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ELECTRONIC ACADEMIC JOURNALS: AN ANALYSIS OF

THE STRIATED AND SMOOTH SPACES

OF ELECTRONIC JOURNAL FORMS

by

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A DISSERTATION

IN

ENGLISH

Submitted to the Graduate Faculty
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the Degree of

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Approved

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Chairperson of the Committee

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ABSTRACT

While print classic journals have been analyzed in depth, electronic academic journals have not yet been widely studied. This dissertation looks seriously at this new form of knowledge making and knowledge dispersal in order to reveal characteristics unique to electronic journals, showing advantages and opportunities for scholarship and knowledge making that are not afforded to print journals. With the appearance of electronic academic journals comes many questions. The three questions that I focus on are:

> How does digital communication (specifically, electronic academic journals) sustain and advance the discourse and distribution of knowledge in the field of computers and writing?

> What advantage(s) do digital means of distributed knowledge offer readers that print academic journals cannot?

> What are the research and pedagogical implications of electronic academic journals for the field of English, specifically computers and writing?

The method I use to analyze electronic academic journals is interpretive, through a historical and rhetorical study. Specifically, the theoretical lens being employed to examine them is Deleuze and Guattari's concept of

smooth and striated spaces. The smooth/striated continuum can be used in all areas of discourse analysis. It provides a tool for looking back at the rhetorical spaces already created while at the same time offering a guide for the development of new electronic spaces.

Electronic academic journals have the potential for a broader audience than print academic journals, they are more economical to produce than print academic journals, and they are also quicker to respond to current issues than print academic journals.

There are many implications of electronic academic journals for the field of English. One implication for the field is that research needs to adapt to the medium of electronic communication. Second, pedagogy must take into account electronic environments. Third, there needs to be new ways to create rhetorical space in this new medium. Fourth, the face of the beginning professor is changing--he/she will need to know how to navigate successfully in the new medium.

On a broader level, publishing companies will be changed by the demand of electronic technology. Finally, another implication for all societies using electronic communication is the issue of cultural differences and the Americanization of the World Wide Web.

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CHAPTER I

INTRODUCTION

This dissertation evolved from an interest in electronic journals that developed while I worked on an online hypertext journal as Assistant Editor. The goal of this dissertation is to analyze a new form of scholarly communication—electronic academic journals—not with traditional print-based models of analysis but with a model of analysis that allows for the convergence of multiple media in a common space. Gilles Deleuze and Felix Guattari provide the concept of smooth and striated spaces that I will use as my interpretive model for rhetorical analysis.

In 1995, a group of graduate students began discussing the creation of an electronic journal that would give voice to those doing cutting-edge work in the field of computers and writing. We wanted a journal that celebrated a new form of writing, hypertext. The group consisted of: Mick Doherty, Amy Hanson, Mike Salvo, Greg Siering, Jason Teague, Corey Wick, and me. We were from all over the nation, all interested in the computers and writing field and the developments occurring in this exciting area. Mick Doherty, the one who initially came up with the idea of the journal, had some ideas about

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what roles he wanted performed and by whom, but the resulting positions were primarily derived from the process of time, work and dialogue.

Once the process of creating the journal started, I created a communication structure statement in an attempt to put to words what was taking place. Basically, there were three interdependent areas: staff, editorial board, and contributors. The staff positions created to start *Kairos* were the Editor (Mick Doherty), Assistant Editor (Elizabeth Pass), Managing Editor (Mike Salvo), Links Editor (Greg Siering), Production Editor (Jason Teague), Chief Copy Editor (Amy Hanson), and News Editor (Corey Wick). We created these positions as we developed the journal and saw the need for certain functions to be performed, and as we saw our individual strengths fitting with those functions. This dynamic process changed and evolved over time. The editorial board positions were people in the field of computers and writing that would help the contributors peer review and ready their hypertexts for the journal.

As Assistant Editor, my role was basically concerned with the feature hypertext contributors. The following is the general job description of the Assistant Editor taken from the "Communication Structure Draft":

> In general, the Assistant Editor works with the
> contributors, answering all correspondence of
> inquiries, submissions, questions, coordinating
> the accepted submissions for the next issue,

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> handling rejected submissions, following-up
> with contributors; and with the edboard, assigning
> them to contributors, following-up on progress,
> and passing on reviewed htexts [hypertexts] to
> the staff. Periodically, he/she will inform the
> staff coordinators of status (up to his/her dis-
> cretion) and, less periodically, inform the staff of
> status. The Assistant Editor will copy correspon-
> dence sent to him/her to the appropriate parties.

The role of Assistant Editor, like all the roles of the journal staff, was never set in stone and was continually being renegotiated and redefined as the journal itself evolved.

Mick Doherty created the journal's name. Kairos is a Classical Greek term with a simple definition of "right time, right place." But Doherty explains that the term also has deeper meaning: ". . . the word has roots in both weaving (suggesting the creation of an opening) and archery (denoting the seizing of, and striking forcefully through, an opening)" ("Why "Kairos"?" paragraph 1). Doherty continues his explanation, saying

> In hypertextual environments, writers are not
> only learning to strike forcefully in the tradi-
> tional sense of presenting the correct words in
> the proper manner, but are also learning to weave
> a writing space that is more personal than the
> standard sheet of paper. We are writing dif-
> ferently; we are reading differently; we are
> learning differently; we are teaching differently.
> Kairos is a journal that addresses these facts
> individually and syllogistically . . . . The name
> of this journal did not come with-out careful
> consideration or intention. Kairos, the ancient

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> Greek term that can roughly be interpreted as a
> rhetorical combination of understood context
> and proper timing, carries implications in our
> developing rhetorics of hypertext and online
> communication. And as we borrow this ancient
> term for this new journal, we hope to call upon
> some of the many layers of meaning associated
> with this powerful word. ("Why *"Kairos"?"*
> paragraph 2)

The journal is thus designed to serve as a peer-reviewed resource for teachers,

researchers and tutors of writing at the college and university level. *Kairos*

deals specifically with the challenges of writing in hypertextual

environments.

The creation of *Kairos* was a process that involved a great deal of

discussion. What was being created was something that had never been done

before in the computers and writing field. There were no rules to follow. We

had to discover our assumptions, analyze our audience, draw on some of the

characteristics of other online journals as well as print journals, and balance

the needs of the audience against the purpose of the journal.

Many issues we discussed regarding the design and usability of *Kairos*

were difficult because no precedent had been set. The topics we were having

difficult discussions over were topics that had yet to be settled by others in

the field. For example, should the journal archive its issues, or is that

contrary to the ephemeral quality of hypertext? To what extent should the

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journal try to resemble a traditional journal to allow easy use by the reader? How cutting-edge should the technology be before the loss of access by the audience is too detrimental? Should well-established (i.e., tenured) scholars in the field be published in the journal, or should the journal be exclusively a place for cutting-edge, nontraditionally recognized (i.e., nontenured) scholars. These questions are still in the process of being answered.

While working on the journal, I noticed numerous electronic journals being published. Some journals are print journals that are being placed online, while some journals are created to be online journals. More and more, electronic technology is being used as a way to share ideas and distribute information (Kling and Lamb 17). And the form of electronic technology that I am most interested in and will concentrate on in this study is the electronic academic journal.

A problem arises when trying to define electronic academic journal. Electronic writing is a new form of writing, and self-claimed electronic academic journals do not always look like traditional print journals. Some online journals are print journals moved online (e.g., *Technical Communication Quarterly*). Some online journals retain much of the characteristics of print journals but differ in other ways (e.g., *Kairos*). And some online journals do not resemble print journals at all (e.g., *RhetNet*). However, for purposes of

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analysis I will define an electronic academic journal as: a journal pursuing scholarly interests with the electronic environment (World Wide Web) as its channel, publishing individuals from its discipline, and requiring a submission and peer review process.

Today there are a number of electronic academic journals in the field of computers and writing: *Journal for Computer-Mediated Communication, Computers and Writing, Computer Writing, Rhetoric and Literature, Journal for Advanced Composition, Kairos, PreText, RhetNet,* and *Technical Communication Quarterly.* Critics such as Lucky, Postman, Stoll, Snyder, and Talbott claim that the electronic academic journal is nothing more than a passing phenomenon, and certainly not a forum for serious scholarly work. However, the growing presence of electronic academic journals cannot be denied.

While print classic journals have been analyzed in depth, electronic academic journals have not yet been widely studied. This dissertation will look seriously at this new form of knowledge making and knowledge dispersal in order to reveal characteristics unique to electronic journals, showing advantages and opportunities for scholarship and knowledge making that are not afforded to print journals.

With the appearance of electronic academic journals comes many

questions. The three questions that I will focus on are:

How does digital communication (specifically, electronic academic

journals) sustain the discourse and distribution of knowledge

in the field of computers and writing?

What advantage(s) do digital means of distributed knowledge offer

readers that print academic journals cannot?

What are the implications of electronic academic journals for the

field of English, specifically computers and writing?

The method I use to answer these questions is interpretive. Specifically, the

theoretical lens being employed to examine electronic academic journals and

to answer these questions is Deleuze and Guattari's concept of smooth and

striated spaces (*A Thousand Plateaus*).

Gilles Deleuze and Feliz Guattari defined cultural spaces in terms of

smooth or striated. Cultural spaces are where culturally connected societies

interact, societies that are made up of similar cultural constructs. An example

of a cultural space would be American or Japanese society. Where Americans

see eye contact as a sign of respect, the Japanese often see eye contact as

disrespectful. The Japanese have smaller personal space than Americans.

The Japanese ordinarily do not touch each other as much as Americans do

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(Hamilton 130-166). In short, different cultures place different values on objects and concepts, and each culture operates based on its particular values.

The concept of smooth/striated cultural spaces has been applied to electronic spaces. Stuart Moulthrop (in Landow's *Hyper/Text/Theory*), for example, discusses Deleuze and Guattari's striated and smooth spaces and how they apply to technology and pedagogy. Striated space is

> the domain of routine, specification, sequence,
> and causality. Phenomenologically, it consists
> of the world of perception as processed by the
> coordinate grid or some other geometric structure
> into a set of specified identities. Socially, striated
> space manifests itself in hierarchical and rule-
> intensive cultures . . . . (Moulthrop 302-303)

Striated rhetorical spaces are authoritarian. The creator controls to what extent the reader/user can interact with the creation of the reading experience. The navigational paths are determined by the creator and the reader has little say in the way he/she can choose to read the electronic text.

Smooth space is defined

> dynamically, in terms of transformation instead
> of essence. Thus, one's momentary location is
> less important than one's continuing movement
> or line of flight; this space is by definition a struc-
> ture for what does not yet exist . . . smooth social
> space is mediated by discontinuities . . . . Smooth
> space is an occasion; Deleuze and Guattari call it
> a becoming. (Moulthrop 303)

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Smooth rhetorical space is less authoritarian. While the creator will ultimately always have some control, smooth texts give to the reader/user much of the decision-making regarding the path to navigate.

Deleuze and Guattari say that "all progress is made by and in striated space, but all becoming occurs in smooth space" (*A Thousand Plateaus* 486). Striated space has limits and can confine (*A Thousand Plateaus* 489); translated to hypertext, striated spaces force a path for the reader and predetermine the experience for the reader. Deleuze and Guattari claim that smooth and striated spaces exist only in a mixture--the smooth space being interrupted by the striated and the striated space being reversed, thus becoming smoother (*A Thousand Plateaus* 475). Therefore, this relationship exists on a continuum where the spaces that have fewer interruptions or striations are at the smooth end of the continuum and the spaces that are less often reversed are at the striated end of the continuum.

In this dissertation, I will apply Deleuze and Guattari's discussion of smooth and striated spaces to examine the continuum of online academic journals. Deleuze and Guattari's concepts reflect the idea that culture constructs reality, and that culture adds stratification. Following this vein, texts are a product of culture; therefore, applying the concept of smooth and striated spaces to socially constructed texts is not unwarrented.

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With the application of Deleuze and Guattari's concepts, I will determine where the online journals fall along the continuum of their concept of smooth and striated. This analysis renews the discussion of the definition of hypertext and hypertext theory, explores how hypertext and smooth and striated rhetorical spaces work together within the electronic academic journal, discusses what possibilities exist with an application of Deleuze and Guattari's smooth and striated continuum to texts, and discusses the implications that electronic academic journals have for the computers and writing field.

Methodology

Historical Analysis

In a historical analysis of electronic journals, I will focus on the characteristics of invention and the pattern of development regarding technology, and specifically how electronic academic journals fit into the historical pattern of development of writing technology. In order to understand invention and development, we need to see how past technologies were invented and developed. A technological/scientific development in one field is not isolated; like a pebble thrown in water, there is a ripple effect. The advent of the printing press had a profound effect on

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our culture, enabling the production and dissemination of texts in quantities never before imagined. This technological development, as Ong and others have shown, led to an explosion of the literacy rate. The development of computer technology, integrated into the classroom, has allowed students to write and share text more effectively than before. The development and adoption of MOOs have allowed scholars and researchers to gather in a space and share information, ideas, and opinions with more efficiency, immediacy, and consistency than previously allowed.

By looking at the technological shifts and scientific developments that have occurred throughout history regarding writing, one can see the process of development the electronic academic journal has, and will continue, to go through. While much is already available on the history of technology, my overview focuses on the characteristics of invention and patterns of development that have affected writing processes. This focus allows me to explore the beginning development and possible future pattern of development of electronic academic journals.

Rhetorical Analysis

Although Deleuze and Guattari prioritize smooth space over striated space for becoming, one is not necessarily better than the other in terms of

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text; they are simply useful for different purposes. Striated documents are good for information dissemination or retrieval--when the reader wants to get in the document, get information quickly, and get out of the document, or when the author has particular information he/she wants to impart. For example, this dissertation needs to be mostly striated because I am trying to make specific points and want the reader to follow a certain path, which is the structure I have created to explicate those specific points. Smooth documents are good for exploration, invention, interaction, and creation. In these documents, it is important for there not to be forced paths to follow so that the reader can play a more active role in the creation of the reading experience. For example, a hypertext fiction would need to have less striation so that the reader is exploring and experiencing the document and not reading to retrieve information for a specific purpose. Smooth text is not better than striated, nor is striated text better than smooth text; it depends on the rhetorical situation as to which is more effective. And how much smoothness or striation is in the rhetorical space depends on how much control the creator is willing to give up. If the creator gives up the control to the reader, allowing the reader to make many of the choices in the paths the reading experience will follow, then the rhetorical space will be smoother. If the creator retains control of the document, choosing the path the reader will

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take instead of allowing the reader to make those choices, then the rhetorical space will be more striated.

The same principle applies to journals. Whether a creator wants to create a smooth rhetorical space or a striated rhetorical space depends on the rhetorical objective and how much control of the rhetorical space the creator is willing to give to the reader. If the objective is to have a text that serves as a place to gather information, a clearinghouse of sorts, then the space needs to be striated and the creator will retain the majority of control of the rhetorical space. For example, many Web sites are designed to get current information to the reader. Medical sites updating readers on the current status of new medicines, new treatments, or new surgical techniques are designed to give the reader particular information in a particular fashion. Most medical sites do not allow the reader to help create the knowledge; they are there to impart the knowledge the medical community has and do it in a way that the medical experts feel is easiest for the reader to understand. Therefore, for medical sites and sites with the same rhetorical objective—to impart knowledge as an expert to a reader who is not an expert—it is important for the rhetorical space to be striated to allow for efficient information dissemination and retrieval.

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If the objective is to have a text that serves as an experience, an exploration, a place of invention, then the rhetorical space needs to be smooth and control given to the reader so that the user can experience the document more fully. Many hypertext fictions are examples of primarily smooth rhetorical spaces. These hypertexts give the reader a great deal of control in the path he/she chooses to navigate.

The idea of using smooth or striated spaces in a particular situation may be culturally dependent. For example, Japanese culture generally prefers correspondence to be indirect (spiral), to ask about the reader's well-being, and to establish a rapport before getting to the point of the correspondence. However, American culture generally prefers communication that is direct and to the point (Kitao and Kitao). Those from different cultures are therefore not always similar in their need for smooth or striated rhetorical spaces. That is, their cultural values will influence their preference for smoothness or striation. When creating the rhetorical space, in deciding how much authority to give up to the reader, the creator will be influenced by his/her culture.

The application of smooth and striated to rhetorical spaces can immediately reveal some differences. Print academic journals that have been placed online in their original form have a great deal of striation. The reader

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has little say in the paths chosen. Each node is very long; usually, each article is one long screen of text. Little attention is paid to electronic affordances such as icons, background color, and arrangement of links. For example, *The Information Society* is a print journal that has been put online in its original form (www.ics.uci.edu/~kling/tis.html). The result is several long nodes of text with little attention paid to the opportunities for smoothness that electronic technology offers. Other online academic journals have fewer interruptions, more choices for the reader.

An example of a smoother journal is *RhetNet* where issues released at specific times are irrelevant because HyperNews allows the journal to maintain more of a continual conversation (www.missouri.edu/~rhetnet/). HyperNews is a program that lets anyone respond to what has been written and lets everyone read all the responses that have been written. This feature allows the reader to engage in the conversation, all voices being heard. Also, icons and links allow the reader to navigate through the journal depending on what he/she wants to view.

Applying the smooth and striated continuum can thus reveal significant differences between the types of electronic academic journals, allowing the researcher and teacher a tool with which he/she can gather data and make future decisions regarding the development of electronic rhetorical

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spaces. Analyzing electronic academic journals using a model of assessment based on the continuum of striated/smooth can also reveal interesting characteristics of electronic academic journals Then the implications of smooth spaces in these journals--their affordances--may be discussed, and what smooth rhetorical spaces in electronic academic journals can do for our field can be explored.

Outline of the Dissertation

Chapter II: Background/Historical Overview

This chapter reviews technological/scientific inventions and developments that have affected writing, and places electronic academic journals within that history. More specifically, this chapter will explore how technological/scientific developments have affected the field of computers and writing. This discussion aims to reveal characteristics of invention and the pattern of development, and how electronic academic journals fit into this process.

By seeing how technology develops and is integrated into society, researchers may be more informed about the dynamics of the field of computers and writing and the pedagogy made more responsive to technological developments and society's reactions to these developments.

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The connectivity among the needs of the society, advances in technology, and shifts in paradigms produces evolving processes that affect how we view and use what we develop. Electronic academic journals have now become a part of that process.

Chapter III: Defining Concepts

Chapter III defines the pertinent concepts for this dissertation. The concepts come from the field of computers and writing as well as from the writings of Deleuze and Guattari and Ong. From the field of computers and writing, the slippery concept of hypertext will be explored, qualities of hypertext will be discussed, and hypertext and hypermedia will be differentiated. Also, the differences between print and electronic writing will be explained.

Deleuze and Guattari's concept of smooth and striated will be discussed, applied to rhetorical spaces, and defined as a continuum. The issue of creator control will be discussed and placed on the continuum. Deleuze and Guattari apply smooth and striated to rhetorical spaces, and refer to the rhizome as a textually smooth space. I will discuss the rhizome and its similarity to hypertext.

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I will end the chapter with a discussion of Walter Ong's writing on orality and literacy (*Orality and Literacy*) and how they apply to hypertext and smooth and striated rhetorical spaces.

Chapter IV: Sustaining the Discourse: Rhetorical Analysis/Deleuze and Guattari Continuum

Applying Deleuze and Guattari's concept of smooth and striated spaces to electronic academic journals allows an analysis of electronic academic journals. This approach reveals differences in print and electronic journals. Once the Deleuze and Guattari continuum is applied to the journals, this section evaluates digital communication.

This chapter will also discuss the categories of assessment for smoothness or striation. Rhetorical spaces are created, and what determines how much smoothness or striation exists in the rhetorical space is the degree of power the creator is willing to give up to the reader. There are four categories of assessment for smoothness or striation in a rhetorical space: first impression, author/editor presence, reader interaction, and temporality. Looking at the interaction between these four categories, or assessors, allows us to estimate the degree of smoothness/striation. I will analyze several electronic journals for their striation and smoothness. After explaining the model of assessment for smoothness and striation, this chapter will discuss

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the affordances of the smooth spaces in electronic academic journals in the areas of theory and research, pedagogy, and production.

Chapter V: Advancing the Discourse: Affordances of Smooth Spaces

In Chapter V, I will answer the questions from Chapter I:

How does digital communication (specifically, electronic academic

journals), sustain and advance the discourse and distribution

of knowledge in the field of computers and writing?

What advantages do digital means of distributed knowledge offer

readers that print academic journals cannot?

What are the research and pedagogical implications of electronic

academic journals for the field of English, specifically

computers and writing?

Regarding the first question, I conclude that for two main reasons electronic academic journals can sustain and advance the discourse of the community. First, electronic academic journals are part of a predicted historical pattern. Part of the process of the development of technology is creating and organizing a body of knowledge, and part of that process is dispersing information. Before writing, knowledge was spread through oral tradition. With writing technology, knowledge was shared through letters.

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When printing was invented, periodicals and books sustained and advanced the discourse. Now that electronic communication is available, knowledge is shared through this venue, and electronic academic journals are a natural part of that medium.

Second, electronic academic journals have a potentially broader audience than most print journals. For most academic communities, there are numerous regional print journals, several national print journals, and a few international print journals. These print journals have a relatively controlled audience; however, electronic academic journals on the World Wide Web are intrinsically international. The potential audience is limitless.

In answer to the second question, electronic academic journals offer readers three main advantages. First, they augment the reader's interactive experience. Electronic journals are not as limited by physical constraints, such as the size of the page, the length of the articles, and the requirements for font and point size as are print journals. The reader has more control over the reading path with links to inside and outside sources and search engines. The reader's sensory experience can be more heightened with electronic academic journals. Sound, sight, color, dimension, and moving images all add to the reading experience.

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Second, electronic academic journals are more economical to produce than print journals. If the journal is housed on an already available server at a university/college/community college, then the cost is minimal. Also, library budget cuts and cost of paper make print journals almost a luxury.

Third, electronic academic journals are quicker to respond to current issues than print journals because the production cycle of print journals is at least three months. Electronic academic journals do not have to publish on regular schedules; with HyperNews, the electronic journals can have the ultimate "Burkean parlor" of a continual conversation. These three reasons why electronic academic journals can sustain the discourse of the community will be discussed in detail.

I will also explore the implications of these newly created spaces for journals, theory, pedagogy, and research in the field of English.

Writing in an electronic environment does not guarantee hypertext results. It does not guarantee reader involvement, nor multiple paths, nor a new form of writing. But creating smooth spaces will. Hypertext writers, researchers of electronic environments, and teachers in electronic environments can utilize the smooth/striated continuum to inform their approaches to electronic writing.

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CHAPTER II

HISTORICAL ANALYSIS

Understanding technological inventions and developments in the technology of writing and how they have affected academic disciplines as well as society in general is important to understanding electronic academic journals. We need to know where we have been and where we are in order to understand why we are here and where we want to go. Electronic academic journals are a new form of communication, and to understand them and what they can do we must understand how they fit in the history of writing processes. Also, understanding this new form of writing helps us to utilize electronic journals to their best advantage. This chapter seeks to place electronic academic journals in the process of history. Electronic academic journals are a part of the development of writing technology.

In this chapter, I discuss the characteristics of invention and the pattern of development in a way that may seem to reduce and draw sharp boundaries around historical information. However, in order to understand the process of writing technology and how electronic academic journals fit into it I am putting artificial boundaries around chronological development. I do this with the understanding that such a process sacrifices some of the

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complexity in order to gain descriptive clarity. To understand historically how we react to the introduction of inventions and technological developments is important to understanding our society. And understanding where electronic academic journals fit into this historical development is important to understanding the field of computers and writing.

In this chapter, I will discuss the characteristics of invention and the pattern of development, and show how electronic academic journals are going through the pattern of development. Because this dissertation is focused on electronic academic journals, my historical focus is on writing technology.

Invention and Development

Invention and development are processes that technology goes through. These processes are not clearly defined: the characteristics of invention are not obviously separate from one another, and the pattern of development does not have sharp chronological breaks. The characteristics of invention can intermingle, and the aspects of the pattern of development can occur simultaneous or develop in different orders. This section examines the characteristics of invention and the pattern of development, and places electronic academic journals within this process.

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Cardwell discusses the two stages of technological advances: invention and development. With regards to Johannes Gutenberg's invention of the printing press in 1454, Cardwell says that Gutenberg had to solve the problem of printing in the theory stage, then he had to make the invention work (51). The importance of distinguishing between the two stages is that the development stage is where all the problems with the invention are worked out. The problems could not be solved in the theory stage of invention because certain technological difficulties could not be predicted: the invention had to be working in order to discover the problems. For example, the development of ARPA net was not without problems. Like all technological advances, the creation of the networked computers went through the process of development. Theoretical ideas had to be fleshed out, computer hardware had to be tweaked, computer software had to be corrected, and timing chains had to be recalibrated. The development stage allows the invention stage to succeed.

Characteristics of Invention

There are several characteristics of invention. According to Cardwell, in ancient times, "The discovery and exploitation of metals was, together with the inventions of numerical symbols, arithmetic and the alphabet, the most

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important . . ." (16). The invention of writing—an invention arising from the need to communicate—is important to societies (Cardwell; Derry and Williams; Ochoa and Covey). Over time, the need for the printed word grew, and its impact on society irreversible. Derry and Williams state that there are four stages in the technology of recording: speech, writing, printing, and photography, but

> printing is the most important of the four because
> its impact on society can be viewed in full, from
> the stir made among the literate few by the first
> inventions in the fifteenth century to the effects
> of almost universal literacy among western nations
> 400 years later. (214)

With inventions (for this dissertation writing will be the invention examined), one can see certain characteristics.

Inventions can arise from an existing need, or create a new need. For example, with publication of texts becoming easier, periodicals were invented because the public felt a need to obtain information more quickly and frequently. The public was hungry for current and quick communication and periodicals, in all languages, filled the need. As the need for information increased, more inventions were created and developments made to improve the production of information. For example, in 1725 Plaster of Paris started being used to cast metal printing plates, increasing efficiency and decreasing costs (Ochoa and Corey 85). William Church patented the first typesetting

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machine in 1822, which further increased the efficiency of producing periodicals. In 1844 German Gottlob Keller developed the wood-pulp paper process, which allowed for periodicals to use more inexpensive paper (Ochoa and Corey 133, 154). This advance allowed for more periodicals to be manufactured to meet the need of society for information. Then, in 1870 American Richard Hoe developed the rotary press, which allowed for a page to be printed on both sides. Periodicals were again helped with the invention of the Linotype typesetting machine (patented in 1884 by Ottmar Mergenthaler), that mechanized part of the typesetting process (Ochoa and Corey 185, 203). These developments in printing technology were a response to an increasing need for print material, as well as were responsible for resulting in an increased need for the technology.

Other forms of writing served different needs. Braille, a system of raised print, was invented for the blind in 1834 by Frenchman Louis Braille. A system of shorthand (translating phonetic sounds and common phrases into stylized markings) was developed in 1837 by Englishman Isaac Pitman (Ochoa and Corey 145, 147). People were developing different ways of writing to fit different needs. These developments led to greater spread of information to more people.

Need also led to the inventions in the area of computers, and the invention of computers resulted in an increased need for the invention. In 1969, computers were connected but there was not a host-to-host protocol. Then, need led to the invention of Telnet, which allowed for remote log-ins (Hafner and Lyon 156-7). This invention allowed for people to share information and communicate from great distances.

Another invention that was developed out of need was by Vint Cerf and Bob Kahn. Cerf and Kahn had to develop a new protocol to link the different interfaces, and in September of 1973 they presented their idea to the International Network Working Group (Hafner and Lyon 225). Their new invention was called transmission-control protocol (TCP); their concept also contained the idea of gateways, which was a process of the routing protocol needing to only read the heading and not having to read the entire message in order to deliver the message to the receiver (Hafner and Lyon 226). This concept, developed from need, furthered the efficiency of the Internet.

