive much of the faculty resistance to open access:

Ok, it's late at night, but there are a bunch of real world arguments involved here.

First, a quote from a classic Tom Lehrer song:

“Plagiarize, let no one else's work evade your eyes,

Remember why the good Lord made your eyes,

So don't shade your eyes,

But plagiarize, plagiarize, plagiarize...

Only be sure always to call it, please, research.”

In other words, if you post it it will be stolen. . . . The reality in science for graduate students: For the foreseeable future [their] careers will depend on the quality AND ACCEPTANCE of their own peer-reviewed research. And that means that they as researchers must be able to control access. And if the ETD movement says that that cannot be the case, then at least in the sciences it will fail. . . . Conclusion—if open access is to be a given in ETDs, then at least in the sciences (and possibly other disciplines) the movement will fail. The reality is that the existing system with all its warts, has been successful,

and few of us who have seen its successes are ready to discard it. (Cochrane)

One of the prevailing themes that informs this attitude is that progress and achievement in the sciences, or in any discipline for that matter, is advanced by competition. And admittedly, many researchers have been and continue to be driven by the threat of being beaten to the results by someone else engaged in a similar project. But for every story told of the production of new knowledge as a result of intense competition, another story can be told of advances made as a result of sharing and cooperation. The rhetoric of the [NASA](#) Web site, for example, is replete with references to the benefits of international cooperation in the field of space exploration. And as always, which stories get privileged over others depends on who does the telling. My initial attraction to the NDLTD project had come in large part from a desire to be part of a movement that fostered global sharing of new knowledge; it was becoming clear to me now that author-centered interpretations of intellectual property rights could substantially undermine the objective of global sharing—that a substantial amount of graduate student research might actually become less accessible in electronic form than in print.

Subsequent student posts to the DMI listserv demonstrate how quickly such concerns multiply once they are publicly articulated:

I seem to recall there was a short discussion on this list about the security of

postings to the DMI server. If we post what we have so far in the way of a dissertation/thesis, is that . . . transparent to search engines and others out there in cyberland just surfing around . . . I am a bit leary about putting my “baby” up there. I remember Bruce had a really good point about publication and piracy . . . (Burkette)

I have questions about setting security also. Would it be possible to either have an on-line chat or brief lab session about setting security on our sites?  
(King)

Although these posts likely refer to work in progress, it is also likely that their authors’ concerns will translate into some form of restricted access for the final product of their research. The current [USF Graduate School Electronic Thesis and Dissertation Submission ETD Approval Form](#), Parts A and B, allows students to elect to (1) release the entire work immediately for access worldwide; (2) release the entire work for USF access only; (3) secure the entire work for patent and/or proprietary purposes for up to 3 years; (4) release the entire work for USF access only, while at the same time releasing abstract and key bibliographic data and other specific files for worldwide access.

It is now October, 2001, and we have yet to resume our weekly meetings which dwindled in number during the spring due to faculty travel and substantial

time spent preparing a FIPSE grant for the project which, although accepted for consideration during the first round of evaluations, was later removed from further consideration. One online chat session was scheduled over the summer, but attendance was sparse, and although we agreed that a “show and tell” presentation of some of our work at a future Graduate Council meeting might further their interest in and support of our efforts, no plans to deliver such a presentation were made.

However, in November, due to the persistent campaign of ETD proponents like librarian [Monica Metz-Wiseman](#), the Faculty Senate did reach a decision not only to fully support ETDs, but to require that all graduate students entering their programs at USF in the fall semester of 2002, as well as all those to follow, would be required to submit their theses and dissertations electronically.

Much work lies ahead. Communication of this new requirement and its full ramifications for faculty, graduate students, and graduate school administration and staff is critical. Brochures and Websites conveying this information need to be written, designed, published and disseminated to all affected by this far-reaching change. Online workshops for both students and faculty need to be developed that cover issues of copyright and choice of access, and that encourage graduate student scholars to carefully consider the ethics of restricting their research from access by the national and international scholarly community.

Computer labs must be put in place to provide workstations, software, and technical support staff for students writing ETDs. And standards need to be developed for the presentation of dissertation research—standards which facilitate the development of a useful and easily navigable digital collection of works, but which do not unnecessarily constrain the use of software and design considerations graduate students deem essential to their research. Careful consideration of these requirements and their full support will contribute substantially to making this transition smoothly. The potential ETDs have to transform graduate education in ways that benefit both students and the scholarly community depends upon it.

# Sound Files and Sample ETDs

## INTERVIEWS (WAV)

[Martha \(Graduate Student\)](#)

[Delphine Lewis \(UMI\)](#)

[Livio Tornabene \(Graduate Student\)](#)

[Mark Coty \(Graduate Student\)](#)

[Monica Metz-Wiseman \(USF Librarian\)](#)

## ETDs

[Livio Tornabene](#)

[Tatiana Hernandez](#)

[Lilian Menendez](#)

[Christopher John Frost](#)

[Keith Dorwick](#)

[Christine Boese](#)

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