These inventions and developments can be seen as a result of need from researchers and the public, while at the same time the success of the invention and developments resulted in greater need for the invention. All these developments in the technology of writing helped many forms of

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communication spread information throughout different cultures and countries.

A second characteristic of invention is that society must see a need for the invention. If they do not see the need for it, the invention will be ignored. Numerous inventions have not been recognized nor applied until much later, when society was ready. For example, Baran's idea about a distributed network was ignored until it was seen as useful. Also, ARPA tried to sell its idea of linking computers through phone lines for years to AT&T before the company became interested. Not until society perceives the invention/idea as useful will it be accepted and supported.

George Basalla believes that "The pursuit of need and invention has revealed that necessity is a relative term. A necessity for one people, generation, or social class may have no utilitarian value or may be a superficial luxury for another people, generation, or social class" (12). What is seen as a need is different for individuals and different for each generation. But it is important to note that each society determines its needs for itself based on its own perceptions, not based on some universal truths of nature (Basalla 14).

A third characteristic of invention is that there is a certain amount of freedom allowed for the inventor to create and develop the invention.

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Inventors such as Benjamin Franklin (postal service, 1731), William Church (typesetting machine, 1822), Louis Braille (Braille, 1834), Richard Hoe (rotary press, 1870), Ottmar Mergenthaler (Linotype typesetting machine, 1884), Konrad Zuse (his computer, 1934), and Bob Taylor, among others (Internet, 1966) could not develop their inventions were it not for the freedom and support of others in society. They all had the freedom to acquire the materials needed to build the machine, and in many cases they also had an organization supporting the building of those machines.

A fourth characteristic of invention is that the economics are ripe for the invention to occur. In other words, society is willing to support the invention so that it can develop. For example, once people realized the advantage to the printing press--information was distributed more widely and at a faster rate--they supported the developments and inventions that improved the production of information. Though using Plaster of Paris to cast metal printing plates increased efficiency and decreased costs, it took economic support to produce the casts and market the new development (Ochoa and Corey 85). The same economic support was required for Church's typesetting machine, Keller's wood-pulp paper process, Hoe's rotary press, and Mergenthaler's Linotype typesetting machine. All these developments in the technology of writing helped many forms of periodicals

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spread information throughout different cultures and countries. And because there was a need for what these inventions were producing, people were willing to support the development of the inventions. These inventions and developments cost money, but people were willing to support the economics of these inventions/developments by purchasing the products.

A fifth characteristic, often overlooked, is that there are skilled technicians to develop the invention. Gutenberg's printing press, Church's typesetting machine, and Hoe's rotary press all took skill to create. It took skilled technicians Christopher Sholes and Carlos Glidden to make the first typewriter in 1868 (Ochoa and Corey 183). Probably one of the most famous inventions, the telephone, was invented by a skilled and knowledgeable Alexander Graham Bell in 1875. The computer is a complicated machine; Konrad Zuse was very skilled and each of his successive computers increased in their complexity. Without individuals capable of actually making the inventions, the inventions could never be created nor developed.

Technicians are bound by a sixth characteristic of invention, the materials available to make the invention and how it can be marketed. T. K. Derry and Trevor I. Williams, in *A Short History of Technology: From the Earliest Times to A.D. 1900*, explain "The development of writing has at all times been greatly influenced by the nature of the material available and the

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means of marketing it . . ." (216). In other words, many of the developments in technology are limited to what can be used to make the invention and how well the word of the development can be spread.

The first computers were mechanical and not digital because of the material available at the time (Cardwell 468). The materials available improved the computer over time: silicon allowed for the silicon transistor, the microchip allowed for smaller computers, and fiber optics allowed for thinner wires, cheaper fibers, and faster connections (Ochoa and Corey 313, 322, 342). The material available dictates the ability to create technology.

The seventh characteristic of invention is that many times inventions are created by different individuals at approximately the same time. The Phoenicians (or Canaanites) invented the world's first purely phonetic alphabet. This alphabet, created around 1,600 B.C., is the ancestor of all modern Western alphabets (Ochoa and Corey 8). But the Chinese, under the Shang dynasty, developed another system of writing at approximately the same time, in 1,500 B.C.

Many suppose that the printing press was also invented in China about the same time that Gutenberg invented his printing press (1454). Cardwell explains simultaneous inventions:

> There is nothing implausible about simultaneous
> and independent invention. When two or more

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> societies reach approximately the same standard
> of technical skill then the combination of felt wants,
> opportunities and stimuli provided by commerce,
> industry, administration and learning make it
> increasingly likely that the same things will be
> invented simultaneously and independently in
> each society. The more technically advanced
> communities become and the more communications
> improve, the greater the likelihood of simultaneous
> invention. (54-55)

Because similar societies need a technology, many inventions occur simultaneously around the world. This simultaneous invention also occurred with the computer. Konrad Zuse is noted as one of the first developers of the computer. He started his first computer in 1934, a second in 1936, a third in 1939, and a fourth computer in 1941 (Cardwell 468). About the same time as Zuse was building his computers, Howard Aiken at Harvard published in 1937 a "specification for a computing machine together with a survey of previous work in the field, then IBM built it starting in 1939 and finishing in 1944" (Norton 468). Also at this same time (1938), George Stibitz at Bell Laboratories built a computer (Cardwell 469). Again, rarely do inventions occur alone.

A final characteristic of invention is the economy of power. Economy (and intertwined with economy, politics) drives the invention, or at least the successful marketing of the invention. Cardwell claims that "Civilization . . . is the economy of power" (502). The common denominator throughout

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history with technological advances is power--who holds it, who endorses what invention, and who bestows it (Haas 207-08). Businesses control much of the power; they drive technological developments and technology serves business, taking away much of the agency of the individual to determine future paths of technology (Haas 216). The economy of power (in large part, business), affects every part of invention and development.

Economics influenced the development of electronic technology with regards to the public. In 1882 in New York, "the world's first power station, selling electricity to the public, was opened by Edison at Pearl Street" (Cardwell 352). The affordances of technology were becoming more available to people, and businesses were the reason the technology was available (albeit at a price). Economics would forever drive the market of technology.

Around 1946, John Mauchly and J. Presper Eckert took F. C. Williams's idea, realizing the commercial possibilities of a universal computer, and developed UNIVAC. Remington-Rand eventually took over UNIVAC and successfully marketed the universal computer (Cardwell 475-6), providing the technology to more people than Mauchly and Eckert could.

Herman Hollerith developed an electromechanical punch-card system for data recording in 1890. He used this system to record U.S. census findings, and Hollerith would eventually establish his company, International

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Business Machines (IBM) (Ochoa and Corey 210). These calculating machines were adapted for use in business and became important to society. Collectively, these seemingly insignificant machines were revolutionary and changed business forever (Cardwell 422-423). The need for faster and better business machines helped spur on the development of the computer.

Business and technology exist in a symbiotic relationship. Technology aids business (economy) and business aids technological advancements. In 1953, Hollerith's company, IBM, marketed the first computer for scientific and business use, the IBM 701 (Ochoa and Corey 312). Then, in 1955 IBM marketed the IBM 752, the first computer created solely for business use (Ochoa and Corey 313, 315). Texas Instruments invented the silicon transistor in 1954, which greatly affected the computer industry. And in 1959, Jack Kilby of Texas Instruments and Robert Noyce of Fairchild Semiconductors invented the microchip (Ochoa and Corey 313, 322). Ted Hoff, of Intel, invented the microprocessor in 1970, a silicon chip which served as the central processor of the computer (Ochoa and Corey 342). Business was a great help in supporting the development of technology, and technology in turn served business well.

Business has a major influence in whether or not technology becomes integrated into society. If people see no usefulness in the technology it will

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not be mass produced nor marketed, which will affect further developments.

For example, by tying computers together, Taylor was trying to do what is

common in the history of technology—cut costs and increase efficiency.

Taylor hired Larry Roberts in early 1966 to create his idea (Hafner and Lyon

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the computer network, Paul Baran and Donald Davies had previously,

unknown to each other, come up with the same idea. Baran came up with a

different way to create a network: distributed (Hafner and Lyon 59). Baran

tried to sell his idea, and had the support of his employer, RAND; however,

AT&T would not go for it becuase they did not see its value. It was years

later that AT&T would realize the importance of the technology and step in.

The development of software was also affected by the economy of

power. It was the Computer Corporation of America that started selling one

of the first commercial electronic mail (email) software packages, named

COMET (Hafner and Lyon 212). While people were linking to each other

from farther and farther distances, business stepped in and applied the

technology to corporations. Wide-area networks were well established, and

in May 1973 Bob Metcalfe of Xerox PARC with Butler Lampson and Xerox

researchers David Boggs and Chuck Thacker built the first local-area

network, the system called Ethernet (Hafner and Lyon 237-40). Where the

technology of internetted computers created WAN environments (Wide Area Networks), business employed LAN (Local Area Networks). Many times, until business recognizes the benefit of a technology, the development of the technology will be retarded. To summarize, there are eight characteristics of invention:

- inventions can arise from an existing need, or create a new need;

- society must see a need for the invention or else the invention will be ignored;

- there is a certain amount of freedom allowed for the inventor to create and develop the invention;

- the economics are ripe for the invention to occur;

- there are skilled technicians to develop the invention;

- technicians are bound by the materials available to make the invention and how it can be marketed;

- many times the invention is created by different individuals at approximately the same time;

- economy drives the successful marketing of the invention.

Electronic academic journals do not have the characteristics of invention because they are not a technology but a development of a technology. In the

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analysis of the history of writing technology, the electronic environment is

the invention and the electronic academic journal--like email, MOOs, and

word processors—is a development of that invention. As a development of

an invention, electronic academic journals are also in a process of

development. The following section will discuss the pattern of development

of writing technology and show how electronic academic journals are also

going through a pattern of development.

Pattern of Development

After the invention is created, development ensues. This development

of technology ordinarily follows a basic pattern. This section discusses that

pattern of development and shows how electronic academic journals fit the

pattern. The aspects of the pattern are:

the invention/development aids the field and it is recognized as a

useful technology;

as the technology becomes important to the community, researchers

and individuals start creating a body of knowledge and start

cataloguing knowledge;

naming becomes an important and political part of the creating and

cataloguing of the body of knowledge;

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as the invention/development is integrated into society the

technology is used to widen the sense of community and

further develop the body of knowledge;

once the technology becomes integrated into society, then the

individual wants that technology for him/her self;

the individual and scientist/researcher want to communicate more

broadly.

I will discuss each aspect in turn.

First, the invention/development aids the field; it is recognized as a useful technology. Once writing was developed and society realized its usefulness, there came a need for better writing surfaces to improve the now needed technology. In 105, Tsai Lun from China invented paper, a substance from cellulose as opposed to papyrus (Ochoa and Corey 23). The Chinese continued developments with writing, creating an early form of printing using "blocks of raised, reversed symbols smeared with ink" in 350 (Ochoa and Corey 25). The first printed book was later manufactured in China in 868, called *The Diamond Sutra*. Seeing the usefulness of the technology, the Chinese continued their writing developments with movable type of clay blocks in 1041. Finally paper making began to spread, and in 1276 Montefano, Italy, started paper making. Block printing also spread to Europe

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around 1289. In 1450 the Chinese started using movable wooden type to print pages; this development would also migrate to Europe (Ochoa and Corey 30, 32, 36, 41). The need for more efficient ways to produce writing was established by societies that benefited from the technology, and the developments to continually improve technology would, and will, continue.

Western Union, the American telegraph company, was established by Hiram Sibley and Erza Cornell in 1856 (Ochoa and Corey 166). Still improving communication, the Pony Express began in 1860, delivering mail on horseback in relay teams between Missouri and California (Ochoa and Corey 174). The typewriter sped up the process of writing for individuals. In 1868 Americans Christopher Sholes and Carlos Glidden invented the typewriter, and in 1874 Remington Fire Arms Co. began to mass produce it (Ochoa and Corey 183). And the telephone revolutionized the speed of communication between great distances.

Later, the computer was recognized as an important way to communicate. People began to link computers, and as society realized the great uses of the Internet, its use and popularity boomed. The Internet was useful for sharing information and communicating with others from all parts of the world in a fast and efficient manner. Once the technology aids the field

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and is recognized as important and useful, the next aspect of the pattern of development appears.

As the technology becomes useful and important to people, researchers educate each other and the public. A body of knowledge and a cataloguing of knowledge begins to evolve. Through this education and sharing of knowledge, developments in one area affect all disciplines. The development of the technology becomes collaborative, with numerous individuals learning from each other and advancing the technology and knowledge.

For example, early education was largely reliant on oral communication until the invention of the printing press. The printing press allowed knowledge to be spread to the masses, which was an important precipitator for the scientific revolution, running from around 1550 to 1700. Knowledge about discoveries, inventions, and developments could be shared with more people and at a much faster rate than before the printing press. Cardwell is among many when he claims that Gutenberg's printing press "brought about the first revolution in information technology" (55). Traditional knowledge was now being questioned, and scientists (Galileo, Harvey, Newton, Pascal) and philosophers (Bacon) were transforming society. Traditional authorities were superseded by empirical methods. Most

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importantly, their theories were being spread quickly and to large numbers of

people like never before (Cardwell 76).

With publication of texts easier, periodicals started appearing. People

were wanting more information more quickly. The first daily newspaper was

the *Daily Courant,* started in 1702. Then, in 1705, the first weekly American

newspaper began in Boston, called the *News-Letter* (Ochoa and Corey 82-83).

There was even a Native American newspaper written using the Cherokee

alphabet (developed by Cherokee linguist Sequoia in 1824), the *Cherokee*

Phoenix, started in 1828 (Ochoa and Corey 139). Society was defining and

cataloguing knowledge, as seen by the increased number of newspapers,

journals, almanacs, and encyclopedias. The first modern encyclopedia was

created in 1751-1752 by French scientist Denis Diderot (Ochoa and Corey 93).

Nevil Maskelyne began the annual publication of an almanac in 1767, the

British Nautical Almanac. And in 1818 American Benjamin Silliman garnered

international reputation for his establishment of the journal, *American Journal*

of Science (Ochoa and Corey 130).

This sharing of knowledge led to an organized effort of knowledge

distribution, which resulted in periodicals, encyclopedias, and almanacs.

And through the creation of a body of knowledge, others read of the

developments and were able to collaboratively contribute to the development

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of technology. This collaboration can be seen in previously mentioned examples: Church's typesetting machine and Keller's wood-pulp paper process allowed for periodicals to use more inexpensive paper, thus increasing efficiency, and decreasing cost (Ochoa and Corey 133,154). This collaborative development allowed for more periodicals to be manufactured. Hoe added to the collaborative effort when he developed the rotary press, which allowed for a page to be printed on both sides. Periodicals were again helped with the invention of Mergenthaler's Linotype typesetting machine, which mechanized part of the typesetting process (Ochoa and Corey 185, 203). All these developments in the technology of writing helped many forms of periodicals spread information throughout different cultures and countries.

The pattern becomes cyclical: inventions/developments allow for wider sharing of knowledge and organizing of knowledge, which lead to collaborative developments which improve the technology so that knowledge is shared and distributed more quickly and widely. Another example of this pattern is Charles Babbage's association to the Jacquard loom. Probably the first known connection to the computer's prehistory is the Jacquard loom, invented by Frenchman Joseph-Marie Jacquard in 1801. The Jacquard loom used punched cards to guide the needle motions. In 1834 Charles Babbage

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would realize that punched cards could also control calculator processes, and this was the precursor to the current twentieth century computer (Ochoa and Corey 119). Babbage then began work on his "analytical machine" based on Jacquard's punched cards, and although never completed, it is regarded as the basis for the modern digital computer (Cardwell 420; Ochoa and Corey 145). And in another example, John V. Atanasoff began to build an electronic digital calculator with storage facility right before WWII. Following Atanasoff's ideas, during 1943-46 John Mauchly and J. Presper Eckert built the first electronic computer, called the Electronic Numerical Integrator and Calculator (ENIAC) (Ochoa and Corey 296). These inventors used the knowledge from others' inventions/developments to aid their own inventions/developments. Technology, like knowledge, develops collaboratively, using contributions from a variety of fields.

The creation and development of the Internet is also an example of the result of sharing knowledge and developing technology collaboratively. In 1962 Licklider went to work at ARPA. His first job was to develop uses for computers "other than as tools for numerical scientific calculations" (Hafner and Lyon 35). Licklider started to discuss the development of an integrated network operation. He left ARPA in 1964, but his ideas left an impression. Taylor would later pick up on this idea and put it into use. But the

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networked computers were not the invention of a sole individual; many technologists were responsible for the collaborative effort. Frank Heart coordinated the building of the system, and his team consisted of influential engineers such as Truett Thach, Bill Bertell, Jim Geisman, Dave Walden, Ben Barker, Marty Thrope, Willy Crowther, Severo Ornstein, Bob Kahn, and Bernie Cosell (Hafner and Lyon 160g). Others that were responsible for pioneering the networked computers were Vint Cerf, Len Kleinrock, Doug Engelbart, Barry Wessler, Dave Walden, Roger Scantlebury, Charlie Herzfeld, Jon Postel, Steve Crocker, Bill Naylor, and Roland Bryan (Hafner and Lyon 160h). All these researchers/inventors shared knowledge, learned from distributed knowledge, and built on each others' developments to advance the technology.

A third aspect in the pattern of development is the growing importance of naming the technology. Lance Strate, in "Hypermedia, Space, and Dimensionality" says "This act of naming is a rhetorical, and therefore a strategic decision" (169). Intertwining the history of writing technology is the rhetoric describing it.

Those with the power to market the technology have a large influence on the rhetoric of the technology. Naming is big business in today's market. In "Speak the Future," an article in *Wired* by Jim Taylor and Watts Wacker,

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Taylor and Wacker claim ". . . the shifting landscape of the future, like the increasingly competitive craft of futurism, demands more than a keen sense of historical cycles. In fact, an ear for idiom--and a knack for coining phrases--has become the currency of modern-day imagineering" (100). There are several companies, and more entering the market each day, whose sole focus is to come up with names for technology, software, hardware, and companies that sell the technology that will be successfully adopted by the public. A piece of technology can be made or broken on its name ("Name-o-rama"). For example, Apple needed a name for their new line of laptop which was following a disastrous portable product. The result was "PowerBook," one of the greatest successes of Lexicon, the company who created the name (http://wwww.wired.com/wired/5.06/es_namemachine.html). Product names go through trends. For example, in the 1970s and 1980s "Names were full of qs, xs, and zs. Take Xerox, Xcalibur, Xidex, Xomox, Xonics, Xyrofin, and even Xonex. . ." ("Name-o-rama"). And the success of the naming can determine the future support of the development of that technology.

Researchers and technologists also have an effect on the rhetoric, for they publish the initial writings on the technological developments. But the economy of power tends to have more of an impact because those in power are the ones in contact with society when marketing the technology. Where

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does the issue of naming come in contact with electronic academic journals? Using the accepted terminology of the discourse community builds credibility. On the other hand, many electronic academic journals are on the cutting edge of the field and will try to introduce terminology not necessarily commonplace into the discourse community. But part of the process in the pattern of development is the creating and sharing of the body of knowledge, and what terms are used in a journal is an important reflection on the axiologies of the editors.

A fourth aspect of the pattern of development is that the invention/development is integrated into society and affects community. In other words, society uses the writing technology to widen the sense of community and further develop the body of knowledge. Many of the examples of this pattern have already been discussed: the printing press allowed more texts to be produced and distributed to more people; typesetting, rotary press, wood-pulp paper process all improved the efficiency of producing periodicals and texts and decreased the cost of production, which in turn made knowledge (texts, periodicals) more readily available to a wider audience. Franklin's improved postal service routes, Braille, shorthand, and the telephone were all developments that lead to a greater spread of information to more people (Ochoa and Corey 53, 86).

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As technology becomes more integrated into society and is used to increase communities, the invention/technology creates a need, and the invention soon becomes a necessity. As Basalla explains

> the motor truck was not created to overcome obvious deficiencies of horse- and steam-powered hauling. As was the case with auto-mobiles, the need for trucks arose after, not before, they were invented. In other words, the *invention* of vehicles powered by internal combustion engines gave birth to the *necessity* of motor transportation. (7)

The perceived desire for the invention exists chiefly among researchers and inventors, with little or no widespread recognition by society. After the invention the application is seen more widely as advantageous and the need for the invention becomes more widespread because the technology has obvious benefits for society.

After the invention/technology becomes an important part of society, it becomes more accessible for larger numbers of individuals. For example, the printing press allowed texts to be produced more efficiently. Texts led to journals and to encyclopedias and to almanacs and to newspapers. Then people wanted to produce the texts for themselves. The typewriter allowed individuals to produce texts for themselves more quickly and efficiently. The individual now has his/her own piece of that technology that benefited his/her society.

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With all the developments in computer technology making the computer more accessible, in 1974 Vydek finally put on the market a text-editing computer (Ochoa and Corey 348). Then in 1975 Ed Roberts marketed Altair, the first personal computer (Ochoa and Corey 350). It was during this year that William Gates III and Paul Allen founded Microsoft. One year later, Stephen Wozniak and Steven Jobs designed what would be the first computer product of Apple Computer (Ochoa and Corey 350, 352). In 1977, the personal computer would become accessible to the public when Apple Computer put out the Apple II (Ochoa and Corey 353). In 1980 Microsoft countered with accessible software for the IBM personal computer. The development by Bell Laboratories in 1984 of the one-megabit random access memory (RAM) chip, which stored four times the data of any current chip, would greatly improve the personal computer (Ochoa and Corey 364), thus making it more accessible to individuals.

A fifth aspect of the pattern of development is that the individual and scientist/researcher want to communicate more broadly. The need to communicate with a broader audience and communicate more quickly keeps increasing. For example, the Internet was actually a project to "link computers at scientific laboratories across the country so that researchers might share computer resources"; it was started by Bob Taylor, who came up

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with his idea in February of 1966 while working at ARPA (Hafner and Lyon

10). ARPA net went public at the first International Conference on Computer

Communication in Washington, D.C. in October 1972. It was at this

conference that Licklider's <u>virtual community</u> was being realized. Hafner

and Lyon say

> The ICCC demonstration did more to establish
> the viability of packet-switching than anything
> else before it. As a result, the ARPANET commu-
> nity gained a much larger sense of itself, its tech-
> nology, and the resources at its disposal. For
> computer makers, there was the realization that
> a market might emerge. (185-6)

The virtual community's biggest boost was to come from electronic mail

(email). Len Kleinrock sent the first personal email messages in September

1973, when he left his razor back at a conference hotel in England and sent an

electronic message for a friend to retrieve it for him. From 1972 to the early

1980s, email was discovered by thousands (Hafner and Lyon 189). Just like

the computer, email went through the process of development. The

developments in computer technology were responding to a need to increase

the community and share knowledge.

On June 7, 1975, Steve Walker created an electronic discussion group,

MsgGroup (Hafner and Lyon 200). As the first virtual community, this

would deepen the rich environment of the network community by joining

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together individuals with common interests/goals. Another important

development was Will Crowther's computer version of Dungeons and

Dragons, called Adventure, in 1976. Don Woods took Crowther's Adventure

and expanded it (Hafner and Lyon 206-7). Hafner and Lyon state

"Adventure demonstrated the appeal of an open networking culture" (208).

This type of culture was just what Licklider had envisioned because of its

spirit of openness and freedom. This technology developed into MOOs--

Moving-Object Oriented MUDs (Multi-Users Dungeons)--an environment of

wide audiences and fast communication. MOOs allow for individuals all

over the world to communicate synchronously.

Electronic journals were the result of organized distributed knowledge

in a new medium of quick communication and a large audience. The first

electronic journal was *ARPANET News*, a monthly print classic journal from

Stanford Research Institute (SRI) researchers that was translated to electronic

form in March 1973. This journal gave conference announcements, pieces of

interest on the field, and, more importantly, a "Featured Site" series (column

that described new, interesting sites on the Internet, which was growing by

leaps and bounds) (Hafner and Lyon 229-30). Electronic journals have

increased in number and in popularity; in fact, most print journals in the field

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of computers and writing have gone online because the electronic technology provides journals easy access for the reader.

The last major development on the Internet to date was the World Wide Web (a multimedia branch of the Internet) in 1990, created by a researcher at the CERN physics laboratory in Geneva, Tim Berners-Lee (Hafner and Lyon 257). In 1993, computer science students at the University of Illinois created a graphics program browser called Mosiac (Marc Andreeseen was one of the inventors), the forerunner of Netscape (Hafner and Lyon 258). The Internet, email, MOOs, and World Wide Web have proven to be popular in large part because they fill the need of individuals wanting to communicate and share knowledge with larger audiences more quickly.

The Pattern of Development Evidenced in Electronic Academic Journals

As a development of writing technology, electronic academic journals can also be seen as going through a pattern of development. Electronic academic journals are relatively new as a development of electronic technology; therefore, it is hard to historically analyze electronic academic journals. However, one can already see how these journals are beginning to develop, and based on other technology's patterns of development, possible

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predictions can be made about the future development of electronic academic journals.

One aspect of the pattern of development is that the development aids the field and is recognized as a useful technology. Electronic academic journals in the field of computers and writing are providing a place for scholars in the field to publish. Although print journals are still seen as the academic standard of scholarly publishing, writing about electronic writing environments in print is somewhat artificial. Writing about electronic writing in an electronic environment allows the creator of the rhetorical space to demonstrate instead of merely to describe. That electronic academic journals are recognized as useful is still being debated. Peek and Newby's *Scholarly Publishing: The Electronic Frontier* illustrates the tenuous space electronic academic journals are occupying: gaining in popularity but facing serious issues as a rigorous academic venue for scholarly publishing.

A second aspect of development is that as the technology becomes important to the community, researchers and individuals start creating a body of knowledge and start cataloguing knowledge. One concern of scholars regarding electronic academic journals is the rigor and legitimacy of the publications (Hurtado 203). Their concern is that the electronic publications are not as rigorously peer reviewed, which brings in to question

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the publications' quality as an academic work. Despite this concern, scholars are publishing in electronic journals and researchers are using these journals as a resource. It is not unusual to see citations to electronic publications in print journal articles and texts. For example, *Computers and Composition* now has a section that synthesizes pertinent electronic communication from listserves, organized by topic, and reproduced in print. And, the ACW-L listserve has a Web site of discussions that occurred on the list archived for retrieval. Also, several bibliographies of scholarly resources in the field are being compiled so that individuals can benefit from the collective effort of the community. For example, *RhetNet* has a bibliography link that everyone can access and add to.

Naming is a third aspect of development. Naming is an important and political part of the creating and cataloguing of the body of knowledge. Many of the email lists (e.g., ACW-L, ATTW-L, RHETNT-L, TECHWR-L) have discussions regarding terms used for concepts and aspects of electronic technology. *RhetNet* has a link, "Reinventing Language: An Interactive Historiography," by Mick Doherty, who says

> A historiographical analysis of our own discourse
> about ourselves might seem a bit premature; but in
> virtual rhetorics, all the rules are changing. So a new
> kind of historiography -- one concurrent with the
> actual development of the scholarhsip, one con-
> ducted interactively among the scholars, students,

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teachers, and many audiences of virtual rhetorics isn't premature ... it's simply different. And as Michael Heim wrote four years and a dozen generations ago, if writing in wired space is anything, it is "well . . . different."
(http://www.missouri.edu/~rhetnet/index.html)

Through an electronic academic journal, Doherty is attempting to focus attention on what many times is a transparent process: that of naming. By looking at the terms used to name technology, we become more aware of the assumptions and beliefs carried within those terms and can thus learn more about our discipline and ourselves as scholars.

A fourth aspect of development is that as the invention/development is integrated into society the technology is used to widen the sense of community and further develop the body of knowledge. As stated earlier, electronic academic journals are at the beginning of development. One could argue that this aspect of development is not readily apparent. One could also argue that this aspect is apparent, but only to a small degree. International communication is an important issue, and many of the electronic academic journals are focusing on this aspect either as a topic for discussion or by publishing international authors (e.g., *Computers and Composition, Kairos*). Also, visits to electronic journal sites from international audiences can be evidenced (e.g., in eight months *Kairos* logged visits from 26 countries other

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than the United States). This aspect of development is a continuing process, and electronic academic journals in their present infant state are just beginning to widen their audience and organize a body of knowledge.

A fifth aspect of development, that once the technology becomes integrated into society the individual wants that technology for him/her self, also can be questioned regarding electronic academic journals. That these journals are becoming more widespread can be seen; that individuals want the technology for him/her selves is harder to prove. Enough individuals are publishing in electronic journals to sustain their existence, and more individuals are visiting electronic academic journals. For example, from its appearance online to eight months later, *Kairos* doubled in visits to its site per month. More time needs to elapse before researchers can look at electronic academic journals as readily see this aspect of development.

That the individual and scientist/researcher want to communicate more broadly is the sixth aspect of development. Again, I would argue that electronic academic journals are too early in the process to clearly see this aspect. However, one can view the creator(s), individual authors, and researchers utilizing electronic academic journals as wanting to communicate more broadly. Creators of electronic academic journals attempt to reach broader audiences by considering issues such as access, archiving, document

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structure, and navigational tools. Individual authors attempt to reach broader audiences by choosing to publish in electronic venues. And researchers study electronic academic journals in order to see the potential applications these journals have in areas of theory and pedagogy.

Although electronic academic journals are not a technology but a development of a technology, they still go through a process of development. That development is in its earliest stages, as electronic journals are relatively new. However, if past patterns of development of technologies are consistent, then electronic academic journals should continue to follow this pattern of development.

Views of Technology

As technology proceeds through the pattern of development, people choose sides--either for or against. With the advent of electronic technology, scholars and laypeople alike were amazed with its capabilities. Quickly, people began to see the new technology as it developed as either the great savior of society or the impending downfall of society. These utopic and apocalyptic views of technology battling over the future course of electronic technology are not new to us. For centuries, people have been battling over technological progress. For example, Plato was against the new technology of

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writing, claiming that it would be the ruination of the mind. He said that memory would be destroyed because of writing (qtd. in Bizzell and Herzberg *The Rhetorical Tradition* 140). However, others believed that writing would spread knowledge of their culture to parts never before imagined. Utopic and apocalyptic views of electronic technology echo the arguments advanced over centuries of technological developments.

The apocalyptic view of technology sees the Internet and electronic communication as the downfall of society. Clifford Stoll's book, *Silicon Snake Oil*, is a harsh criticism of electronic technology. He believes that society needs to get back to walking in meadows and making bread (66, 29-30). Stoll says that the Internet is isolating and lonely, creating individuals who retract from society, and hurting their emotional stability. Paul Virilio says that the Internet "is to society what radiation is to the atmosphere" (http://wwww.wired.com/wired/4.05/features/virilio.html). Neil Postman, in several of his books, strongly encourages society to take a critical look at what electronic technology is doing to all aspects of society--personal lives, pedagogy, economy, and politics (*Concientious Objections* 162; *Technopoly* 18, 94, 138). Postman believes that electronic technology in the classroom will lead to a decrease in the level of education, leaving children lacking critical thinking skills and encouraging them to take a passive role in their education

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politics (*Concientious Objections* 162; *Technopoly* 17). J. Yellowless Douglas

cautions against the utopic view of a new form of electronic writing, saying

that "Hypertext could potentially end up representing a formidable

instrument of repression every bit as easily as it could turn out to be a means

of liberation" (202). Joel Snyder criticizes those who believe that the Internet

is a community, saying that it has none of the characteristics of a community

(proximity, concern with broader issues, being a part of every aspect of an

individual's life, having a feeling of loyalty), and that at best the Internet is a

cult (72) . Laura Miller criticizes electronic communication for its sexism and

discrimination. She says that even the name of one of the foremost Internet

organizations, Electronic Frontier Foundation, reveals its male domination.

Miller asserts that Kapor's and Barlow's EFF encourages the "Great Western

Myth" of adventure, male domination, exploration, and males conquering

territory (50). Brook and Boal's anthology, *Resisting the Virtual Life*, is a

collection of critical analyses of the Internet and electronic technology. In the

book, electronic technology is criticized for discrimination, racism, exploiting

society, invading privacy, increasing the gap between the haves and the have-

nots, forcing U. S. standards upon the world, and keeping the democratic

process from working.

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There are many similarities among these views. The apocalyptic view is afraid that electronic technology will invade every aspect of society to the point of a loss of control for the individual. Also, those with the apocalyptic view share the opinion that technology is inherently "bad" for the individual, somehow increasing the dependency of the individual on the technology in a way that takes away intelligence. And there seems to be an assumption that the technology will "take over." Another similarity these proponents of the apocalyptic view share is that the Internet will take all the dysfunctions of society and exacerbate them. Fear of the unknown and loss of control are the main themes of the apocalyptic view.

There are some differences between those who share the apocalyptic view and those differences tend to focus on special interests. Postman, an educator, is concerned with pedagogy; Miller, a woman, is concerned with gender equality; Gandy, an African-American, is concerned with racism and discrimination; and Stoll, a former electronic engineer, is concerned with the invasion of technology into all aspects of society, leading to a loss of control. So while all the proponents share similar themes behind their apocalyptic views, they focus on their special interest to develop these views.

The apocalyptic view is significant for the future of electronic technology and is not easy to dismiss. While many of the fears are

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unfounded, many are significant. For example, research shows that access is still not equal despite the promises (Miller 56). Also, overall there are more white males than any other population on the Internet ("GVU's WWW User Surveys"). Different sub-groups contain different proportions of population distribution, but the overall percentage cannot be discounted. With electronic technology, more companies and government entities know much more about every individual--economically, politically, and personally (Sclove 87). While there is debate about the consequences of these groups having this knowledge, it is undisputed that more organizations know more about our lives. Miller has a strong argument about the language and metaphors used on the Internet being male dominated and oriented, and aggressive toward women. Programs "crash" or are "aborted," sessions are "terminated," and female characters are virtually "raped" in cyberspace (53). Again, whether or not this has adverse consequences on the female population has yet to be proven, but the evidence is still there that semantically, electronic communication still reflects the dysfunctions of society.

The utopic view of technology sees the Internet and electronic communication as the savior of society. Lanham says that the Internet will lead to the democratization of society ("Technology, Scholarship, and the Humanities: The Implications of Electronic Information"). John Perry Barlow

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says that the Internet can destroy hierarchies and give everyone a voice ("To Be At Liberty: An Essay for Public Television"). Although there are many who criticize the advancements of technology (e.g., the computer), Cardwell defends technology in the following:

> Technology is often blamed for the evils of the
> modern world. Some recent critics have blamed
> science--and this may be assumed to include
> technology--for the alleged lack of spirituality of
> the present age, for the decline in religious belief,
> for present-day materialism. The criticisms
> are ill-founded. Those who yearn for more spiri-
> tuality might consider living in one of the funda-
> mentalist nations or communities of the world
> where they would find spirituality in abun-
> dance .... The critics are, whether they realize
> it or not, proposing a state of Gothic ignorance as
> the ideal. They might reflect that had it not been
> for science and technology they would, in all proba-
> bility, not be here to make their criticisms. (507-8)

Negroponte, in his best seller *Being Digital*, says that we are entering a new stage of economy--atoms are being replaced by bits and this will change society as we know it (4-7). No longer will we go outside to get the paper in the morning; we will be able to call it up and download what we want (19-20). Even more than that, programs will "know" what we want and be able to provide us with only the information in which we are interested (84). In his book, *Virtual Communities*, Howard Rheingold claims that the Internet will change the definition of community. Communities will not be proxemic and

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they will be democratic (12-13). Education will be better with electronic communication in the classroom (278). Distance education will reach more people and our society will be more intelligent. Even Newt Gingrich, Speaker of the House, spoke of the greatness of electronic technology, saying it would be the savior of American society (http://dolphin.gulf.net/Gingrich/11.11.94). Supporters say that the political process will be better, that everyone will have a voice.

As with the apocalyptic view, proponents of the utopic view are also similar. These views are similar in that they focus on society, and the betterment of it. As the flipside of the apocalyptic view, these proponents believe that electronic communication will not be an intensified, dysfunctional representation of society; instead, electronic technology will allow us to repair the dysfunctions of society. Instead of a loss of control, proponents of the utopic view see electronic technology as giving more control to the individual. With electronic technology, more information will be available to the individual, more opinions and viewpoints will be heard, and more individuals will be allowed to speak. Proponents of this view welcome the unknown, seeing great opportunities for improvement to the current condition.

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The utopic view is also significant for the future of electronic technology. Education is changing, and through distance education more people are able to take advantage of new knowledge. More voices are being heard; more people are able to publish Web pages and speak their minds. Information is exponentially growing, and everyone with access to electronic technology has available to him/her all this information. Information is also more current--Congress publishes on the Web their Congressional hearings within 24 hours. With electronic journals, there is more opportunity for scholars to publish cutting-edge work who were not able to publish in print journals.

The apocalyptic view and utopic view do have their strengths, but they also have their weaknesses as well. Both views are extreme, and the problem with extreme views is that their hyperbolic nature denies much of their ethos. Those who tend toward the apocalyptic view hear the voices of the utopic view and dismiss them as "happy-go-lucky" and not engaging in critical thinking. Those who tend toward the utopic view and hear the voices of the apocalyptic view dismiss them as negative and trying to hang on to an enhanced view of long-forgotten times. But both views have their strengths because they both bring up valid points that need to be heard. The apocalyptic view cautions society about dysfunctions that exist in the

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electronic community--racism, sexism, elitism, subjegation of others--in order to prevent these dysfunctions. The utopic view celebrates the potential of the electronic community--pedagogically, democratically, economically--in order to take advantage of the affordances of the new technology and benefit society.

What has developed from the debate between the utopic and apocalyptic views is a third group of scholars carefully looking at electronic technology. Sherry Turkle, in her book, *Life on the Screen*, takes a critical look at the Internet community and its positive and negative aspects. She believes that these communities provide us an opportunity for our "multiple personalities of selves" to be heard, which gives individuals a better sense of emotional completeness. She says that the Internet is like a looking glass, except we're "stepping through" (31).

Andrew Feenberg dislikes both utopic and apocalyptic thinking, instead advocating critical consciousness (91). Critical consciousness, says Feenberg, allows for a critical approach to this new technology enabling one to see both positive and negative characteristics, as Turkle has demonstrated. Charles Ess also believes that turning a critical eye toward this new technology will better inform theorists and practitioners (228-232).

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Throughout invention and development, views of the technology change, with people passionately advocating either the productive or the destructive nature of the technology. As one view grows strong, it can affect the development of the technology. For example, as more people supported electronic technology in the classroom Congress backed this view with funds for computers to be put in the classroom. Theorists such as Feenberg and Ess call for a critical approach to the technology so that the development of technology can be pursued with a more informed purpose.

The history of writing technology reveals that there are characteristics of invention, a pattern of development, and views of that technology that can affect its development. Journals, and thus electronic journals, play an important part in the development of technology. Journals are used to spread information, to educate, to create a body of knowledge, to catalogue knowledge, to establish terminology, and to establish possible future directions for technology.

Because electronic academic journals are still relatively new, they are in the midst of development. New forms of electronic journals are still being invented. We cannot yet go back to see the historical pattern of development of electronic journals. However, we can predict a possible future of that pattern of development based on the past history of the development of other

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writing technologies. In order to discuss that future, some terms need to be

defined.

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CHAPTER III

DEFINING TERMS

Applying Gilles Deleuze and Feliz Guattari's concepts of smooth and striated spaces to electronic academic journals allows an analysis of electronic academic journals. In order to apply the smooth/striated continuum to electronic academic journals, <u>smooth</u> and <u>striated</u> needs to be defined. And before smooth and striated can be defined, the definition of <u>hypertext</u> needs to be explored because hypertext is the means that many electronic academic journals employ to distribute knowledge.

Definition of Hypertext

In the 1960s, Ted Nelson first mentioned "hypertext" and defined it as "nonsequential writing" (0/2). Landow, in *Hypertext*, augmented that definition to "text composed of blocks of text, what Barthes terms a *lexia*--and the electronic links that join them" (4). But even before that, Vannevar Bush, in a 1945 *Atlantic Monthly* article, called for "information-retrieval machines to help scholars and decision makers faced with what was even then becoming an explosion of information" (qtd. in Landow *Hypertext* 14). Bush claimed that the human mind thinks associatively, and believed that a

"memex" machine that was designed to store and retrieve information based on the "web" structure of the mind would be successful and useful (31).

Despite the concept of hypertext being around for so many years, no definition of hypertext has yet to become the standard definition. Carolyn Guyer, in a recent online journal, Feed, responded to Nelson's definition and gave reason for the inadequacy of setting a standard definition:

> From the moment it was coined, the word "hyper-text" has been notoriously difficult to define (despite its coiner's own definition of "nonse-quential writing," which isn't really quit enough—sorry, Ted). The difficulty in defining hypertext, I think, may be due to its Between qualities . . . . It's because human beings are associative in their thinking processes that text (and other use of language) has also always been hypertext. What's different about what we are currently actually calling hypertext is the computer. This is the technology which lets us consciously use an already fluent, but often unconscious, process, It's Cixious' Betweenus; it's the link; it's how individuals connect and still remain individuals; it's the description of our age. ("Page Versus Pixel")

Hypertext has yet to be defined with any consensus. Charles Ess, in Landow's Hyper/Text/Theory, describes hypertext as a "fluid concept" (227) and Douglas says that ". . . there is practically no agreement on what 'true' or 'real' hypertext should look like or how it should work" (187). And Michael Heim states that "hypertext is a mode of interacting with text, not a specific

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tool for a single purpose" (Barnes 24). Hypertext is evolving, and that evolution includes the definition of hypertext.

Many scholars have discussed the differences between print and electronic writing, the characteristics and aspects of hypertext, the distinction between hypertext and hypermedia, and the similarities of orality and literacy to hypertext. These aspects of hypertext will next be discussed.

Print and Electronic Writing

Bolter, in his landmark book *Writing Space*, as well as many other scholars in computers and writing (Aarseth, Bernhardt, Douglas, Landow, Strate), discusses in detail the differences between print and electronic writing. Hypertext is a form of electronic writing and there are many forms of hypertext. Hypertext is yet to be defined with any complete satisfaction; however, some commonalties among the many definitions of hypertext exist.

Hypertext occurs in the electronic environment. Without electronic technology hypertext would not exist. Bolter and Stephanie Gibson, as well as many others, say that hypertext is different from print text because hypertext has the quality of motion, another common aspect of hypertext. Text is not static; with hypertext, the reader can move through the text, and

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by selecting the path, the reader arranges the text in a different order with each reading. The static of the print text is destroyed by hypertext.

Another consistent quality of hypertext expressed is that it redefines the current parameters, borders, of the text (Bolter 21, 24, 27, 54). Also, the reader is more interactive in the reading experience with hypertext than he/she can be with the printed text because of the choices the reader can make in determining which path to take. In this way, hypertext empowers the reader in a way that cannot be done with print. And, because the reader has more choices in the reading experience, he/she is aware of the interface of hypertext which means the reader is looking at the text and looking through the text at the same time. Hypertext is evolving, and these commonalties only reflect the process of the definition and not the parameters of the definition.

Qualities of Hypertext

Many issues have surfaced regarding hypertext. J. Yellowless Douglas discusses several of these issues in her article, "'Nature' versus 'Nurture': The Three Paradoxes of Hypertext." Douglas examines hypertext as "born" or "made." She explains "born" hypertext as

> The primary capacity of hypertext, first discovered
> by Vannevar bush, exists in unchanged form in all

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"true" examples of the technology in certain funda-
mental qualitites that distinguish the technology
and transcend the interests or uses of individual
creators. (187)

Douglas explains "made" hypertext as

A still evolving technology, hypertext exists in a
variety of forms, shaped by groups of designers,
researchers, and users who adapt its capabilities
to suit their disparate needs. (187)

Whether hypertext is "born" or "made," Douglas says that hypertext is

evolving, just like any other technology (187).

Although some say that hypertext is democratizing or leveling the

playing field, Douglas believes that it is just like any other tool that can be

used for someone's agenda (191). Lance Strate, in "Hypermedia, Space, and

Dimensionality," claims that hypertext has multiple beginnings and

endings/entryways and exists but agrees with Douglas that the nature of

hypertext is not inherently nonlinear; hypertext can be just as one-

dimensional as print text (173).

Another point of contention is the issue of control: With hypertext,

who is in control of the text, the author or the reader? According to Douglas,

it is not so much that hypertext can give the reader more control than print

technology can but that "it does offer a chance to begin to shape conventions

in a new environment which may not prove, eventually, to become as

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limiting as the conventions and practices surrounding print" (201).

Hypertext is an evolving concept that is much debated and will change as

technology changes.

Hypertext and Hypermedia

Some scholars in computers and writing, such as Bolter and Gibson,

distinguish between hypertext and hypermedia. For Bolter, hypermedia is

more than verbal text, including "words, images, sounds, or even actions that

the computer is directed to perform" (*Writing Space* 26). Bolter also

distinguishes between hypermedia and multimedia by saying that

multimedia is passive (e.g., television) while hypermedia focuses on the sign,

the link (226).

Gibson prefers the term hypermedia over hypertext because she says

that hypertext is hypermedia--but a qualitatively different form of text. She

argues that hypermedia can only be experienced in the computer

environment ("Hypertext as an Emerging Paradigm" 9-10). More

importantly, she says that the main characteristic of hypermedia is motion;

the reader moves in the text to become part of that text (20). Others, like

Landow, do not see a distinction between the terms--saying that it is just a

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preference for one term over the other, all basically meaning the same
(*Hypertext* 4).

Although I believe the term <u>hypermedia</u> is more appropriate, reflecting the multiple uses of media, I prefer the term <u>hypertext</u> because of the close (and negative) connection of "media" with television. <u>Hypertext</u> as a term stretches the boundaries of text and still focuses on the communication and not the "bells and whistles" as some teachers and students tend to do. Also, the term <u>hypertext</u> contains <u>text</u>, which focuses more on the rhetorical space than the term <u>hypermedia</u> does. This focus on rhetoric is in line with what I am exploring; therefore, I use the term <u>hypertext</u>.

<u>Definition of Smooth and Striated:</u>
<u>The Continuum</u>

Because no one definition of hypertext is considered standard, the concept of smooth and striated can help us look at journals on the World Wide Web and place them on a continuum, allowing for a flexible definition of hypertext. This flexible definition could be slippery to work with; however, the continuum of smooth and striated spaces is a flexible model of analysis that works well with hypertext as a dynamic term because it allows for the existence of more or less striated hypertexts as well as more or less smooth hypertexts.

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Deleuze and Guattari define smooth space as "nomad thought."

"Nomad thought" takes place in smooth spaces (*A Thousand Plateaus* xii).

Nomad thought moves freely and rests on difference and not identity.

Deleuze and Guattari say in *A Thousand Plateaus* that nomad thought "does

not respect the artificial division between the three domains of

representation, subject, concept, and being" (xii). They continue their

discussion, saying

> They do not reflect upon the world but are
> immersed in a changing state of things. A
> concept is a brick. It can be used to build the
> courthouse of reason . . . . It synthesizes a
> multiplicity of elements without effacing their
> heterogeneity or hindering their potential for
> future rearranging . . . . The modus operandi
> of nomad thought is affirmation, even when
> its apparent object is negative. (xiii)

Smooth spaces are dynamic, and transformation is more important than

essence. In other words, the momentary location is less important than one's

continuing movement or line of flight. Deleuze and Guattari say that a totally

smooth space is what does not yet exist. Smooth spaces are mediated by

discontinuities, they are an occasion, a becoming. Deleuze and Guattari

explain that, "One can rise up at any point and move to any other" (xiii). So

smooth spaces in hypertext allow the reader more freedom to choose paths.

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Smooth space also allows for sensation. Smooth space envelopes one

in the force of sensation. Deleuze and Guattari explain that sensation

> has one face turned toward the subject . . . and
> another, turned toward the object . . . . it is both
> things at once; it is the being-in-the-world of the
> phenomenologists: *I become* in sensation, and
> at the same time *something happens* because of
> it. (qtd. in Boundas 20)

The experience of sensation is what allows the individual to be more a part of

smooth space, whereas striated space puts boundaries around that

experience, objectifying and lessening the experience of sensation.

Smooth space is also characterized by close-range vision coupled

within haptic (tactile) space (this can be visual or auditory as well) (Deleuze

and Guattari 492). The space cannnot be distanced and objectively observed

because sensation is too much a part of the space. One is too close to the

object, and "its orientations, landmarks, and linkages are in continuous

variation" (Boundas 166).

"State philosophy" is the type of thought that takes place in striated

spaces (*A Thousand Plateaus* xi-xii). This kind of thought is representational:

"it reposes on a double identity: of the thinking subject, and of the concepts it

creates and to which it lends its own presumed attributes of sameness and

constancy" (xi). Thought in striated space relies on establishing

"correspondence between these symmetrically structured domains" (xii).

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Striated spaces can confine. They are characterized by hierarchy, rules, and boundaries. Deleuze and Guattari explain that "Movement in it [striated space] is confined as by gravity to a horizontal plane, and limited by the order of that plane to preset paths between fixed and identifiable points" (xiii). Striated spaces in hypertext also predetermine paths for the reader.

Striated spaces are also characterized by long-distance vision and optical space (Deleuze and Guattari 493). The long-distance vision requires static orientation, static distance from the object, and the establishment of a central perspective (Boundas 166). This distance creates separation from the individual and object, relying on one sense organ to interpret the experience.

Striated space is the domain of routine, specification, sequence, and causality (Moulthrop qtd. in *Hyper/Text/Theory* 302). Socially, striated space manifests itself in hierarchical and rule-intensive cultures. And those hierarchies and boundaries can also be seen in other spaces, namely texts.

Degree of Creator Control on the Smooth/ Striated Continuum

Ultimately, the creator of the document controls the smoothness or striation of the document's organization. The creator is the leader of the text-- he/she controls the process of the document production and the degree of involvement of the others (in this case, the readers/users). By reading the

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document, the reader/user is in a way submitting to the control of the creator, and the creator determines the degree of interaction the reader/user will have with the document.

Leadership styles are commonly referred to as Authoritarian, Democratic, and Laissez-faire (originally in Ralph White's and Ronald Lippit's *Autocracy and Democracy: An Experimental Inquiry*). The Authoritarian leader determines policy, procedure, and tasks and roles of the members. ("Authoritarian" is used here for description only and conveys neither positive nor negative valuations.) The Democratic leader suggests alternatives to the members; however, the members decide specific policy, procedure and tasks and roles of the members. The Laissez-faire leader does nothing but supply information and material when asked. The members have total control in all direct decisions.

For the creator, the Authoritarian style would be represented in a text that is very controlled and where the reader/user has little control of the navigation or experience. For the creator(s) representing a Democratic leader, there would be some control of the text through the controlling of the paths and experience the reader could have. The creator(s) representing the Laissez-faire style of leadership would give the control and organization of

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the document to the reader. The reader would construct the experience with the text with almost no guidance from the creator(s).

Creator control can be meshed with the smooth/striated continuum (see Figure 4.1).

STRIATED   SMOOTH

Authoritarian   Democratic   Laissez-faire

(traditional   (online documents   (hypertexts
print documents   with both linear and   where the
online,   hypertext characteristics)   reader chooses
clearinghouses)   the path and has
                                                    the majority of
                                                    control,
                                                    search engines)
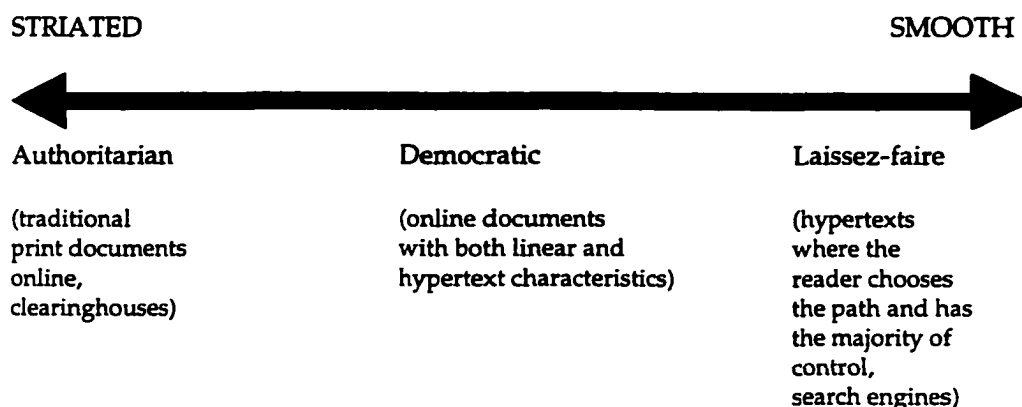
Figure 4.1: Creator Control Plotted on Smooth/Striated Continuum

The determination of smoothness or striation is the amount of control the creator is willing to give up to the reader. For example, striated text allows little control by the reader/user. Some print online journals can be seen in this way. *The Information Society Journal* (http://www-slis.lib.indiana.edu/TIS) and the *Interpersonal Computing and Technology Journal* (http://www.helsinki.fi/science/optek/) are both journals that are highly striated. They are journals that are traditionally print which have been put online; as a result, the articles are one node long (very long), and little

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attention is paid to the affordances of electronic technology (e.g., icons, graphics, background color, linking). Striated texts, with an authoritarian style creator, leave the reader little control over the organization of the material or reading experience.

A document that has both smooth and striated characteristics has a Democratic style leader. *Kairos* is an example of this degree on the continuum. Much of the traditional striated characteristics of a print journal are retained (e.g., table of contents, archiving, set times for issues to be released) while still allowing smoothness (e.g., HyperNews allows a continual discussion, search engines allow the reader to choose where in the journal to go, icons are used for quick and easy navigation by the reader). A primarily smooth document is where the creator style is Laissez-faire. The creator does not determine the path of the reader. Search engines are good examples of this because the reader has initiated the search, and the search engine does not pre-select what the reader can view. The reader/user has total control of creating the links and determining the path to take.

Definition of Rhizome

On the smooth/striated continuum one can place hypertexts, and hypertexts were actually discussed before electronic technology allowed their

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creation. Deleuze and Guattari's description of rhizome is very similar to descriptions of hypertext. Deleuze and Guattari discuss the rhizome as a metaphor of a smooth space. And Martin Rosenberg uses rhizome to describe hypertext. Deleuze and Guattari were trying to create a hypertext within the bounds of print technology. Their book, *A Thousand Plateaus*, is their effort to create a smooth space, an open system (xiv). They say that geometry is part of striated space (489), which points out a paradox that Rosenberg discusses in his criticism of hypertext theorists. Rosenberg writes that hypertext theorists use geometric metaphors to describe hypertext, such as "nonlinear." When hypertext theorists use geometric metaphors to describe hypertext, however, they are using striated concepts to try to describe a smooth space. Those descriptions are striated and rule-driven and go against the poststructural foundation of hypertext (*Hyper/Text/Theory* 274). Rosenberg, like Deleuze and Guattari, prefer the rhizome metaphor to describe the smooth spaces of hypertext. They define the rhizome book as:

> The radicle-system, or fascicular root . . . . This
> time, the principal root has aborted, or its tip has
> been destroyed; an immediate, indefinite multi-
> plicity of secondary roots grafts onto it and under-
> goes a flourishing development. This time, natural
> reality is what aborts the principal root, but the
> root's unity subsists, as past or yet to come, as
> possible. (Deleuze and Guattari 5)

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Deleuze and Guattari say that the rhizome is all the more total in its fragmentation (6). Like Deleuze and Guattari's book, there have been other creators who have tried to create hypertextual/rhizomatic spaces in a traditional space. *Tristram Shandy, In Memoriam, Ulysses,* and *Finnegans Wake* are all creative efforts of creators to break out of the boundaries of print classic texts (Landow, *Hypertext,* 102). I will list the characteristics of rhizomes and then explain them more fully and in relation to hypertext (Boundas 29-35).

Principle of connection and heterogeneity

Any point of a rhizome can be connected to any other point, which is not necessarily linguistic in nature. Also, no ideal sender or receiver of communication exists: there is no homogeneity (*A Thousand Plateaus* 6). In hypertext, the creator can create links from any place to any other. And, the creator is not confined to linking only to text: he/she can also use sound and graphics.

Principle of multiplicity

No units of measure or pivot units exist in a rhizome. There are multiplicities/varieties of measurement (*A Thousand Plateaus* 7-8). Landow

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explains that hypertext has a center, not a beginning or ending (*Hypertext* 69). With hypertexts and rhizomes, there are not core, central units on which all is based.

Principle of asignifying rupture

A rhizome may be broken at a given point, but it will start up again somewhere else (*A Thousand Plateaus* 9-11). Boundas explains that "every rhizome contains lines of segmentarity according to which it is stratified, territorialized, organized, signified, attributed, etc., as well as lines of deterritorialization down which it constantly flees" (32). The reader of a hypertext can start at any point and break away at any point.

Principle of cartography (art of making maps) and decalcomania (to transfer by tracing)

The act of tracing assumes a static state by which to conduct the tracing (*A Thousand Plateaus* 12-15). Boundas explains

> a rhizome is altogether different, a *map and not a tracing* . . . . what distinguishes a map from the tracing is that it is entirely oriented toward an experimentation in contact with the real . . . . it constructs the unconscious . . . it is itself a part of the rhizome . . . . the map is open and connectable in all of its dimensions;

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it is detachable, perhaps one of the most impor-
tant characteristics of the rhizome is that is
always has multiple entryways. (35)

A hypertext can be entered at any point, and the reader can choose the path
he/she takes. By choosing this path, the reader is constructing the experience
as well as experiencing it. The reading of a hypertext is never static enough
to trace. The map is the looking at and the looking through: choosing the
path makes the reader aware of the experience while following the hypertext
is the experiencing.

As previously discussed, the rhizome does not have a beginning or an
end, but a middle. The middle is similar to Landow's description of
hypertext having a "center." Deleuze and Guattari say that "a plateau is
always in the middle, not at the beginning or the end. A rhizome is made of
plateaus" (21). Hypertext is described by many theorists in the computers
and writing field as having multiples, being multilinear, thus being similar to
a rhizome's plateaus.

Hypertexts and rhizomes have smooth and striated characteristics.
Another aspect that many have discussed as being reflected in hypertext is
Walter Ong's orality and literacy. It is my contention that Ong's orality and
literacy is not appropriate for discussions of electronic writing/hypertext

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because it is bound by characteristics of print technology. I will show how smooth and striated are better descriptions of this new form of writing.

Characteristics of Orality and Literacy
in Hypertext

With the advent of electronic writing, much has been made about the comparisons of hypertext to Walter Ong's discussion of orality and literacy. Jay Bolter's discussion of Ong's orality and literacy and electronic writing is the most extensive. Electronic writing, hypertext, seems to combine aspects of both orality and literacy, concepts that Ong had previously kept separate. Bolter discusses this association/difference in *Writing Space*. He says that electronic writing is like oral communication in that it is highly associative and dynamic (59). Ong views the literate mind as better because it is more objective and analytic. He calls what computers have allowed us to do with writing a "secondary orality," not willing to admit the closeness this writing has to primary orality (Bolter 60).

Sherry Turkle, in her book *Life on the Screen*, writes that, "Onomatopoeic expletives and a relaxed attitude toward sentence fragments and typographic errors suggest that the new writing is somewhere in between traditional writing and oral communication" (183). Turkle sees less of a distinction between writing and oral communication than Ong. Ong says

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that the oral is sound that leaves no trace and has no focus, existing "only when it is going out of existence" (*Orality and Literacy* 32). Hypertext has the quality of sound, yet at the same time it does not. Hypertext, with its movie clips, sound waves, illustrations, and real time does in fact exist "only when it is going out of existence"; however, the hypertext can be reviewed so it does leave a trace. So, unlike Ong's description of the differences of orality and literacy, hypertext contains both.

Michael Joyce recognizes the creation of a new form of writing; that hypertext has the aspects of previous writing technology, but it is enhanced by "rhythmic, temporal, multiple, visual and polyvocal structures" ("Page Versus Pixel"). Thus, while hypertext does have aspects of orality and literacy, it is not merely a combination--it is something new.

Characteristics of Orality and Literacy in
Smooth and Striated Spaces

Walter Ong's discussion of orality and literacy (*Orality and Literacy*), like Deleuze and Guattari's concept of smooth and striated, are both largely used to explain cultural spaces--spaces where culturally connected societies interact. Ong defines orality as aggregative, bound in tradition, unable to distance oneself from the object (36). Like Delueze and Guattari's smooth space, orality is haptic, sensation. Literacy is reflective, objective, able to

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subordinate the object into categories. Like Deleuze and Guattari's striated space, literacy is hierarchical. Oral cultures have no text, their definitions exist in present time. Their words have no multiplicity of meaning because there is no need to retain meaning that is not presently being used. Literate cultures have text, and their writing is artificial (78). Ong sees the artificiality as a good thing because the individual can distance him/herself from the experience and think analytically.

In oral cultures, sound exists as it is going out of existence. As Ong says, "Sight isolates, sound incorporates." Sound is an event, an occurrence, the experience. Sight is objective, distanced, reflective (75). Ong claims that sound prioritizes hearing while sight prioritizes vision. Ong believes that literate cultures are better because they have the capacity to reflect on their thoughts (82). Writing transformed thought because literate cultures could analyze, subordinate, categorize, distance themselves from the experience.

Deleuze and Guattari's smooth and striated spaces and Ong's orality and literacy have complimentary elements. Striated spaces are the State-space, smooth spaces are the nomad space. Ong's literate cultures have categories, divisions, and subordination, which is complementary to the striated spaces hierarchy, rule-driven, static dimensions. Striated spaces interrupt in order to establish essence and focus on the form, and Ong's

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literacy stops the impermanence of sound, creating a static text to reflect upon.

Smooth space is flight and transformation, which is complementary to Ong's orality because he says that oral cultures exist in the present. Smooth space concerns sensation and orality exists only while going out of existence. Deleuze and Guattari say that "striated space is better for progress, but smooth space is where there is becoming" (*A Thousand Plateaus* 486). This is complementary to Ong's belief that literacy allow reflection, objectivity (the progress in striated space), while orality places cultures in the present, spontaneous, turned inward (the becoming in smooth space).

Electronic technology, however, has complicated Ong's definitions of orality and literacy. Deleuze and Guattari's rhizome is a precursor to hypertext, a form of electronic writing. Deleuze and Guattari discuss the rhizome-book in their book, *A Thousand Plateaus*. This rhizome-book combines characteristics of orality and literacy. A rhizome-book is a text, so it has some striation and therefore has the aspects of literacy that Ong discusses. But a rhizome-book is more of a smooth space and therefore has aspects of orality. A rhizome is acentered, nonhierarchical, multiples of lines that break apart and start back and continue. Rhizomes connect at all levels and points; there is "no ideal speaker-listener." Rhizomes as text have

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multiple entryways. Rhizomes are also heterogeneous in that the lines are different in their essence; they are not all the same.

With rhizomes in the text version of smooth spaces (keeping in mind that smooth spaces always exist with striated spaces so that the rhizome-book still has some striation), we can see where Ong, as discussed by Bolter, comes in conflict with his definitions of orality and literacy. Bolter discusses a new form of writing in his book, *Writing Spaces*, and develops Ong's definitions of orality and literacy. Bolter agrees with Ong that writing is reflective, allowing categories and subordination. But he says that with hypertext--a new form of writing emerges--writing that has become flexible and dynamic. Hypertext exists in "real time," which Ong would say only exists for orality. Hypertext writing for Bolter is constructive, with borders and margins redefined (57). This goes against Ong when he says that writing allows subordination and a static text to reflect upon. Bolter and Landow say that hypertext has no beginning or end, only a center. This is similar to Deleuze and Guattari's principle of multiplicity of a rhizome, and goes against Ong's definition of writing that is subordinated and has categories. Ong says that sight isolates, but Bolter says that hypertext is inclusive. The rhizome is a smooth space, and contains characteristics of orality and literacy. When comparing Bolter's discussion of hypertext, the description fits that of

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Deleuze and Guattari's rhizome-book. Where Bolter contradicts Ong,

Deleuze and Guattari contradict Ong.

Ong discusses secondary orality, which he says has developed due to

electronic technology. He says that secondary orality is like primary orality

in that it is oriented to a group, turned outward because there is no other

alternative, and spontaneous because there is no way to be analytical and

reflective. But he says that secondary orality is different from primary orality

because the group is very large (akin to McLuhan's "global village"), turned

outward because it has been turned inward, and spontaneous because it

knows there is something good about spontaneity. On the surface, secondary

orality might seem similar to some of the aspects Deleuze and Guattari

describe in regard to rhizomatic writing/smooth spaces. However, the

previously stated description of secondary orality just does not fit the

description of smooth spaces. Ong's discussion of primary orality has more

qualities in common with smooth spaces as seen in rhizomatic writing.

Smooth spaces exist in hypertext writing. And smooth spaces focus not on

the essence, which is static in form, but on the becoming. Because hypertext

writing *is* writing, albeit a new form of writing, Ong's definitions of orality

and literacy, despite having many aspects in common with smooth and

striated spaces, are too contradictory to Deleuze and Guattari's definitions of

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smooth spaces and striated spaces to conclude that hypertext is a combination of orality and literacy.

What Ong and Deleuze and Guattari do allow for is a platform from which to develop theories about this new form of writing, hypertext. Before electronic technology, Ong's definitions of orality and literacy went unchallenged. With the advent of electronic technology and hypertext, many saw orality and literacy come together in a common place. Theorists such as Rosenberg and Moulthrop applied Deleuze and Guattari's concept of smooth and striated spaces to hypertext writing and hypertext theory. Hypertext writing does incorporate orality and literacy, so much so that Ong's theories are no longer as appropriate as they were for print writing. Hypertext does contain some aspects of orality and some aspects of literacy; however, hypertext is something new and not just a combination. Hypertext is more than the sum of its parts. Deleuze and Guattari's concept of smooth and striated spaces applied to hypertext writing reveals in a more accurate way how hypertext is different from print writing. Deleuze and Guattari's concept of smooth and striated spaces offers to theorists and researchers in the field of computers and writing new opportunities for analysis.

This chapter defines a number of terms (hypertext, smooth and striated spaces, rhizomes), and looks at the differences between print and

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electronic writing, the qualities of hypertext, the differences between

hypertext and hypermedia, the characteristics of orality and literacy in

hypertext, and the characteristics of orality and literacy in smooth/striated

spaces. The categories of assessment and affordances of smooth and striated

spaces in electronic academic journals can now be explored.

CHAPTER IV

RHETORICAL ANALYSIS/DELEUZE AND

GUATTARI CONTINUUM

Categories of Assessment for Smoothness and Striation in Electronic Academic Journals

As discussed in Chapter II, the smoothness or striation of a rhetorical space is chiefly the degree of control the creator is willing to give up to the reader. When referring to the author of rhetorical spaces, I will use the term creator. The creator may be the author of the text; however, with journals there can be several authors and one or more editors. And when referring to electronic journals there can be several authors, one or more editors, and a creator(s) of the online journal. Therefore, the term creator will refer to the individual(s) who control the degree to which the reader can interact with and determine the direction of the reading experience. And when discussing one of the four categories of assessment of smoothness/striation, author/editor presence, I will use the term author/editor. I do this to distinguish between my discussion of the global rhetorical issue of the control of the entire rhetorical space and the more specific category of assessment used in the continuum.

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For example, a clearinghouse can be seen as a striated rhetorical space because the creator, taking an authoritarian approach, determines what the reader should be given. The clearinghouse offers information but the information is preselected for the user; the authority still resides with the creator of the site. Information in clearinghouses is structured in hierarchies with parameters around the information. Clearinghouses do not allow the reader to select information, to choose the path of exploration through the information. Striated spaces establish hierarchies, rules, and parameters.

However, a search engine can be seen as a smoother rhetorical space because the creator, taking a more laissez-faire approach, gives the reader all options and allows him/her to make the decision of what to read. The search engine gives the authority to the user because the user gets to decide the word(s) to use for the search and then select which sites to visit. No information is censored; if the site contains the word(s) the site can be selected. Thus, search engines are smoother spaces. Smooth spaces are designed for the reader to be a place of invention, experience, and becoming. The reader has the authority to choose the path, to choose the type of experience. Search engines allow the reader to choose the path, to make the connections, to create the experience.

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One can assess a rhetorical space to see the degree of striation or smoothness. This dissertation focuses on electronic academic journals, and what constitutes a striated quality in an electronic academic journal does not necessarily generalize to other forms of electronic or print rhetorical spaces. There are four categories for assessing smoothness/striation in an electronic academic journal: first impression, author/editor presence, reader participation, and temporality. First impression of electronic academic journals is the top node of the journal issue, not the homepage of the journal that many journals also have. Usually, it is a form of table of contents, describing or listing what is contained in the issue. Author/editor presence is the visible presence that the author/editor displays throughout the journal. Reader participation is the degree of interaction the reader has with the journal. Temporality is the way the journal issues are cycled.

The degree of control retained by the creator permeates all four categories of assessment. If the creator retains a great deal of control over the rhetorical space then the first impression of the electronic academic journal will be different from an electronic academic journal whose creator gives much of the control to the reader. For example, the first impression of the electronic journal with a creator who retains control may have the authors and editors listed in a prominent position, which creates distance (striation)

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between the reader and the creator and prioritizes some voices over others. An electronic journal with a creator who gives much of the control to the reader may have places on the top node for reader response, or the topics of the texts may be placed in a prominent position, which result in a focus on other voices and topics and not on the creator or editors. This focus on many voices results in the first impression category of assessment being smoother.

Author/editor presence is also affected by creator control. For example, if the creator retains control, then the author/editor presence will be strong in the electronic academic journal, and this category of assessment would be more striated. This may be evidenced by an editor's statement to the readers or the editorial staff being listed prominently. However, if the author/editor presence is not prioritized over the other voices (authors and readers), then the author/editor category of assessment can be said to have a higher degree of smoothness.

The third category of assessment of smoothness/striation in an electronic academic journal, reader participation, will be affected by the degree of creator control. For example, if the creator retains control the reader participation will be low, and thus the reader participation more striated. However, if the creator gives control to the reader then the reader participation will be high, and the reader participation more smooth. Reader

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participation in an electronic journal may be evidenced by a search engine or a function that allows reader feedback (e.g., HyperNews).

Finally, temporality is affected by creator control. If the creator retains control over the temporality of the electronic academic journal then the publication dates of the journal may be static, and therefore more striated. However, if the creator gives up control over the temporality, then the electronic academic journal may have specific publication dates for issue releases, but the conversations from multiple voices between issues will be allowed to continue (more smooth), making the temporality dynamic (e.g., through HyperNews). Thus, the four categories of assessment for smoothness/striation of an electronic academic journal are affected by the amount of control the creator retains. And, by analyzing the rhetorical space of an electronic academic journal with the four categories of assessment for smoothness/striation, one can reveal interesting characteristics of the electronic journal and determine where it resides on the smooth/striated continuum.

The categories of assessment for smoothness/striation of an electronic academic journal have been established as a result of Deleuze and Guattari's discussion of the characteristics of the rhizome-book and definitions of smooth and striated.

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First impression is an important category for smoothness or striation because it affects the principle of multiplicity and the principle of connection and heterogeneity. The principle of multiplicity allows for "varieties of measurement." Deleuze and Guattari explain "The notion of unity appears only when there is a power takeover in the multiplicity by the signifier . . ." (*A Thousand Plateaus* 8). In other words, a smooth first impression shares the control with readers; it does not take over the power of choice. This can be seen by the degree with which the reader is allowed to enter the rhetorical space and interact within it, sharing control (e.g., search engines). Also, the principle of connection and heterogeneity says that any point can be connected to anything other, and that "there is no ideal speaker-listener" (*A Thousand Plateaus* 7). In other words, a smooth first impression of the electronic academic journal allows the reader to connect to any part of the site he/she chooses. And, a smooth first impression allows all voices to be heard (e.g., a feedback function), not prioritizing one voice or a set of voices (e.g., prominently listing authors and/or editors).

First impression is more crucial to electronic academic journals than to print journals because it is too easy for the reader to leave the journal. With a print journal, the reader is somewhat invested: he/she has bought or acquired the journal and is physically holding it. There was time and effort

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and usually money involved in the obtaining of the journal. With electronic academic journals the reader usually has spent no money and with a search engine or URL has found the journal with relative ease. Also, the ability to leave the electronic journal for another electronic journal site or URL is very easy. The creator of the electronic academic journal has a much greater challenge retaining the reader throughout the entire journal than the creator of a print journal.

Author/editor presence is an important category of assessment for smoothness or striation because it affects the principle of heterogeneity. Deleuze and Guattari say that there is no ideal speaker or listener (*A Thousand Plateaus* 6). If the author/editor presence is striated in an electronic academic journal, then the voices of a few are prioritized over others. However, if the author/editor presence is smooth in an electronic academic journal, then many voices are encouraged. This smoothness can be revealed by encouraging feedback (e.g., HyperNews) or by not prioritizing certain voices (e.g., authors, editors, editorial board).

Reader participation, a third category of assessment for smoothness/striation in an electronic academic journal, affects the principle of asignifying rupture. Deleuze and Guattari explain "There is a rupture in the rhizome whenever segmentary lines explode into a line flight, but the line

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of flight is par of the rhizome. These lines always tie back to one another" (*A Thousand Plateaus* 9). Smooth rhetorical spaces in terms of reader participation will have opportunities for the reader to determine the path, to break away at any point and come back at any point. Reader participation that is more striated will force the reader on a path, and not allow the reader to choose when to break away.

The fourth category of assessment for smoothness/striation in an electronic academic journal, temporality, is important because it affects the principle of cartography (art of making maps) and decalcomania (to transfer by tracing). Decalcomania (tracing) needs the text static in order to perform the tracing, which is striated in nature. A tracing exists ". . . on the basis of an overcoding structure or supporting axis, something that comes ready-made" (*A Thousand Plateaus* 12). But a map is different. Deleuze and Guattari explain "What distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real. The map does not reproduce an unconscious closed in upon itself . . . " (*A Thousand Plateaus* 12). A journal that is produced, packaged, and delivered at a set time "comes ready-made." This striation comes from the artificial boundaries placed around the knowledge. But a map, which is smoother, is not closed. In terms of temporality, the electronic academic journal, which is more like the map, is

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not closed. It is open to interaction from readers. The readers keep the journal open, with continual conversation.

The following will explain and show examples of striated qualities in electronic academic journals, then explain and show examples of smooth qualities in electronic academic journals. The examples I will be giving come from a variety of electronic academic journals.

Striated Qualities of Electronic
Academic Journals

I will refer to the evaluations of the categories of assessment in terms of striation: very high striation, high striation, moderate striation, low striation, very low striation.

First Impression

First impression is one of the categories of assessment for striation or smoothness in an electronic academic journal. The first impression is the first node the reader sees when linking to the journal issue. Some electronic journals attempt to retain many of the characteristics of print journals. One of the ways to do this is to create a table of contents similar to that of a print table of contents, which is more striated because the listing of the contents suggests a linear reading pattern (*A Thousand Plateaus* 7-8). For example, the

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first impression given by *Computer-Mediated Communication Magazine* is

similar to that offered by a print journal (see Figure 4.2).

Figure 4.2: *Computer-Mediated Comunication Magazine* First Impression
(table of contents suggests linear reading pattern –high striation)
www.december.com/cmc/mag/current/toc.html

It is striated because it privileges certain voices, as seen by its having a

sponsor for each issue. The sponsorship is placed at the top of the node,

taking priority placement. The contents are arranged in a list, similar to the

contents of a print journal. The contents contain book reviews, feature

articles, and an editor's page, which are found in print journals.

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Computers and Composition also contains striation in its first impression

(see Figure 4.3).
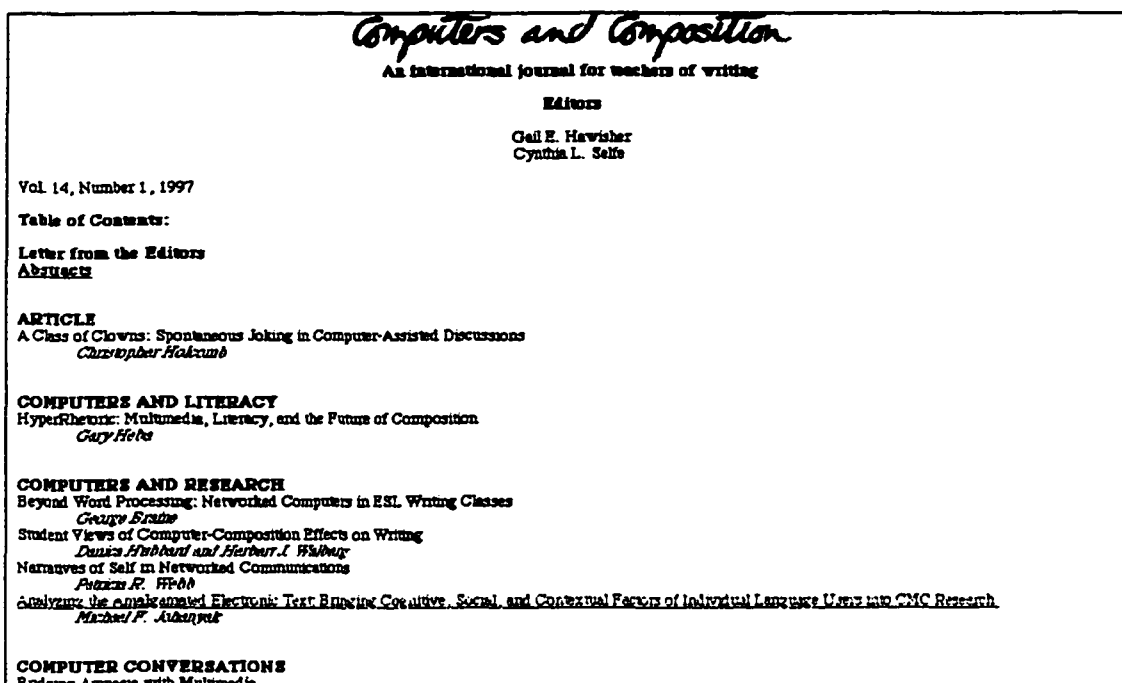
Figure 4.3: *Computers and Composition* First Impression
(list format forces linear progression– high striation)
www.cwrl.utexas.edu/~ccjrnl/Current_Issue/Current_Issue.html

Although this site was not complete at the time of the viewing, it still contains

striation. The contents are presented in a list format, creating striation

because of the linear, progression-like arrangement. The logo and editor are

at the top and centered, taking a prominent position. The listing of the

articles and authors are arranged left aligned, similar to most print journals.

Cultronix has some striation in its first impression (see Figure 4.4).

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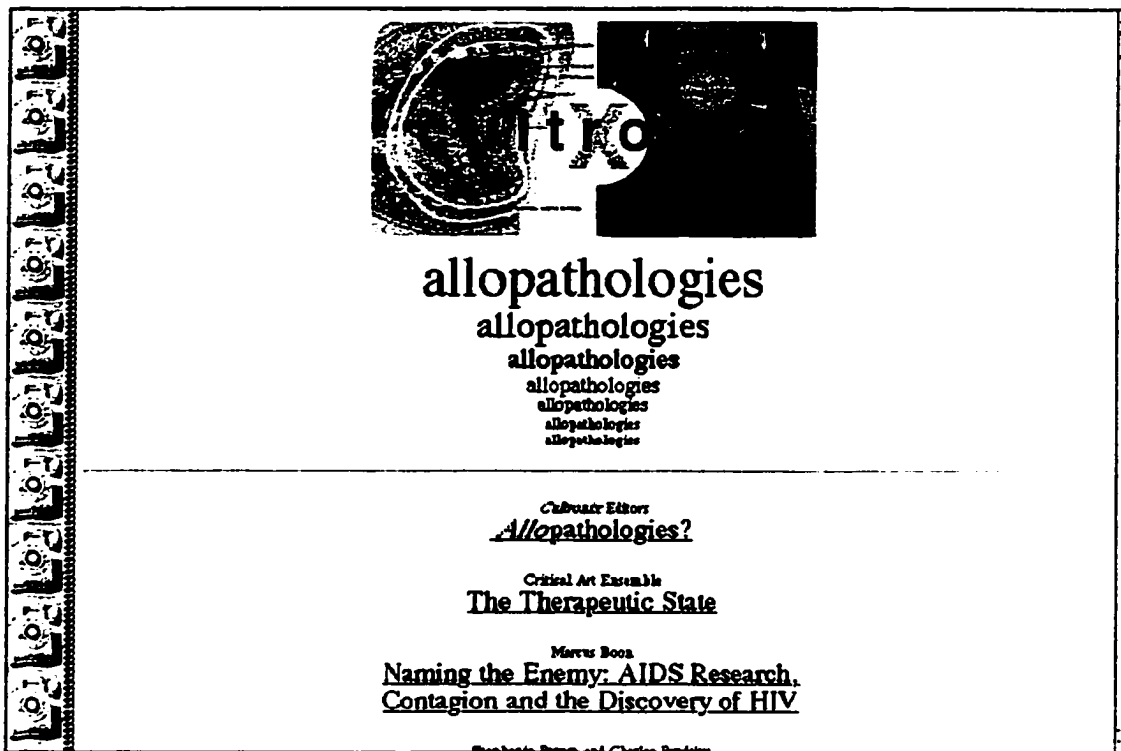
Figure 4.4: *Cultronix* First Impression
(listing articles – moderate striation)
eng.hss.cmu.edu/cultronix/04/

The title of the journal is at the top and centered, which takes precedence, but

the photograph keeps the logo from being the central focus. The articles are

listed in a linear order, indicating striation, but unlike most print journals the

contents are centered on the page and not left aligned.

Ejournal uses a fairly traditional table of contents (see Figure 4.5).

EJournal

Volume 6 Number 3
August 1996

An Electronic Journal concerned with the
implications of electronic networks and texts.

ISSN 1054-1055

740 Subscribers (to the email version) in 32 Countries

University at Albany, State University of New York
EJournal@albany.edu

CONTENTS:

Guest Editor's Introduction
E-PUBLISHING AND HYPERTEXT PUBLISHING
by Doug Brent
University of Calgary
dabrent@acs.ucalgary.ca
Feature Article
HYPERTEXT NOTES
by Richard Andersen
andersen@canuck.com
Notes and Comments
LIVING IN HYPERTEXT
by John December
john@december.com

Figure 4.5: *Ejournal* First Impression
(list format and author names and affiliation – high striation)
www.hanover.edu/philos/ejournal/archive/v6n3/v6n3.html

The title of the journal is large and prominently displayed at the top and

center, and the titles of the articles are presented in a list format. The authors

and their affiliation are listed to create status and hierarchy, another

characteristic of striation.

Interpersonal Computing and Technology is very striated (see Figure 4.6).

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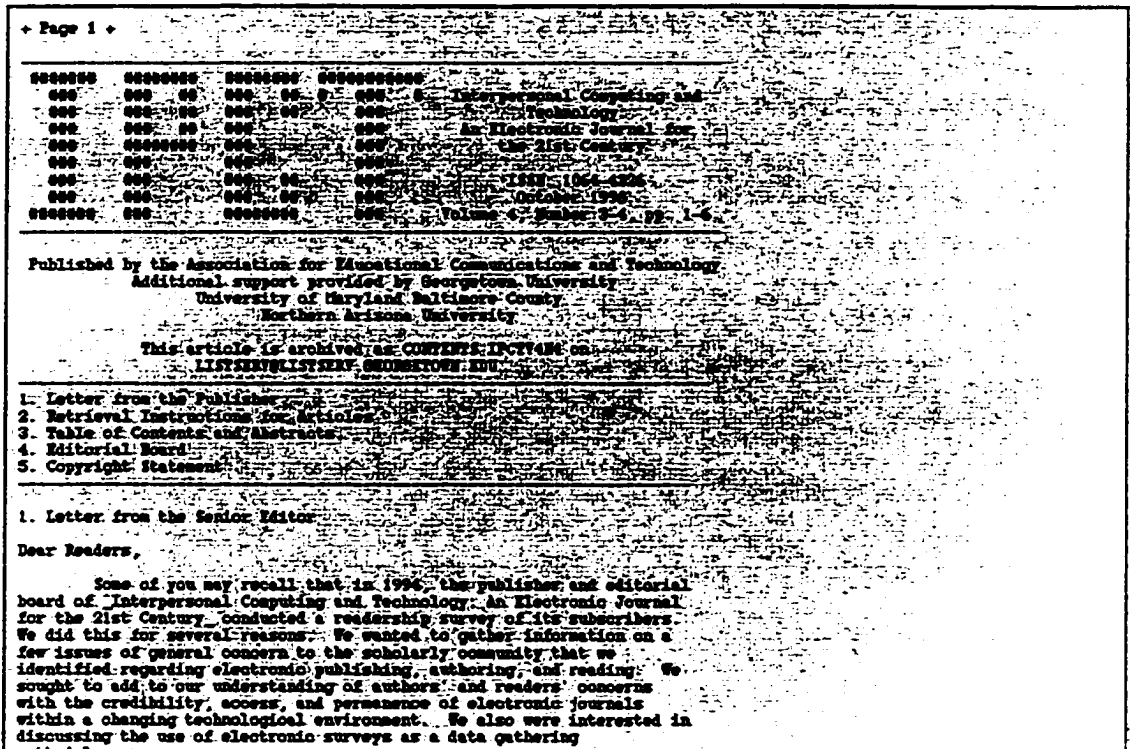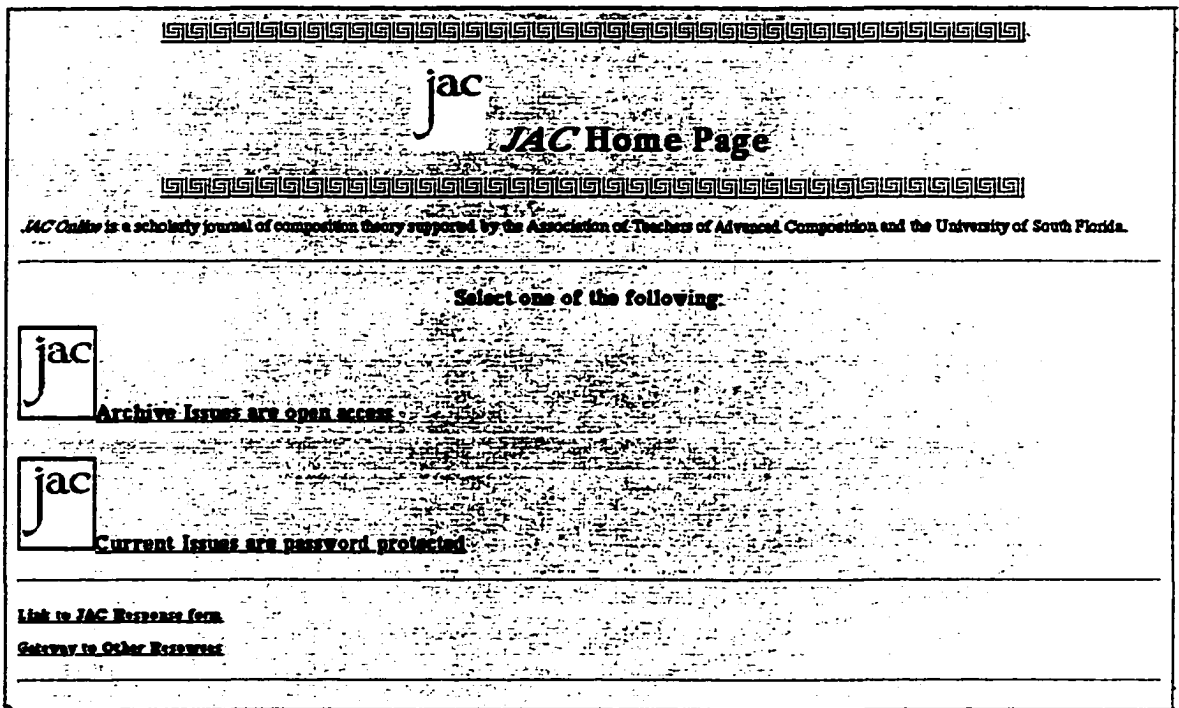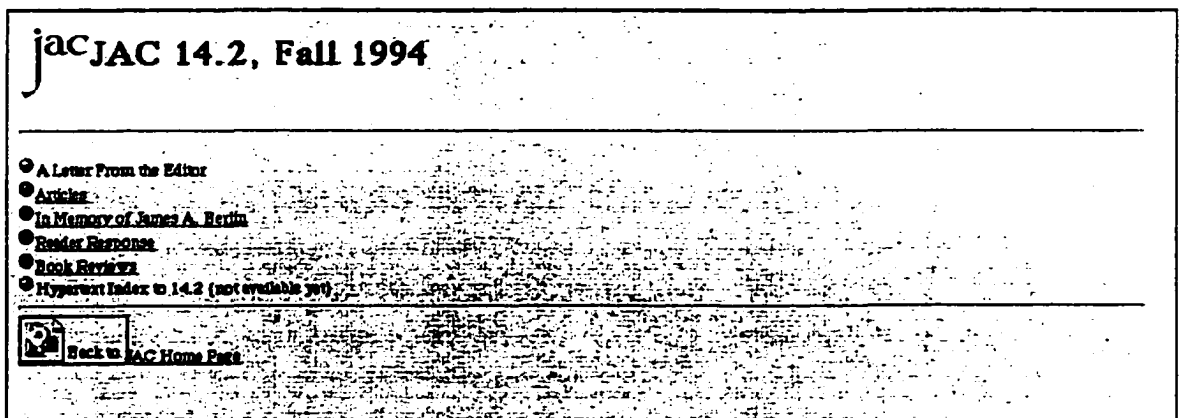
Figure 4.6: *Interpersonal Computing and Technology* First Impression
(numbered articles – very high striation)
www.helsinki.fi/science/optek/1996/n3.txt

It looks like a computer print-out, lacking in color or images, which lowers

the sensory experience possible with electronic technology. The contents are

listed and numbered, indicating the order they should be read. The first

piece, a letter to the readers, starts out with "Dear Readers," characteristic of

many print journals. This striates the journal, placing the readers away from

the authors in a formal, hierarchical relationship.

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The Journal of Advanced Composition is striated, similar to print journals, with their listing of the articles and a letter from the editor listed first (see Figure 4.7).

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Figure 4.7: *Journal of Advanced Composition* First Impression
(listing and password protecting articles – very high striation)
www.cas.usf.edu/JAC/index.html

Also, the articles are not in hypertext form: like a print journal they are in

one, long, successive piece of text. The top node gives the option of archived

issues or the current issue; however, the current issue is password protected.

This immediately striates the journal, creating inaccessibility for those who

are not subscribed. The journal striates information, distinguishing between

old information and current information, letting everyone have access to old

information but protecting current information. This striates the audience

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into those who belong and those who do not, and by separating and

prioritizing certain information.

The *Journal of Computer-Mediated Communication* also presents a fairly

traditional table of contents as its first impression (see Figure 4.8).
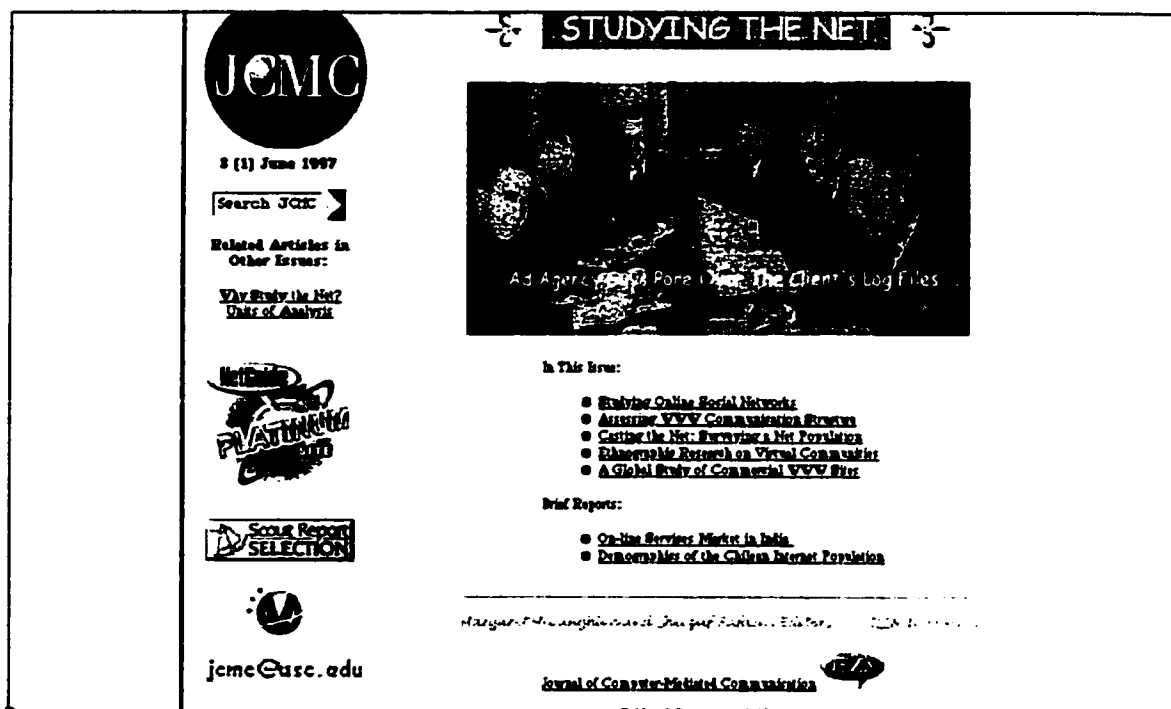
Figure 4.8: *Journal of Computer-Mediated Communication*
First Impression
(list format – moderate striation)
www.usc.edu/dept/annenberg/vol13/issue1/

The logo is still prominently displayed, although off to the left. The contents

are arranged in a list, indicating linear order; however, they are centered,

which is unlike most print journals.

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The Journal of Electronic Publishing is another journal with striated

characteristics (see Figure 4.9).

Figure 4.9: *The Journal of Electronic Publishing* First Impression
(introduction and listed articles – high striation)
www.press.umich.edu/jep/econTOC.html

The contents contain an Introduction, the articles listed in a linear fashion,

and the placement left aligned. The Introduction striates the reading, telling

the reader what to read first, and implying that the journal should be read in

a certain order.

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The Journal of Technical Writing and Communication also resembles a

print journal because the contents are listed in a linear order and arranged left

aligned (see Figure 4.10).
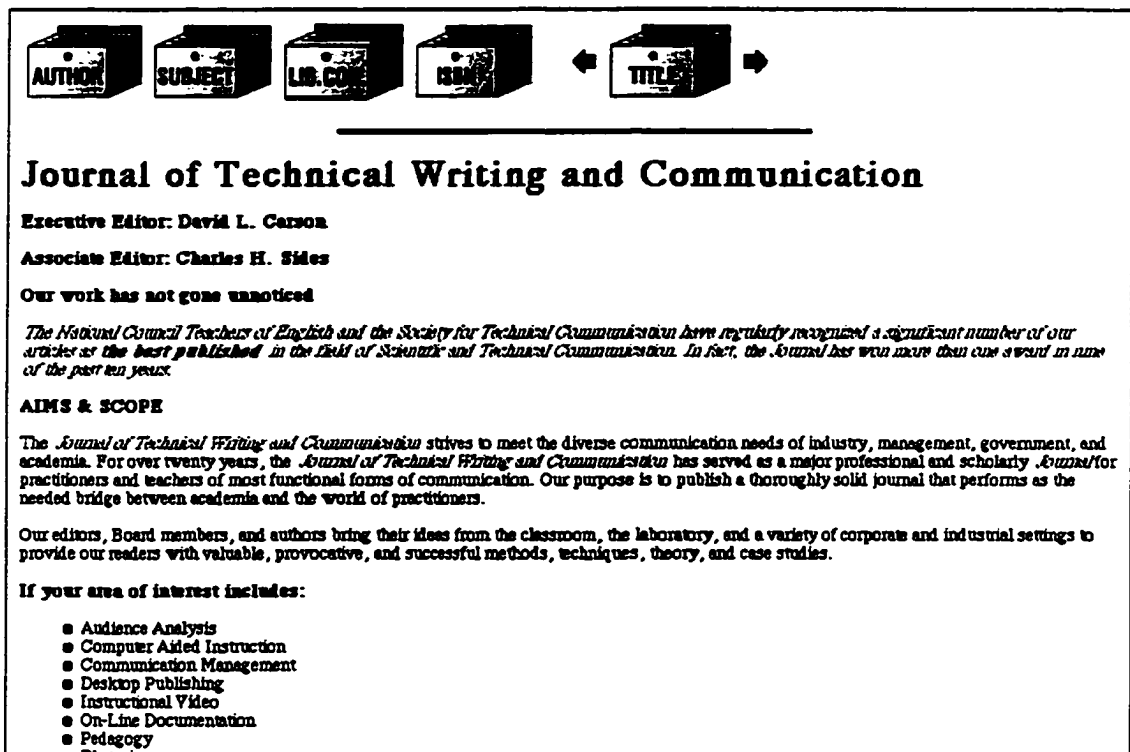
Figure 4.10: *Journal of Technical Writing and Communication*
First Impression
(subscription required – very high striation)
literary.com/baywood/pages/TWE/

110
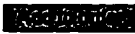
The *Journal of Technical Writing and Communication* is for you!

ABSTRACTED & INDEXED IN

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- Current Index to Journals in Education
- Engineering Index
- Engineering Information, Inc.
- Information Science Abstracts
- Institut de l'Information Scientifique et Technique (INIST)
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Baywood Publishing home page

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Figure 4.10: Continued.
Journal of Technical Writing and Communication
First Impression
(subscription required – very high striation)
literary.com/baywood/pages/TWE/

The reader must order the journal, which striates the information available to

the reader. The top node links to recent articles, but it is only a listing.

Information is thus withheld from the reader, creating a barrier for the

reader.

Kairos is also somewhat similar to a traditional table of contents in that

the title of the journal is prominently displayed and the articles are organized

in a list format (see Figure 4.11).

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Figure 4.11: *Kairos* First Impression
(listed articles – moderate striation)
english.ttu.edu/kairos/1.1/index.html

The list format encourages reading in a certain order, indicating striation.

This journal also has contents similar to a print journal: table of contents,

header, logo, letter to the editor, news section, feature articles, and consistent

document design.

Pre/Text lists the contents, but because they are arranged in a table and

not a list, the first impression is not as striated as contents arranged in a list

(see Figure 4.12).
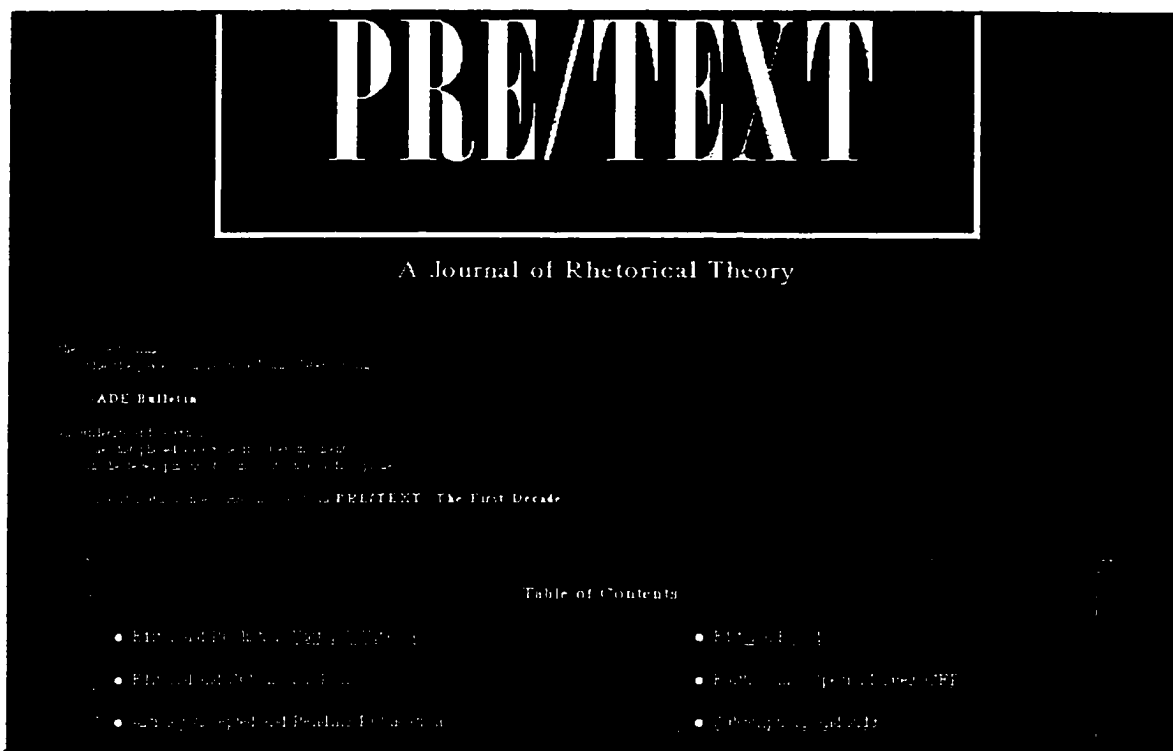
Figure 4.12: *Pre/Text* First Impression
(subscription required – high striation)
rampages.onramp.net/~pretext/

The journal shows striation because the reader must subscribe to get the

information.

RhetNet is not as traditional in its first impression as other electronic

academic journals (see Figure 4.13).

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Figure 4.13: *RhetNet* First Impression
(article listing not prominent – very low striation)
www.missouri.edu/~rhetnet/

There is a table of contents; however, it is relegated to the side bar of the

screen. The bullet list indicates no particular order. Thus, some striation still

exists in its first impression, but it is not as striated as most electronic

academic journals.

Technical Communication Quarterly is a print journal put online (see

Figure 4.14).

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Figure 4.14: *Technical Communication Quarterly* First Impression
(listed articles with authors' names first – high striation)
rhetoric.agoff.umn.edu/~tcq/ATTW/v6n1/toc6.1.html

Its first impression is striated in its arrangement of the content in a list and

left aligned. Also, the authors are listed before the article title, giving a

striated impression of status. The author is prioritized so that the reputation

of the person instead of the topic of the article is prominent.

Author/Editor Presence

Author/Editor presence is another category of assessment for striation

or smoothness in an electronic academic journal. How much visible presence

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the author/editor reveals determines smoothness or striation. The

authors/editors of striated journals are visible, making their presence known

throughout the journal, which prioritizes their voice (*A Thousand Plateaus* 6).

For example, *Computer-Mediated Communication Magazine* is fairly striated (see

Figure 4.15).
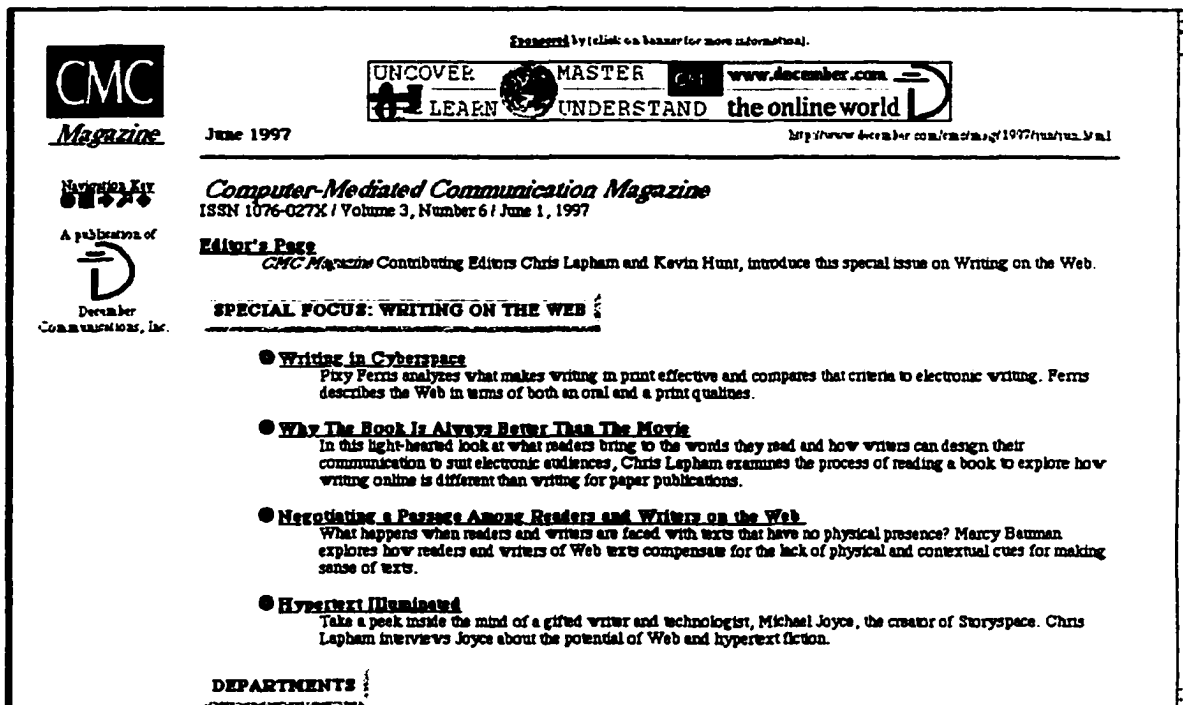
Figure 4.15: *Computer-Mediated Communication Magazine*
Author/Editor Presence
(Editor's page listed first – very high striation)
www.december.com/cmc/mag/current/toc.html

The editor's presence is prominent, as evidenced in the first link being the

"Editor's Page." The editor places himself above the other authors in the

116

journal. The logo of the publishing organization is a large "D", the first initial

of his last name, again prioritizing the author's voice.

Ejournal also shows striation in author/editor presence (see Figure

4.16).

Figure 4.16: *Ejournal* Author/Editor Presence
(editors and board listed first – very high striation)
www.hanover.edu/philos/ejournal/archive/v6n3/v6n3.html

The first article listed is from the guest editor, and under the title "People" all

the links are about the Board of Advisors and Editors. Then, at the bottom of

the node the Editor and Editorial Associate are listed. The importance of the

117

editors is clearly stated, widening the distance between the editors, authors, and readers and thus creating striation.

In the *Journal of Advanced Composition*, the striation of author/editor presence is seen by the bulleted list (see Figure 4.17).
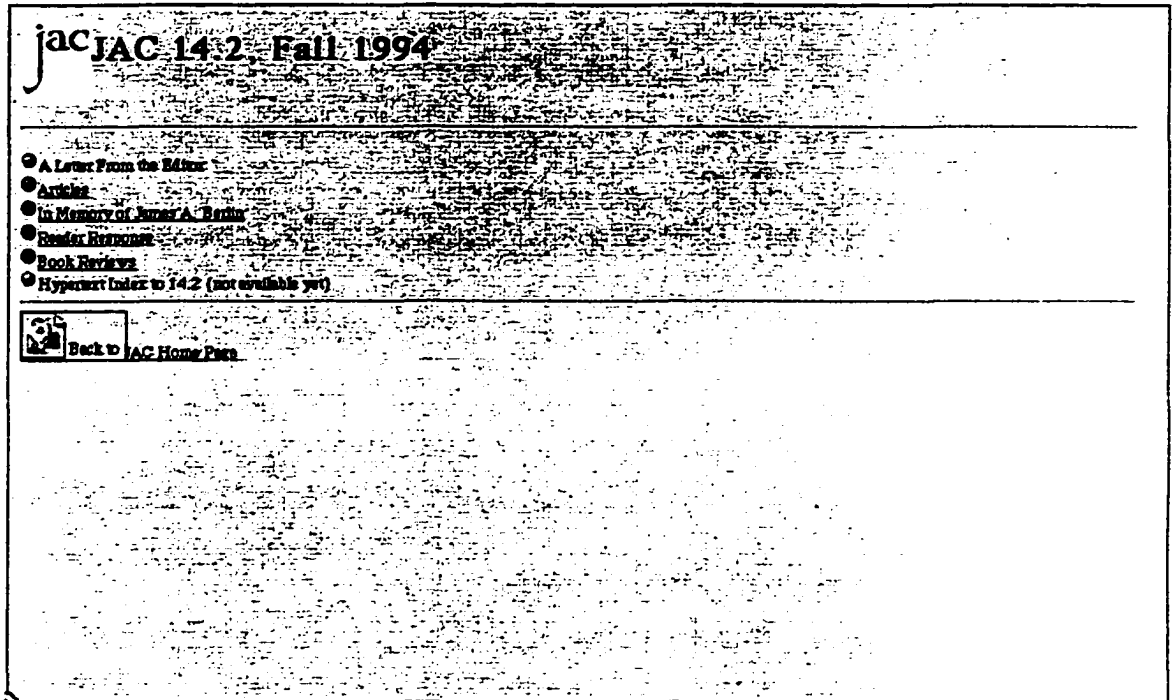
Figure 4.17: *Journal of Advanced Composition* Author/Editor Presence
(letter from editor first – very high striation)
www.cas.usf.edu/JAC/archive/archive.html

The first bullet is a letter from the Editor, again placing the Editor's voice above others.

The *Journal of Technical Writing and Communication* shows its striation in author/editor presence with the listing of the "Executive Editor" and

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"Associate Editor" immediately under the title of the journal, in a larger point size than the rest of the text, and in bold (see Figure 4.18).
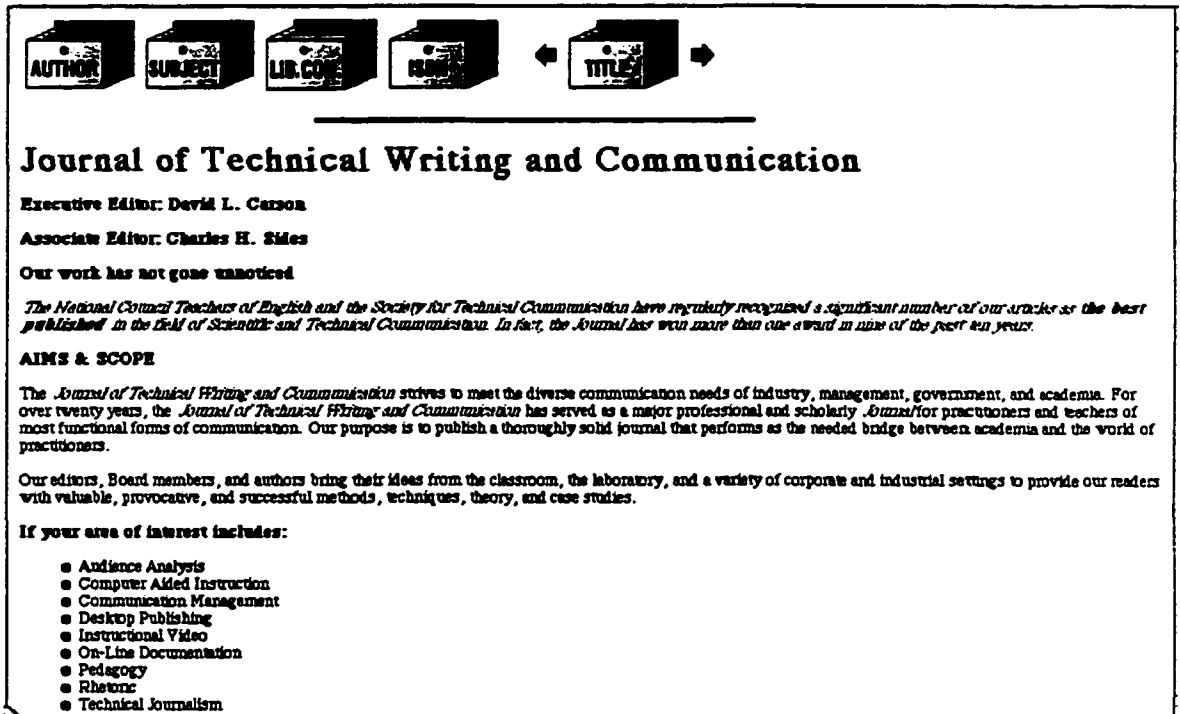
Figure 4.18: *Journal of Technical Writing and Communication*
Author/Editor Presence
(editors' names listed first – very high striation)
literary.com/baywood/pages/TWE/

The information about the text is in a bulleted list, but the editors are each on a separate line and stand out from the other information. This striates them from the rest of the audience and places the editors in control of the information.

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Reader Participation

Reader participation is another assessment category for striation or smoothness in an electronic academic journal. Reader participation is how much interaction and control the creator gives to the reader. How much the reader can determine his/her own path determines smoothness or striation (*A Thousand Plateaus* 9). Also, the smoothness or striation of reader participation is affected by the amount of feedback the reader can give. A journal is more striated if the path is fairly determined for the reader. Also, if there is no place for the reader to comment/give feedback then the journal is more striated. For example, *Computer-Mediated Communication Magazine* is fairly striated in reader participation (see Figure 4.19).

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Pixy Ferris analyzes what makes writing in print effective and compares that criteria to electronic writing. Ferris describes the Web in terms of both an oral and a print qualities.

● **Why The Book Is Always Better Than The Movie**
In this light-hearted look at what readers bring to the words they read and how writers can design their communication to suit electronic audiences, Chris Lapham examines the process of reading a book to explore how writing online is different than writing for paper publications.

● **Negotiating a Passage Among Readers and Writers on the Web**
What happens when readers and writers are faced with texts that have no physical presence? Marcy Bauman explores how readers and writers of Web texts compensate for the lack of physical and contextual cues for making sense of texts.

● **Hypertext Illuminated**
Take a peek inside the mind of a gifted writer and technologist, Michael Joyce, the creator of Storyspace. Chris Lapham interviews Joyce about the potential of Web and hypertext fiction.

DEPARTMENTS

● **Book Review: Digital Literacy = Doin' Stuff on the Net**
John Horberg takes a look at Paul Gilster's book, *Digital Literacy*. Horberg contends that Gilster has not been critical enough in his definition of what it means to be literate online.

● **The Last Link: A Plea for Visual Literacy**
As more and more schools become wired to the Web, Kevin Hunt suggests that we should cultivate a visual literacy that engages students in a variety of activities.

Letters to the editor always welcome: mailto:john@december.com

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Figure 4.19: *Computer-Mediated Communication Magazine*
Reader Participation
(in one node, no feedback – high striation)
www.december.com.cmc.mag/current/toc.html

The articles are one long node, which does not give the reader much choice in determining the path. Other than emailing the authors or editors, the reader cannot comment on the information presented.

Interpersonal Computing and Technology is very striated in reader participation (see Figure 4.20).

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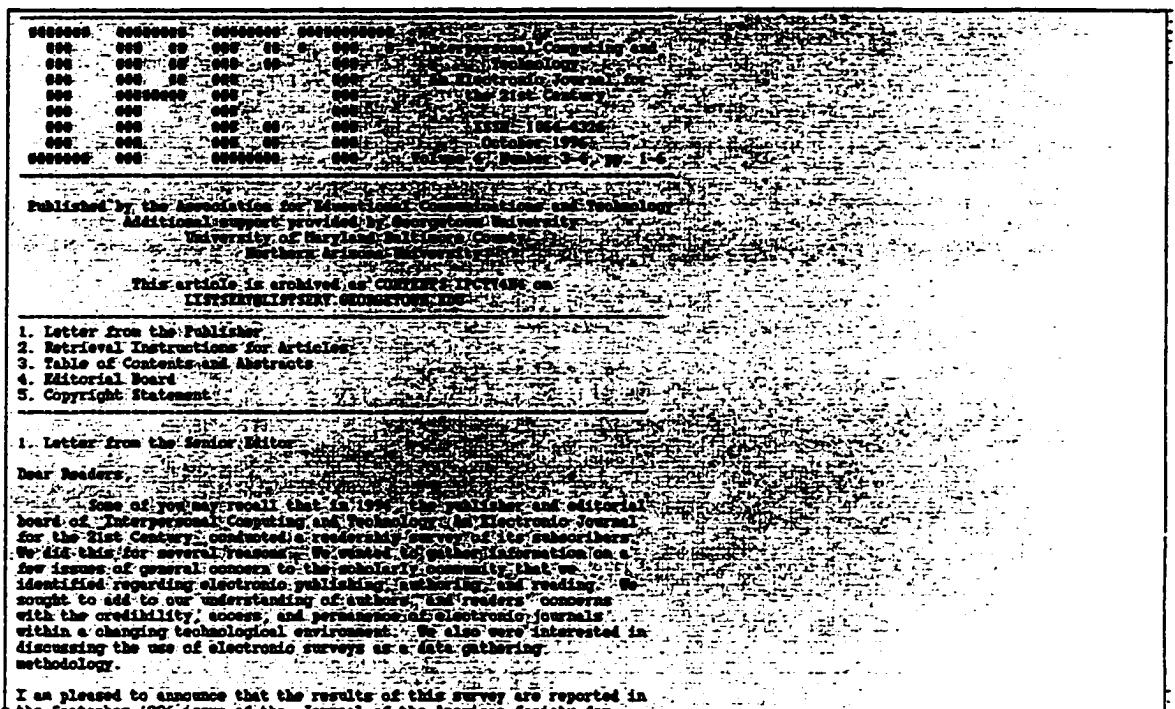
Figure 4.20: *Interpersonal Computing and Technology* Reader Participation
(in one node, no feedback – very high striation)
www.helsinki.fi/science/optek/1996/n3.txt

The entire site is one long node of text; the reader has to either read the text in

the order given or is forced to scroll a great deal to get to what he/she wants

to read. Also, there is no way to give feedback: no contact to the editor or

authors and no way to comment on the articles. This is very striated because

all the information is given *to* the reader and no information can be given

back.

The Journal of Electronic Publishing does not allow the reader much

participation (see Figure 4.21).

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Figure 4.21: *The Journal of Electronic Publishing* Reader Participation
(in one node, no feedback – high striation)
www.press.umich.edu/jep/econTOC.html

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There is no place for readers to comment on the articles or read other comments from other readers. The articles are not in hypertext form and the reader does not have much control over the path once in the article.

Technical Communication Quarterly is another journal where the author/editor retains most of the control (see Figure 4.22).

Figure 4.22: *Technical Communication Quarterly* Reader Participation
(in one node, no feedback – high striation)
rhetoric.agoff.umn.edu/~tcq/ATTW/v6n1/toc6.1.html

The articles are one long node, not in hypertext form. Reader feedback is not solicited. The creator striates the rhetorical space by minimizing the reader's interaction with the journal.

Temporality

Temporality is how the journal is issued. If the journal comes out at specific times of the year and remains static, then there is more striation. If the journal has a way to continue the conversation (e.g., HyperNews), then the journal is smoother (*A Thousand Plateaus* 12). *Interpersonal Computing and Technology*, the *Journal of Advanced Composition*, and *Technical Communication Quarterly* all resemble print journals in that they all have issues that are released at specific dates (see Figures 4.23, 4.24, 4.25).

125
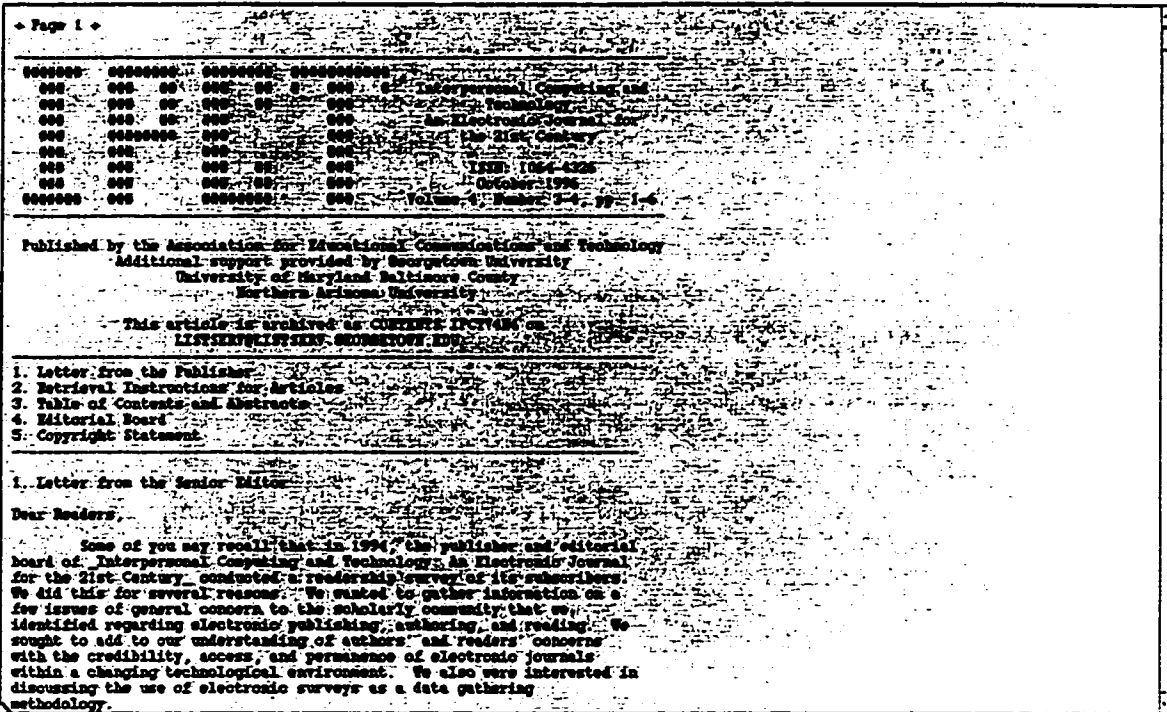
Figure 4.23: *Interpersonal Computing and Technology* Temporality
(specific publication dates – very high striation)
www.helsinki.fi/science/optek/1996/n3.txt

126
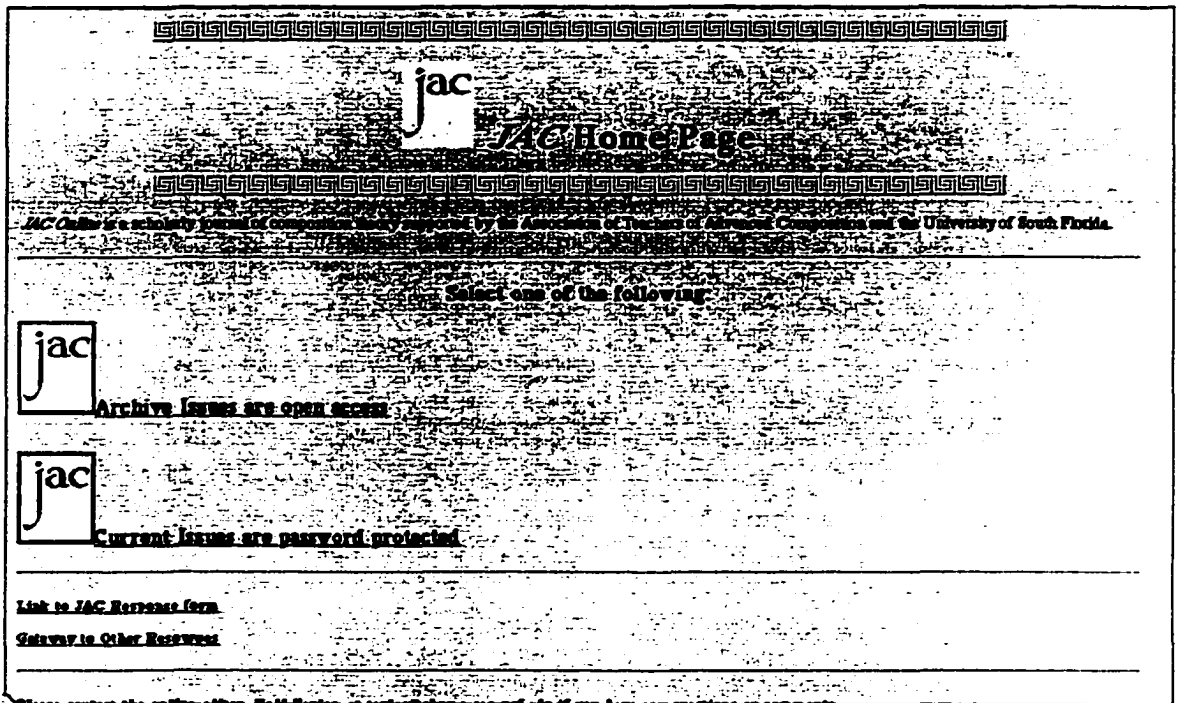
Figure 4.24: *Journal of Advanced Composition* Temporality
(specific publication dates – very high striation)
ww.cas.usf.edu/JAC/index.html

127
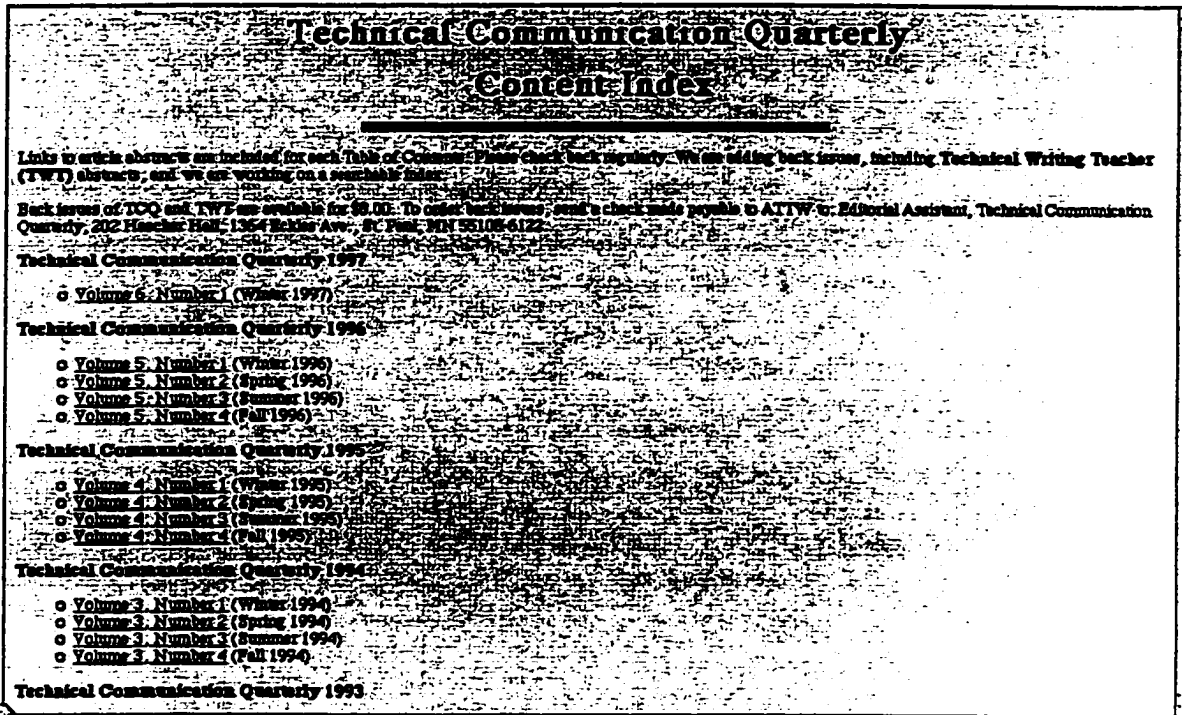
Figure 4.25: *Technical Communication Quarterly* Temporality
(specific publication dates – very high striation)
rhetoric.agoff.umn.edu/~tcq/ATTW/TOC.html

There is no continual conversation from issue to issue, which striates the journal by placing artificial barriers around the information.

Smooth Qualities of Electronic Academic Journals

I will refer to the evaluations of the categories of assessment in terms of smoothness: very high smoothness, high smoothness, moderate smoothness, low smoothness, very low smoothness.

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<u>First Impression</u>

Electronic academic journals with smoother characteristics take

advantage of many of the affordances of electronic technology. Many times,

the first impression of journals with smoother characteristics is that they do

not look like traditional journals. For example, *Cultronix* has its logo

displayed at the center top of the node, but the photograph softens and hides

the logo (see Figure 4.26).
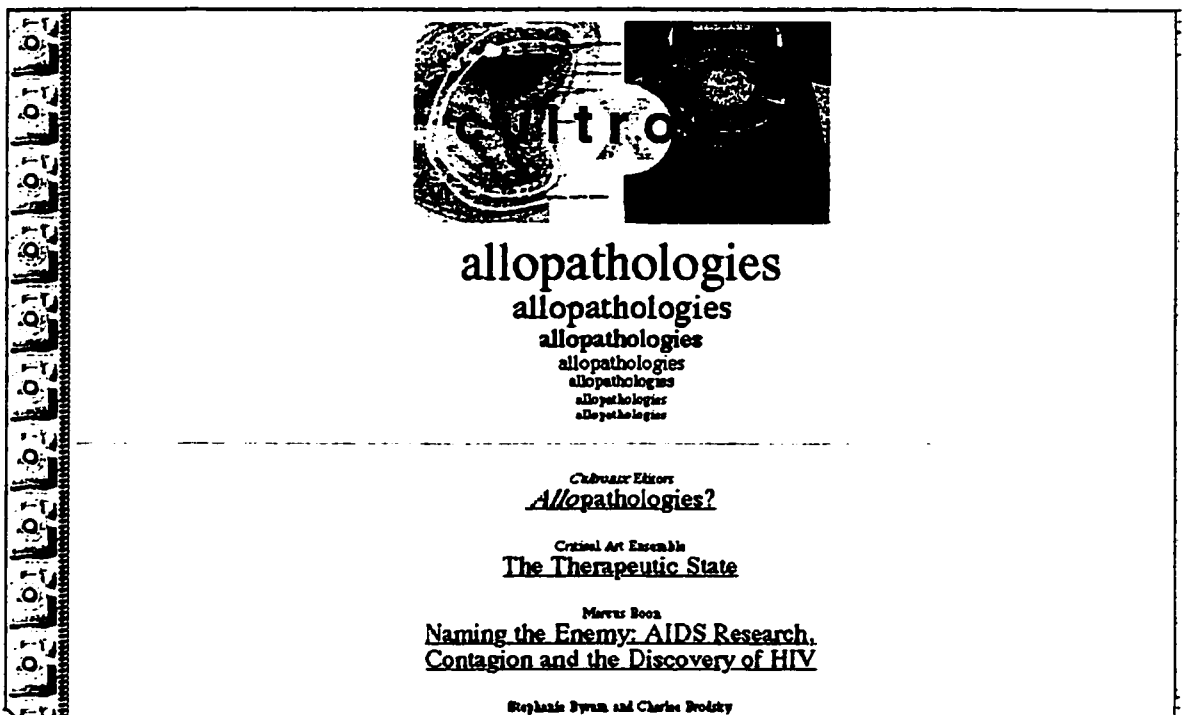
Figure 4.26: *Cultronix* First Impression
(topic prioritized – high smoothness)
eng.hss.cmu.edu/cultronix.04/

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The theme of the issue is prominently centered under the logo, focusing on the content of the journal and not the status of the journal or its editors, a smooth characteristic (*A Thousand Plateaus* 7-8). The repetition of the word "allopathologies" with smaller and smaller point size creates dimension. This gives the reader the feeling of going into the journal, immersing in the experience. The border of the repeated telephone photograph provides visual stimulation and draws the reader's eyes down, encouraging the reader to scroll the text to view the entire node. This first impression is smoother than most traditional journals, drawing the reader into the journal and giving the reader visual stimulation.

The *Journal of Computer-Mediated Communication* also visually stimulates the reader with a photograph, the logo, images, and color (see Figure 4.27).

130
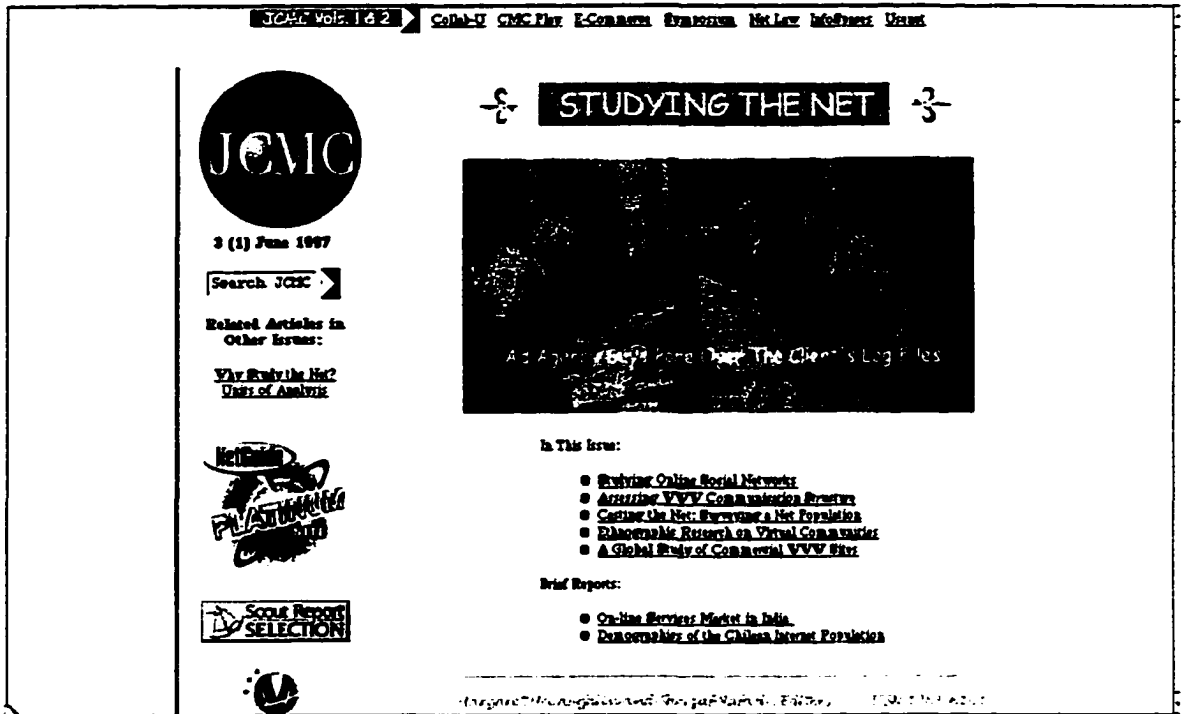
Figure 4.27: *Journal of Computer-Mediated Communication*
First Impression
(bulleted list of articles and topic prioritized – high smoothness)
www.usc.edu/dept/annenberg/vol3/issue1/

Again, the logo is not as prominent as the photograph depicting the feature

article, focusing on the content of the journal. The bulleted list is striated

because of its linear fashion; however, the bullets indicate no particular order

of importance, a smoothness.

Kairos has both smooth and striated aspects of first impression (see

Figure 4.28).
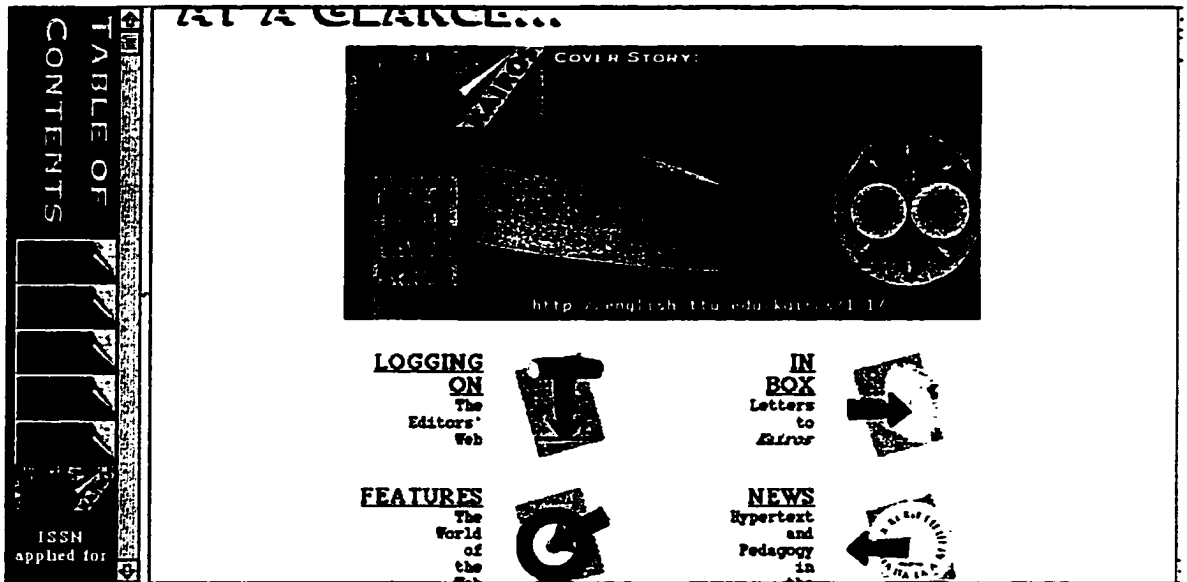
Figure 4.28: *Kairos* First Impression
(topic prioritized, column structure – moderate smoothness)
english.ttu.edu/kairos/1.1/index.html

The icons visually represent text, helping the reader flow through the

information. Prominently displayed is the main feature, which again focuses

on content and not status or hierarchy, creating smoothness. The column

structure of the first part of the table of contents is less striated because it does

not imply that the sections should be read in a linear order as a simple list

would.

Of the journals examined here, *RhetNet* gives the smoothest first

impression (see Figure 4.29).

132
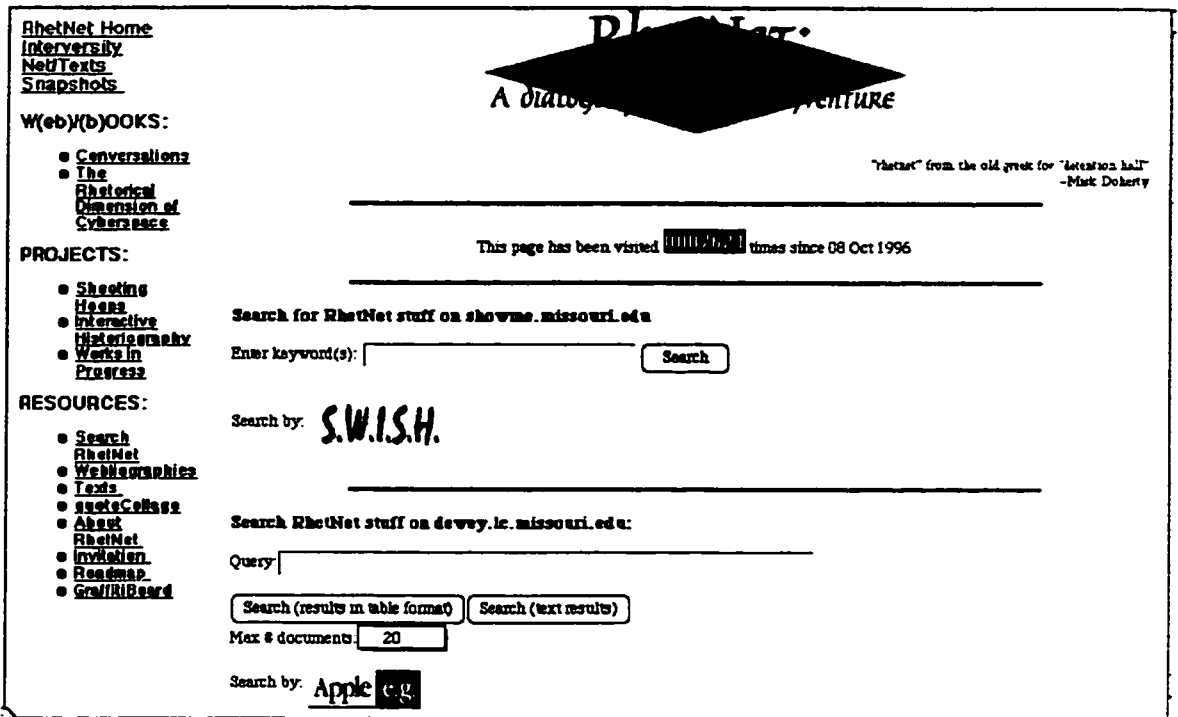
Figure 4.29: *RhetNet* First Impression
(search engine prioritized – very high smoothness)
www.missouri.edu/~rhetnet/

The contents are in a bulleted list in a border: the bullets indicate the reading

can be done in no particular order and the placement of the contents in the

border takes the focus off the list. The border and the three horizontal lines

stop the natural flow of the eye, challenging the reader's likely assumptions.

The reader has to overcome a certain dissonance and become more aware of

the content in the node. The design of the node makes it easier for the reader

to choose what he/she is really interested in rather than automatically to start

with what is listed first; the reader must become conscious of his/her

decision. These aspects help to break the structures and boundaries of a traditional journal and to create a smooth space for the first impression.

Author/Editor Presence

In a smooth electronic academic journal, the author/editor presence is not as visible, so as to not prioritize his/her voice. The author/editor does not position him/herself in a prominent position, allowing the reader and the text to take precedence (*A Thousand Plateaus* 6). In the *Journal of Computer-Mediated Communication*, the name of the editor is after the contents of the article, prioritizing the information and not the editor (see Figure 4.30).

134
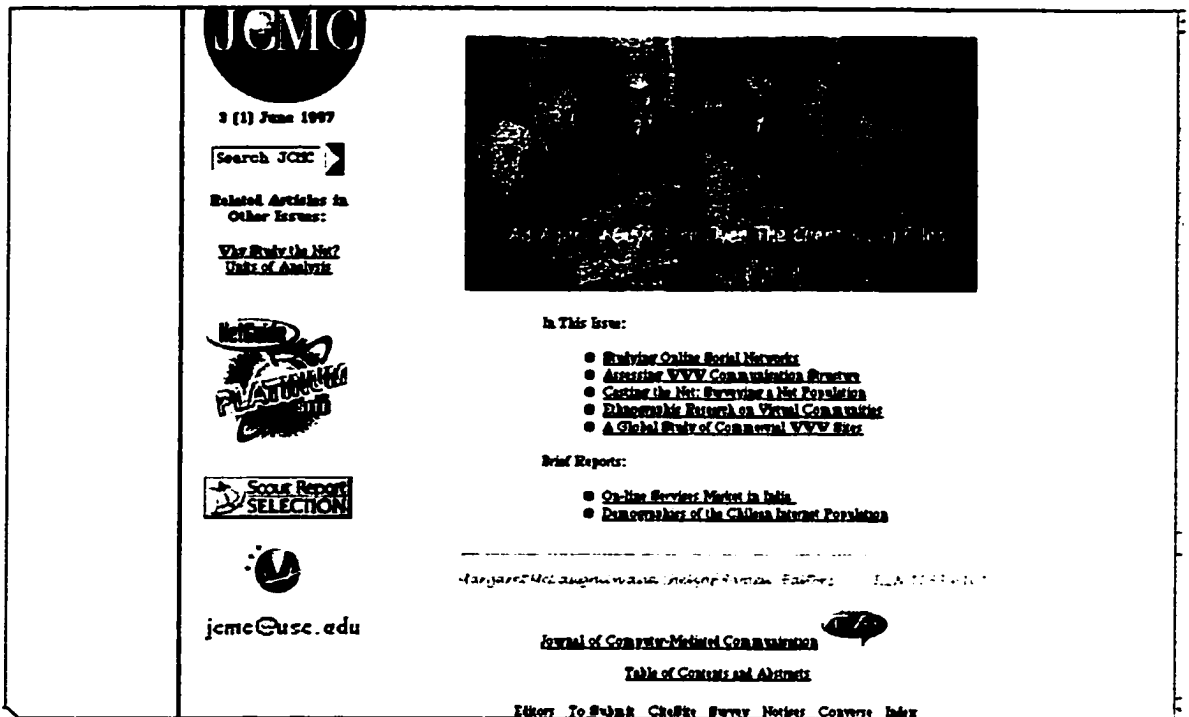
Figure 4.30: *Journal of Computer-Mediated Communication*
Author/Editor Presence
(topic prioritized – high smoothness)
www.usc.edu/dept/annenberg/vol3/issue1/

Kairos is both smooth and striated with author/editor presence (see

Figure 4.31).

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Figure 4.31: *Kairos* Author/Editor Presence
(topic prioritized and editor information not prioritized – moderate
smoothness)
english.ttu.edu/kairos/1.1/index.html

While the "Editor's Web" is right after the feature hypertext, which is striated

because it prioritizes the editor's voice, the information on the editors and

contact information is positioned in the border frame. This position is not as

striated because it does not take a prominent place on the screen and does not

create the status barrier of names that are prioritized.

Again, of the journals examined *RhetNet* is the smoothest in terms of

author/editor presence (see Figure 4.32).

136
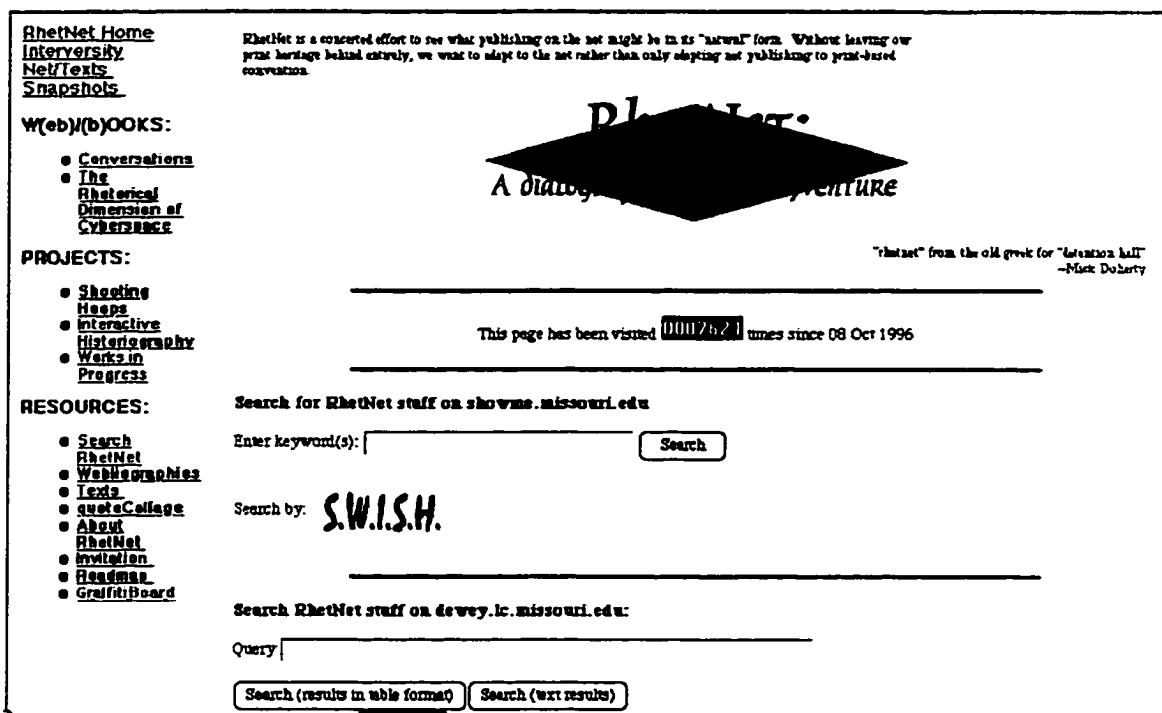
Figure 4.32: *RhetNet* Author/Editor Presence
(editor and author information subordinated – very high smoothness)
www.missouri.edu/~rhetnet/

The editor's name is not on the top node, nor is editor information

prominently displayed. No authors' names are visible on the top node,

either. This lack of presence from the author/editor turns the focus of the

journal to the reader and the content, creating a smooth space.

Reader Participation

Smooth journals allow for a great deal of reader participation. The

reader is in control of the reading experience, able to choose his/her path.

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Also, the reader can have a voice in the journal by giving feedback that can be

read and commented on by other readers (*A Thousand Plateaus* 9). For

example, the *Journal of Computer-Mediated Communication* has a "Converse"

link at the bottom of the top node which allows readers to comment on any

content in the journal and have his/her comments read by others (see Figure

4.33).
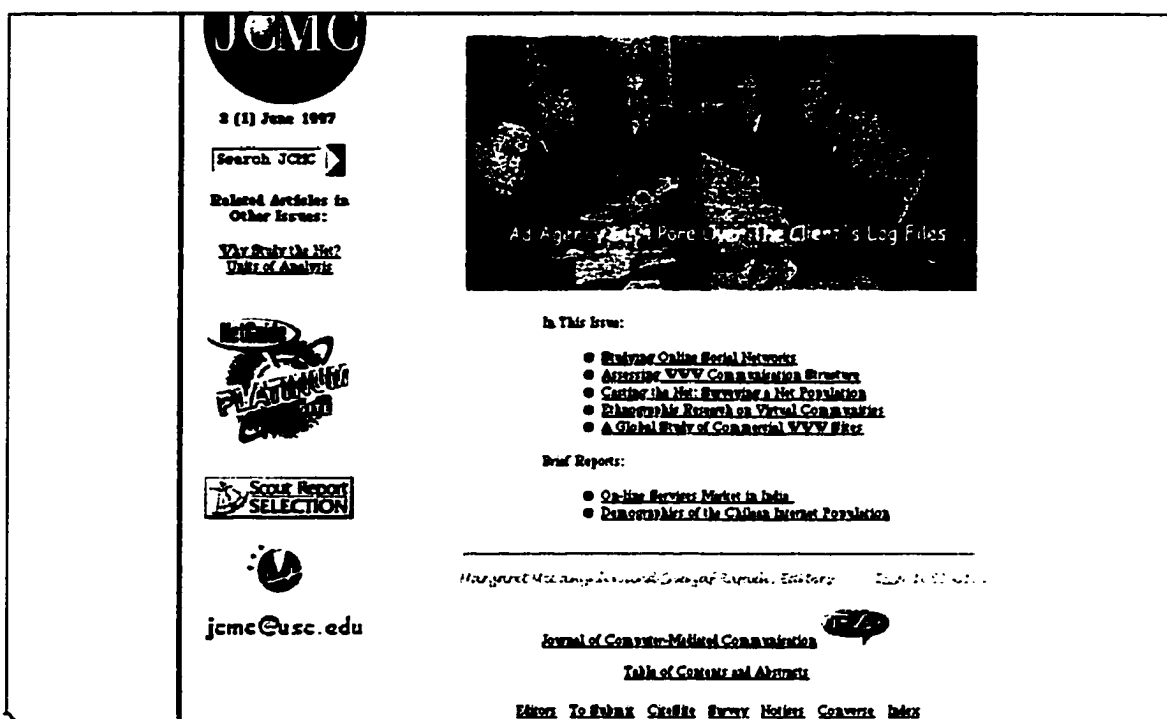
Figure 4.33: *Journal of Computer-Mediated Communication*
Reader Participation
(feedback encouraged – high smoothness)
www.usc.edu/dept/annenberg/vol3/issue1/

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Kairos is smooth in reader participation, giving the reader a great deal

of control. Two columns with icons prominent allow the reader to quickly

navigate, choosing any link he/she wishes (see Figure 4.34).
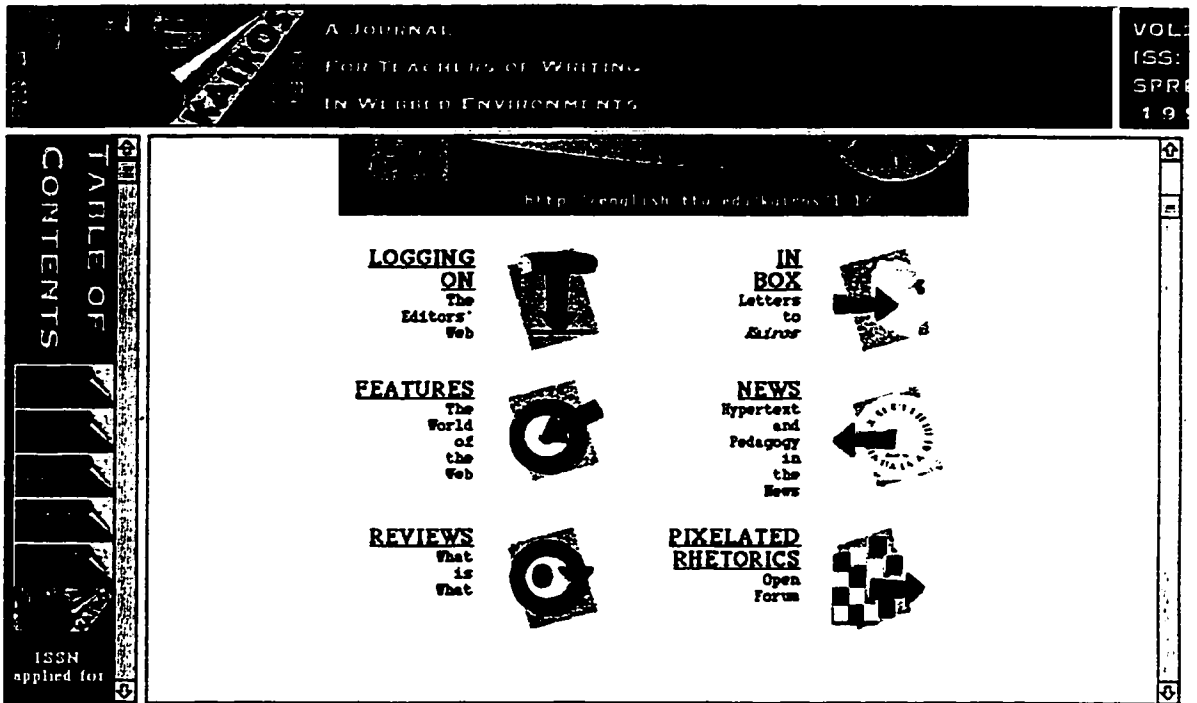
Figure 4.34: *Kairos* Reader Participation
(double column layout with icons, search engine – very high smoothness)
english.ttu.edu/kairos/1.1/index.html

Search engines allow the reader to search a particular word and link directly

to that text (see Figure 4.35).

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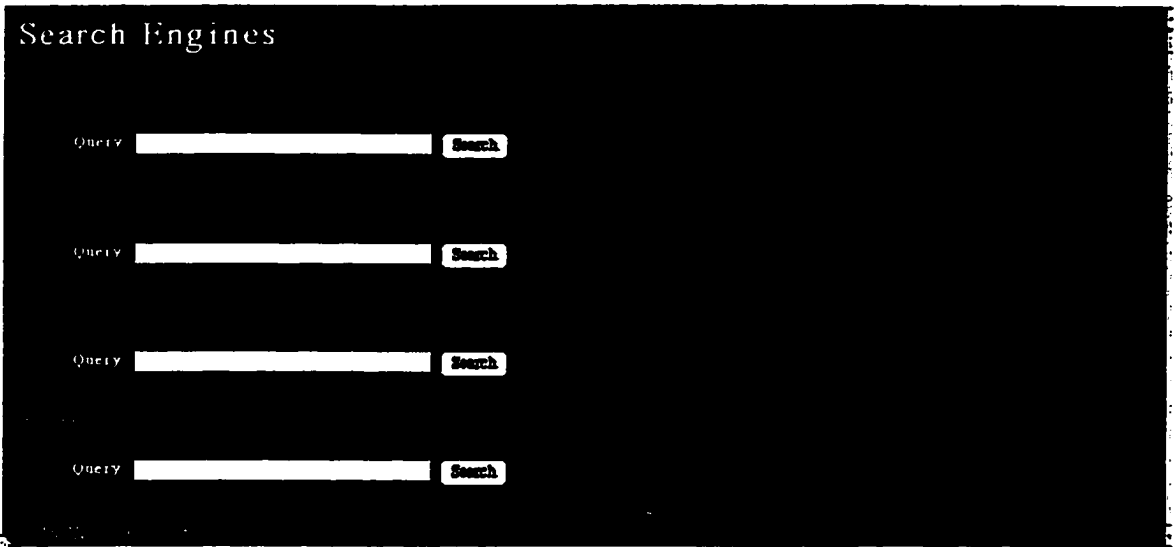
Figure 4.35: *Kairos* Reader Participation
(search engine for more reader control– very high smoothness)
english.ttu.edu/kairos/1.1/index.html

This smoothness gives the reader control over the text, allows the reader to

read what he/she wants without being required to search through each

article to find the particular topic. In addition, the remote frames option

gives the reader more control (see Figure 4.36).

140
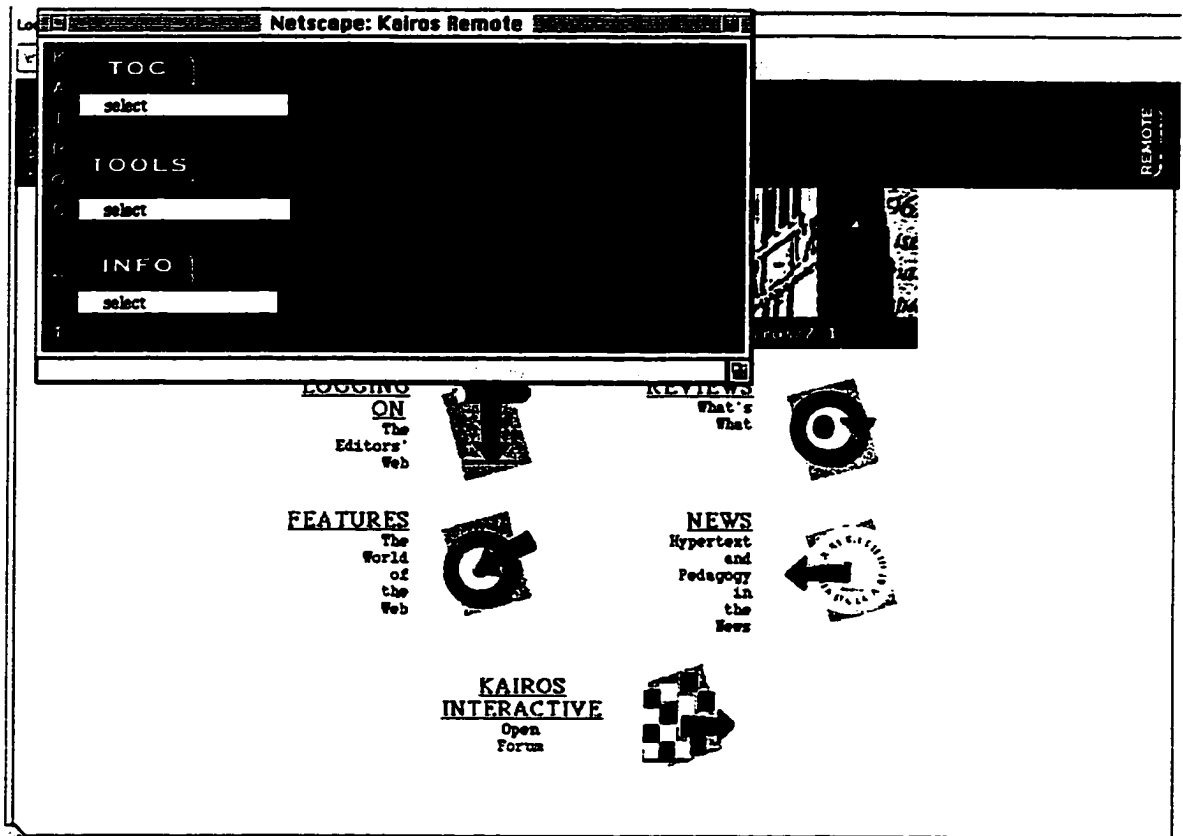
Figure 4.36: *Kairos* Reader Participation
(remote frames for more reader control – very high smoothness)
english.ttu.edu/kairos/2.1/index.html

With this option, the reader can click a button and a screen will pop up so that the reader can search the journal. Or, the reader can hide the remote so that more of the window will be visible.

The policy of *Kairos* for the first year was that no one on the staff or board could publish in the journal. This policy was established so that other voices could be heard, another smooth characteristic. However, in order to allow the board's voices to be heard, and to allow them to voice any view and

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not have to stay within the theme/topic of the issue, "Pixelated Rhetorics"

was established (see Figure 4.37).

Pixelated Rhetorics

A Whiteboard for Commentary from the Editorial Board of *Kairos*

For this first issue of *Kairos*, the editorial staff has taken on the project of beginning to define a new format, called Pixelated Rhetorics. There shouldn't, there can't, be a final and enduring definition of this format; however, it must also be given some shape. Jeff Galin, Richard Selfe, and Dean Fontenot of the *Kairos* Editorial Board have accepted the challenge of the blank pixeled slate — and the "form" each takes in Pixelated Rhetorics is apropos for the space created by *Kairos*.

The following first entries reflect Pixelated Rhetorics' aspirations to become a site of dialogue of issues important to the expanding and changing fields *Kairos* addresses. If the format seems familiar, it should; it appropriates *Rhetoric Review*'s definition of the "Burkean Parlor" of academic discourse, with the newness (Heidegger's *throwness*) of newcomers to an academic discussion *in media res* and a place others will recognize as the ongoing discourse of their field.

We also recognize the homonym "pixilated" ... whimsical and playful. The best kinds of Burkean Parlors always are.

Pixelated Rhetorics for *Kairos* 1:1 ...
● Dean Fontenot
● Jeffery R. Galin
● Richard Selfe
● Comment on Pixelated Rhetorics!

Kairos 1.1 (Spring 1996): Pixelated Rhetorics

Figure 4.37: *Kairos* Reader Participation
(a place for unedited pieces – very high smoothness)
english.ttu.edu/kairos/1.1/index.html

Here they can say anything on any topic and not be edited. And, *Kairos* now

has a HyperNews feature, allowing readers to comment on any part of the
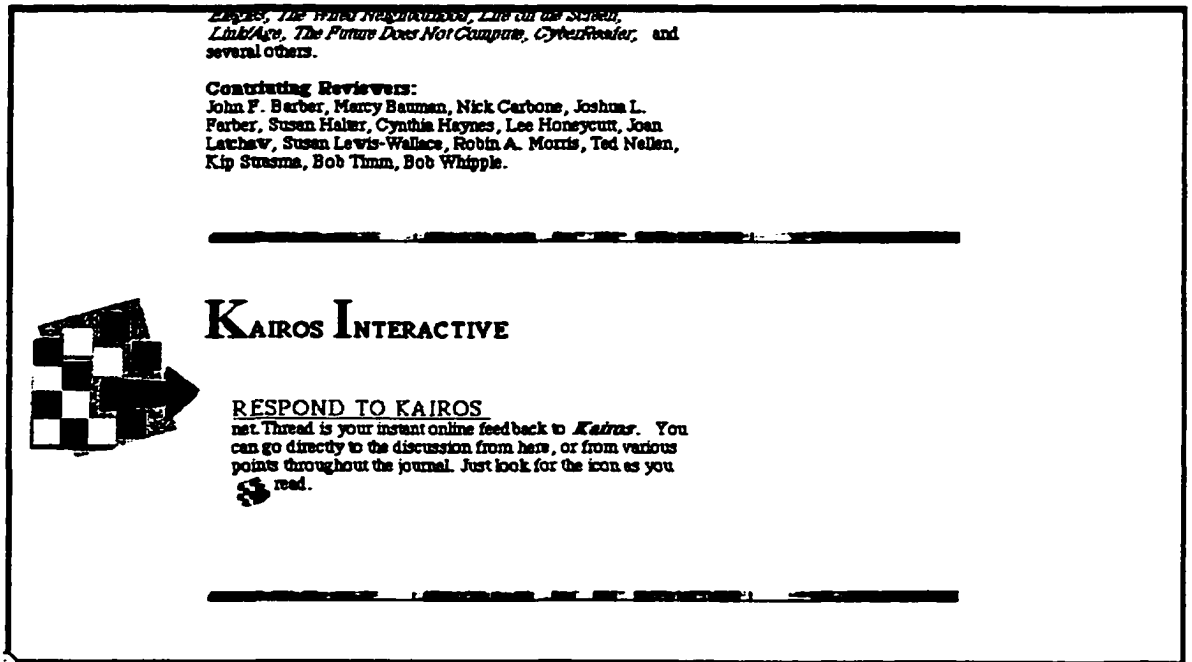
journal (see Figure 4.38).

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Figure 4.38: *Kairos* Reader Participation
(feedback encouraged – very high smoothness)
english.ttu.edu/kairos/2.1/index.html

This feature gives readers more control over the journal and places

importance on their views.

RhetNet is very smooth in reader participation. In fact, the top node is

designed to focus on the reader (see Figure 4.39).

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Figure 4.39: *RhetNet* Reader Participation
(readers' voices and search engine prioritized – very high smoothness)
www.missouri.edu/~rhetnet/

At the top of the node there is a quote from a reader, and the title of the

journal reads "*RhetNet: A dialogic publishing (ad)venture*, which turns the focus

to dialogue. In the center of the node is a search function, encouraging the

reader to take control (see Figures 4.39, 4.40).

144
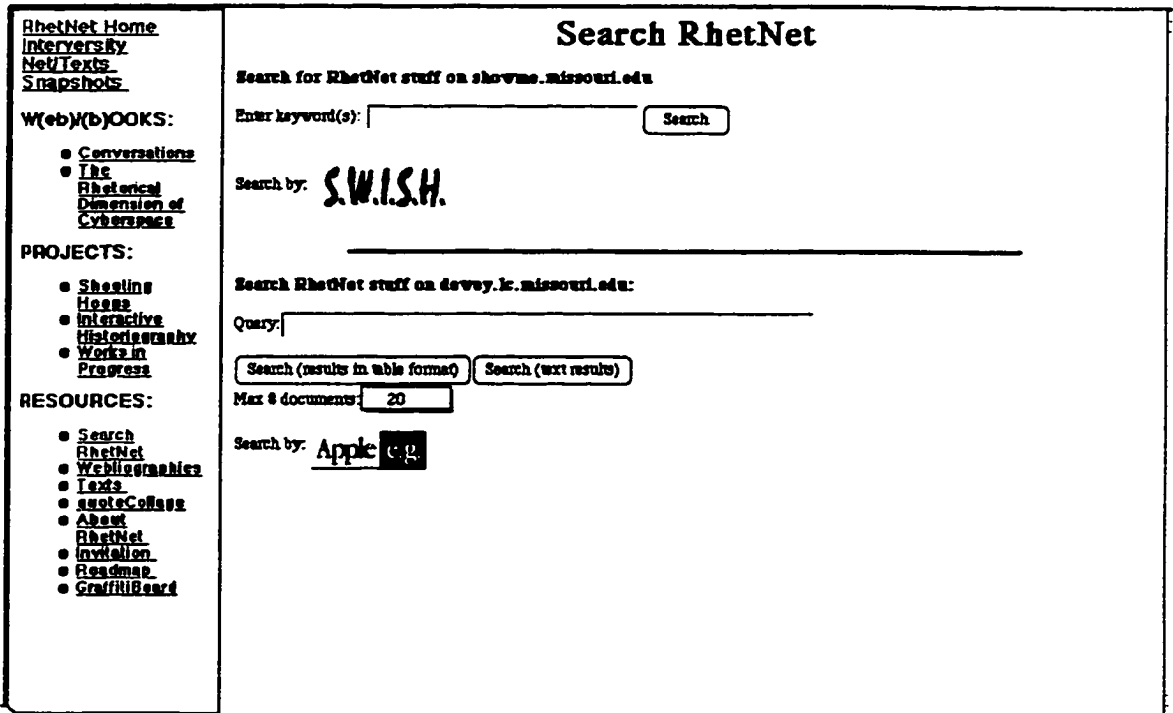
Figure 4.40: *RhetNet* Reader Participation
(search engine on top node – very high smoothness)
www.missouri.edu/~rhetnet/

All the features are designed to encourage dialogue, having a place for the

reader to respond within each link (see Figure 4.41).

Figure 4.41: *RhetNet* Reader Participation
(response to articles encouraged – very high smoothness)
www.missouri.edu/~rhetnet/

There is also "RhetRoom Wall," where readers can write absolutely anything,

no matter how silly (see Figure 4.42).

146
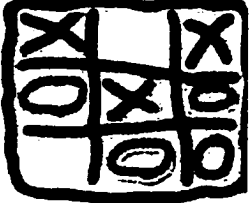
Figure 4.42: *RhetNet* Reader Participation
(reader creativity encouraged – very high smoothness)
www.missouri.edu/~rhetnet/

The point is to express and share. And, there is "Interactive Historiography,"

a place where readers write terms created from this new electronic

communication, comment on the topic, or comment on other submissions (see

Figure 4.43).

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Figure 4.43: *RhetNet* Reader Participation
(readers creating the rhetorical space – very high smoothness)
www.missouri.edu/~rhetnet/

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Finally, there is "Net/Texts," where threads of conversation from electronic

discussion lists are synthesized and posted in order for readers to continue

the discussion (see Figure 4.44).

Figure 4.44: *RhetNet* Reader Participation
(readers commenting on and creating the rhetorical space – very high
smoothness)
www.missouri.edu/~rhetnet/

All of these features place the reader in control of the reading experience,

both in navigating the journal and creating the journal, resulting in a

smoothness in reader participation not yet seen in a journal, print or

electronic.

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<u>Temporality</u>

Temporality is how constrained the journal is by time. The journal that does not allow the time boundaries of issues is a smoother journal (*A Thousand Plateaus* 12). *Computers and Composition, Journal of Computer-Mediated Communication*, and *Kairos*, while still bound by issues, continues the conversation between issues (see Figures 4.45, 4.46, 4.47).

Figure 4.45: *Computers and Composition* Temporality
(conversation between issues encouraged – moderate smoothness)
www.cwrl.utexas.edu/~ccjrnl/toc.html

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Figure 4.46: *Journal of Computer-Mediated Communication*
Temporality
(conversation between issues encouraged – moderate smoothness)
www.usc.edu/dept/annenberg/vol3/issue1/

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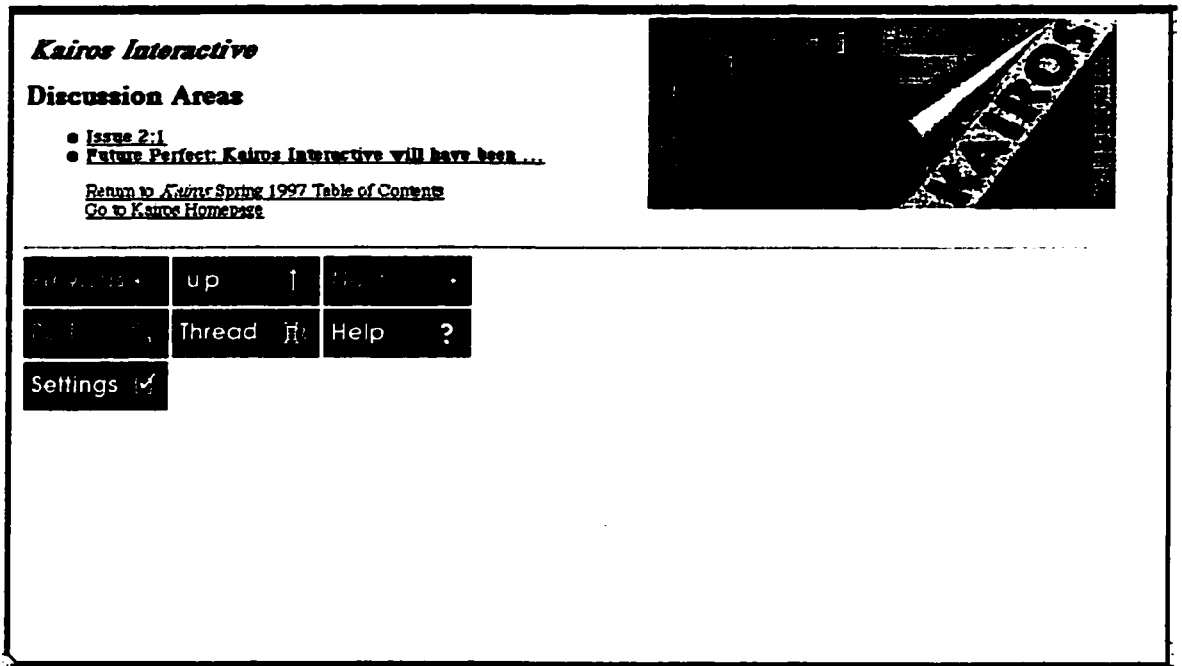
Figure 4.47: *Kairos* Temporality
(conversation between issues encouraged – moderate smoothness)
english.ttu.edu/kairos/2.1/index.html

This smoothness allows the reader to comment on topics immediately, and

not have to wait until the next issue comes out to see if his/her letter on the

topic was published. *RhetNet* is not bound by time (see Figure 4.48).

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Figure 4.48: *RhetNet* Temporality
(no issues, but continuous conversation – very high smoothness)
www.missouri.edu/~rhetnet/

This journal does not distribute issues; it is a true continuous conversation.

Placing Electronic Academic Journals on the Smooth/Striated Continuum

Placing electronic academic journals on the smooth/striated

continuum to compare them to each other is somewhat artificial. Each

electronic journal is more smooth or striated in different categories of

assessment; therefore, depending upon the importance of a particular

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category of assessment to the individual evaluating the journal the placement on the continuum will differ. For example, an individual evaluating electronic academic journals may prioritize the importance of reader interaction over first impression, author/editor presence, or temporality. Electronic journals that have a great deal of striation in temporality but high smoothness in reader interaction will be smoother for the individual than a journal that is somewhat striated in reader interaction and highly smooth in temporality.

However, in order to see how the smooth/striated continuum can be used, I am going to evaluate some electronic academic journals using the categories of assessment equally. I will place the electronic journals on the continuum, knowing that I am being somewhat reductive in order to allow the reader to see the application of the model. For ease of use, I will refer to the evaluations of the categories of assessment in terms of striation: high striation, somewhat high striation, moderate striation, somewhat low striation, low striation.

The following is a chart of five electronic academic journals evaluated by the categories of assessment (see Table 4.1):

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Table 4.1: Electronic Academic Journals Evaluated by
Categories of Assessment

Name of Journal	First Impression	Author/Editor Presence	Reader Participation	Temporality
Interpersonal Computing and Technology	very high striation	very high striation	very high striation	very high striation
Journal of Advanced Composition	very high striation	very high striation	moderate striation	very high striation
Kairos	moderate striation	moderate striation	very low striation	moderate striation
RhetNet	very low striation	very low striation	very low striation	very low striation
Technical Communication Quarterly	high striation	moderate striation	high striation	very high striation

The *Interpersonal Computing and Technology* journal has high levels of striation

in all the categories of assessment, which places it at the striated end of the

smooth/striated continuum. The *Journal of Advanced Composition* has high

levels of striation in the assessment categories of first impression,

author/editor presence, and temporality. Reader participation for the journal

is moderately striated because it does have a place for readers to respond to

the articles. *Kairos* is moderately striated in the assessment categories of first

impression, author/editor presence, and temporality, but highly smooth in

the assessment category of reader participation. *RhetNet* is highly smooth in

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all categories of assessment. And *Technical Communication Quarterly* is highly

striated in the assessment categories of first impression, reader participation,

and temporality, but moderately striated in the assessment category of

author/editor presence.

According to this evaluation, the five journals would be plotted on the

smooth/striated continuum in the following manner (see Figure 4.48):

STRIATED   SMOOTH

$\longleftrightarrow$

Interpersonal	*Journal of*	*Technical*	*Kairos*	*RhetNet*
Computing and	*Advanced*	*Communication*		
Technology	*Composition*	*Quarterly*		
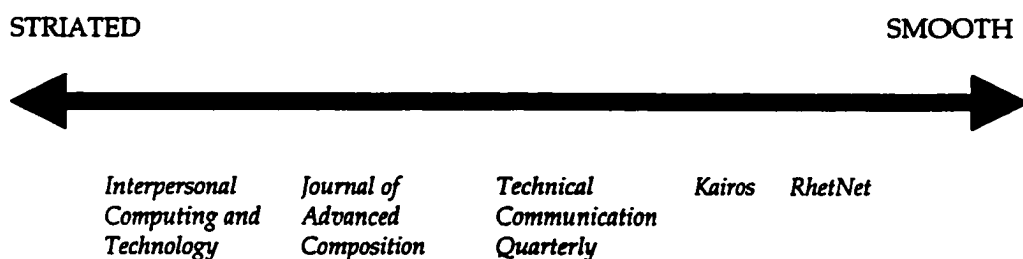
Figure 4.49: Electronic Academic Journals Plotted on the
Smooth/Striated Continuum

Again, this example is somewhat artificial, but effective for demonstration.

The evaluation will change depending upon the degree of importance placed

on the categories of assessment. And the degree of importance will change

depending on the needs of the evaluator. For example, international

evaluators using this model may differ as to the degree of importance placed

on the categories of assessment because of differing cultures. However,

because there are four categories of assessment, this model allows for those

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differing cultures' evaluations without compromising the validity of the model.

Affordances of Smooth Spaces

Peek says that "These early projects [electronic journals] prove the potential of the medium, but the final products of the endeavors have not yet achieved the status of the common currency of exchange for academic scholarship" (4). If the affordances of the smooth spaces are utilized, then the demands for validity and academic rigor from electronic scholarship will not only be met but exceeded. Because electronic academic spaces are an important rhetorical space for disciplines to learn and build the body of knowledge, the affordances of smooth spaces in electronic academic journals can be a very useful tool for the field of computers and writing.

Affordances are what the rhetorical space offers to the reader. The smooth rhetorical spaces in an electronic environment offer many enhancements to the reader that the print environment cannot. These affordances fall under three areas: theory and research, pedagogy, and production.

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Theory and Research: A New Model to Analyze
Rhetorical Spaces of Electronic
Academic Journals

The Deleuze and Guattari smooth/striated continuum can be used as a

model to analyze the rhetorical spaces of electronic academic journals. This

model, unlike most discourse analysis models, treats rhetorical spaces as

dynamic. Applying the smooth/striated continuum to a rhetorical space

elucidates the interaction between the reader, author, and text, treating the

rhetorical space as an organic object engaged in a process of interaction with

the reader and continuously changing because of it.

Traditional methods of discourse analysis, on the other hand,

emphasize text and often adopt the assumptions and boundaries related to

print, including the notion of text as static. Rhetorical methods of analysis

typically view the text interacting with the reader or author (e.g., Kinneavy's

theory of relationships among the reader, author, text and reality; Burke's

dramatic pentad of act, agent, scene, agency, purpose), but they ordinarily

view the text as the passive participant and the reader or author as the

initiator of the dynamic process. In addition, traditional methods of

discourse analysis rarely allow for an analysis of the convergence of multiple

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media: instead, they either focus on the text, or document design, or graphical elements of the text.

Pedagogy: A New Approach to Teaching

Teachers are now facing a new challenge: incorporating electronic technology into the classroom while still teaching effectively. The demands from society for electronic technology in the classroom are greater now than ever. When typewriters were commonplace there were not "typewriter-based classrooms;" however, computer-based classrooms are becoming more in demand. As discussed in Chapter II, the pattern of development predicts a demand from society for the technology and thus businesses' involvement in the technology. As a result, we are seeing more and more computers integrated into the classrooms. Unfortunately, the teachers receiving this technology are many times not trained to utilize or teach effectively with this technology. For many, it is easy to fall into the trap of becoming enamored with the technology and focusing on the "bells and whistles" while ignoring pedagogy. Or many teachers try to force traditional pedagogies into the computer-based classroom (e.g., drill and practice grammar sessions on the computer, class discussion where the teacher retains total control of the discussion and the students respond only to specific questions, multiple

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choice/true-false tests taken on the computer). Neither of these approaches will result in a successful experience in the classroom, for the teacher or the students. Current-traditional approaches such as those listed assume the student is an empty vessel to be "filled up" by the teacher. This approach does not allow the students to assume greater individual responsibility for their learning; nor does it allow students to learn from and help each other. Electronic academic journals provide a number of pedagogical applications: a means to share a body of knowledge with members in the field, a way to teach smooth spaces to students (e.g., one can use the smooth/striated continuum to facilitate the teaching of audience analysis), and a venue for learning to create smooth spaces in this new medium.

Pedagogies must change for the electronic technology in the classroom. Teachers need to re-examine their pedagogy to determine objectives and goals and adapt their pedagogy to accomplish those objectives and goals in a new environment. The concept of smooth and striated rhetorical spaces is one way of incorporating electronic technology into pedagogy. Pedagogy that includes teaching rhetorical strategies with striation and smoothness in mind allow for the incorporation of the dynamics of electronic technology, because it allows for the convergence of multiple media and the analysis/instruction of that convergence to be treated as a whole. For

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example, students will learn to treat rhetorical spaces as combinations of document design, digital objects, text, and hyperlinks. They will learn many specific skills (e.g., audience analysis, graphics production, hypertext writing, linking, organizing information for electronic publication, electronic document design, creation of Web sites) as well as meta-skills (e.g., handling all the different aspects of production cycles; learning the entire production process, from invention to publication and maintenance of an electronic rhetorical space; integrating multiple media forms into one rhetorical space). Teaching smooth and striated rhetorical spaces offers for the teacher and the students a new way to look at a new environment.

Electronic academic journals are spaces of smoothness and striation that demonstrate the flexibility of the new medium. Electronic journals can provide immediate and cutting-edge knowledge, which cannot be necessarily said of print journals or books. In addition, students need to learn about this new medium. With print journals, books, and overheads, students learn about this new electronic environment from second-hand sources. Electronic academic journals allow for an analysis of this new electronic environment from a primary source—the journal itself. By analyzing electronic journals, students will learn about electronic communication by interacting within the

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electronic environment, and not by reading about the electronic environment from print texts or articles.

Production: A New Way to Create
Rhetorical Spaces

Producing rhetorical spaces in the electronic environment is not the same as doing so in the print environment. There are different aspects in the electronic environment: the size of screen is not the same as the page, a screen can scroll longer than the size of a traditional page, graphics can be movie clips or animated graphics and not just static images, there can be sound in the rhetorical space unlike print, and there can be much more interaction with the text and the reader. Therefore, traditional theories of document design and writing are not necessarily applicable and these different aspects must be taken into account when creating rhetorical spaces in this new environment.

The creation of smooth spaces in the electronic environment gives many affordances to the reader that the print environment cannot. In smooth spaces, the creator is not constrained by page size, length requirement, and dimension. The creator can invite the reader into the smooth rhetorical space to participate in meaning making, which is much more difficult to do in print.

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When a reader wants to accomplish certain objectives with the reading experience, to be unnecessarily constrained can be a frustrating experience.

Smooth spaces afford the reader more control and interaction, and this is the main distinction between print and smooth electronic journals. With the smooth/striated continuum, the creator is given a means to critically think about the audience's needs *in an electronic environment* that has not been offered before. The reader can determine his/her own path in the reading experience. In print journals, to some extent the reader can choose what he/she wants to read by selecting which article to read first. But in smooth spaces, the reader has many more choices than which article to read first. The reader can choose to search the entire journal for a subject or author, or the reader can link from one article to the next or even link outside the journal entirely. Print journals can not give the reader that much control or interaction.

The sensory experience can be augmented in smooth rhetorical spaces. Print journals are two dimensional, and the sense primarily experienced is sight. True, the reader feels the journal in his/her hand, but compared to electronic journals, print journals have nowhere near the capacity for offering sensory experience. Electronic journals engage the sense of hearing with sound waves and a more augemented sense of sight with color, text, graphics,

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animated graphics, and movie clips. Already, research is being done on incorporating the sense of touch through virtual reality.

Finally, smooth rhetorical spaces afford the reader the Burkean parlor. With programs like HyperNews the electronic academic journal can provide the readers and author a continual conversation. Readers can post comments to the journal in response to an article or to others' comments. There is a record of the comments attached to the article so that everyone can read the article and the comments. Print journals have a letters to the editor section or a response section where readers can comment on articles published, but the comments cannot be published in the same issue. This delay disrupts the continuity of thought. However, with electronic journals there is no artificial break in the conversation.

Smooth spaces afford many aspects to the reader that print journals cannot. By taking advantage of these affordances, electronic academic journals can take a prominent place in the academician's scholarship and pedagogy. This new technology can take many directions, but predictions are futile. What can be fruitful, however, is discussing the implications of this new technology and how the smooth/striated continuum may fit in.

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CHAPTER V

IMPLICATIONS

In the final chapter of this dissertation, I will return to the questions asked at the beginning:

> How does digital communication (specifically, electronic academic journals) sustain and advance the discourse and distribution of knowledge in the field of computers and writing?

> What advantages do digital means of distributed knowledge offer readers that print academic journals cannot?

> What are the research and pedagogical implications of electronic academic journals for the field of English, specifically computers and writing?

I will take the questions and, based on the analyses in this dissertation, answer each in turn.

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How does digital communication (specifically, electronic academic journals) sustain and advance the discourse and distribution of knowledge in the field of computers and writing?

Predicted Historical Pattern

In Chapter II, I discussed the conditions and aspects of the invention and development of technology. Part of the process of the development of technology is the creation and organization of a body of knowledge, and part of that process includes disseminating information through whatever technology is available. When only pen and paper were available, information was disseminated through letters. When printing was available, information was disseminated through books and periodicals--newspapers, journals, and almanacs. And now that electronic technology is available, information is disseminated through this medium. Sue Barnes, in "Hypertext Literacy," says "Today, the need for a method to store and access vast amounts of information is greater than it was in 1945. The population of journals and books is exploding" (26). Electronic academic journals are a part of the process of organizing and spreading knowledge, and a growing reliance on them should not be surprising.

Since the development of electronic technology, journals have been growing in number and use (Fisher 231). Janet Fisher says electronic journals are expected to:

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> improve the speed of communication of research, enhance informal discussion and comment between scholars particularly in interdisciplinary fields, reduce costs of published material, and reduce backlogs of accepted manuscripts waiting for publication. (231)

Scholarly publishing is changing, and that change is neither simple nor easy.

Robin Peek, in "Scholarly Publishing, Facing the New Frontiers," says that

"Paper is not a flexible publishing medium, and its requirements have

naturally limited what could be done. Without a viable alternative, the

norms and mechanisms of scholarly publishing have persisted" (7).

Electronic journals can be that viable alternative.

When one encounters the application of new technology, a question

that invariably arises is whether or not the application is going to last or is

merely a passing fad. Can electronic academic journals sustain and advance

the discourse of the community? Not only have electronic journals been

created but also print journals such as the following have come online: *The*

Utne Lens, Computers and Composition, ELH, The Information Society,

Interpersonal Computing and Technology Journal, and *Technical Communication*

Quarterly. With almost every passing day, new electronic journals can be

found on the Web, such as *Journal of Advanced Composition, Composition in*

Cyberspace, Journal of Computer-Mediated Communication, Computer Writing,

Rhetoric and Literature, Cultronix, The Eastgate Quarterly Review of Hypertext, The

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Editorial Eye, EJournal, Journal of Electronic Publishing, Enterzone, Gruene Street:
an Internet Journal of Poetry and Prose, Hypermedia Joyce Studies, In Vivo Literary
Magazine, InterFace Magazine, InterText, Hyperizons, Kairos, Kudzu, The Morpo
Review, The New River, PreText, RhetNet, Teaching English as a Second or Foreign
Language. However, what is becoming apparent is that electronic journals are
offering what print journals have not been able to offer.

Potential Broader Audience

Historically, journals were created so that a community of scholars
could stay in touch. Travel was both difficult and expensive so conferences
were few. The journal provided a way for scholars to share knowledge
within their community. Peek says, "Journals became an important fixture in
the scholarly landscape because they brought the members of the invisible
college into a singular forum" (5). Electronic journals serve the same purpose
print journals serve, but electronic journals can reach a greater number of
members in the community. Reaching a larger audience allows for more
voices to be heard, which is characteristic of smoothness. Digital
communication can be potentially smoother than print communication by
reaching more individuals, giving the opportunity of more voices being
heard.

For most academic communities, there are numerous regional print journals, several national print journals, and a few international print journals. These print journals have a relatively controlled audience; however, with the nature of the World Wide Web electronic academic journals are intrinsically international. The potential audience is limitless.

For example, server results for *Kairos* have been tracked and the results show a large international audience. When the first issued was released in January 1996, *Kairos* logged 18,064 hits, and about half were from edu, com and net domains (U.S. domestic). The rest were from places such as Australia, Austria, Belgium, Canada, France, Germany, Hong Kong, Italy, Japan, South Korea, Sweden, and the United Kingdon. Since that time, other places such as Brazil, Costa Rica, Denmark, Finland, Greece, Ireland, Israel, Malaysia, Netherlands, Norway, Poland, Portugal, Singapore, and Spain have also accessed *Kairos*. In fact, during one month, Sweden made up almost 40% of all hits to the journal (September 1996). From January 1996 when the first issue was released to March 1997, *Kairos* increased its readers two-fold (18,064 to 37,890).

Interestingly, the creator of *RhetNet*, Eric Crump, does not keep usage statistics on his journal for pedagogical reasons. When asked about usage results, Crump said that "*RhetNet* is a publication for which quantity is an

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almost irrelevant quality . . . we sip statistics sparingly (email correspondence, 5/24/97). Crump feels that the purpose of the journal is more important than the number of readers. He is focused on a specific audience and not as concerned about reaching numbers. But the fact that *RhetNet* is being read by the computers and writing field can be noted through citations on the relevant electronic discussion lists, such as ACW-L, ATTW-L, CPTSC-L, H-RHETOR, RHETNT-L, and TECHWR-L.

If there is argument that the electronic academic journals are not drawing the leaders in the field of computers and writing as part of the broader audience, one need only to look at the contributors of the issues. When the contributors of issues are leaders in the field, those contributors will draw a large audience to the journal. Consider, for example, *Kairos* and *RhetNet*: these two electronic academic journals are purely electronic and not print journals moved online. Many of the contributors to these journals are highly regarded by the computers and writing community because not only are they published in the electronic academic journals but also they are published in traditional print journals and are frequently cited on the relevant electronic discussion lists. Some of the more recognized individuals from the field of computers and writing who have contributed to *Kairos* are:

Jay David Bolter, author of *Writing Space*, Georgia Tech University;

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Amy Bruckman, MIT's MUD Wizard;

Nick Carbone, author of *English Online: A Student's Guide to the Internet and the World-Wide Web*, Marlboro State College, University of Massachussets;

Johndan Johnson-Eilola, author of *Nostalgic Angels*, Purdue University;

Michael Joyce, *Afternoon, Of Two Minds: Hypertext Pdagogy and Poetics*, Randolph Distinguished Visiting Associate Professor of English at the Library at Vassar;

Fred Kemp, a creator of Daedalus, list owner of MBU, Texas Tech University;

Paul LeBlanc, President of Marlboro College;

Andrea Lunsford, *Reclaiming Rhetoric*, Vice Chair for Rhetoric and Composition, The Ohio State University;

Stuart Moulthrop, author of *Victory Garden*, University of Baltimore;

Anthony Rue, Board of Directors of national Alliance for Computers and Writing, Executive Committee of the NCTE Assembly for Computers and Writing, Dasein Design Internet consulting, University of Florida.

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And some of the more recognized individuals from the field of computers and writing who have contributed to *RhetNet* are:

> Beth Baldwin, author of *Conversations: Computer-Mediated Dialogue, Multilogue and Learning;*

> Nick Carbone, author of *English Online: A Student's Guide to the Internet and the World-Wide Web*, Marlboro State College, University of Massachusetts;

> Eric Crump, author of *English Online: A Student's Guide to the Internet and the World-Wide Web*, University of Missouri;

> Jeffrey Galin, author of *The Dialogic Classroom: Integrating Computer Technology, Pedagogy, and Research*, California State University at San Bernardino;

> Fred Kemp, a creator of Daedalus, list owner of MBU, Texas Tech University;

> Anthony Rue, Board of Directors of national Alliance for Computers and Writing, Executive Committee of the NCTE Assembly for Computers and Writing, Dasein Design Internet consulting, University of Florida;

> Victor Vitanza, author of *CyberReader*, University of Texas at Arlington.

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Granted, some may argue that what is published in print journals is of better

quality than what is published in electronic journals (because tenure

requirements still largely rely on traditional print credentials); however,

patterns of historical development suggest that as people become more

comfortable and reliant on electronic communication, more and better work

will be published in electronic journals. Also, as departments and tenure

review boards come to recognize the validity of electronic communication,

more and more are allowing publication in electronic academic journals to

count toward tenure.

What advantages do digital means of distributed knowledge offer readers that print academic journals cannot?

Bolter warns, "The danger, then, is not that the computers will

supplant books, but rather that the computer will not be allowed to fulfill its

promise as a new writing system and provide us with a new kind of book"

(*Writing Space* 224). It is not my contention to propose that electronic

academic journals should, or will, replace print journals, but to propose that

electronic academic journals can offer advantages to readers that were not

previously available. The reasons that electronic technology can sustain and

advance the knowledge of a field can also be applied as reasons that digital

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means of distributed knowledge can offer advantages that print academic journals cannot: electronic academic journals are part of the historical development and dissemination of bodies of knowledge, and electronic academic journals have a potentially broader audience than print journals. In addition, electronic academic journals augment the reader's experience, are more economical than print journals, and can respond more quickly to current issues. For the reader, electronic academic journals offer advantages in reading, using, and locating the journal that print journals cannot.

Augmented Interactive Experience

With electronic academic journals, the creator can produce any balance of smoothness and striation. Print journals are more limited to certain physical contraints, such as the size of the page, length of the articles, requirements for font and point size. Electronic technology allows for more flexibility with the journal—to link among text, to include sound and moving graphics, and to have the article any length desired.

Electronic journals are places for more smoothness to exist because the technology allows for smoother first impression, less author/editor presence, more reader interaction, and more dynamic temporality. For example, the first impression in an electronic academic journal can provide information

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organized in a way (e.g., links to articles, topics prioritized, information

organized for a variety of audience needs) that gives the reader many

options, prioritizing his/her needs and not prioritizing the journal. A print

journal can only be organized one way; it cannot be reorganized according to

what the reader wants to view. With author/editor presence subordinated

and multiple voices encouraged (e.g., topics prioritized over status of

authors/editors, feedback encouraged with HyperNews), the reader becomes

as important as all other voices in the rhetorical space. With a print journal

the reader can only interact in through a letter to the editor, with the

possibility that the letter will not be published and therefore the reader's

comments not being heard. Smooth reader participation allows the reader to

select his/her path (e.g., search engines, links to all areas of the journal)

without the path being determined for the reader, as in a print journal.

Finally, smooth temporality does not force the journal into a publishing cycle

like a print journal. The electronic journal can use a response function (e.g.,

HyperNews) that allows all voices to be heard in a continual conversation,

not just at the time each issue is published.

Electronic academic journals allow for more reader control and reader

interaction with the text than print journals can. The reader can choose the

path to read, link to outside sources, and use search engines to search

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between articles and/or outside the journal. With print journals, if the reader wishes to refer to the same topic in another journal or site, then the reader must either have the other material immediately at his/her disposal or else engage in a considerable amount of searching to find even one reference. Electronic journals can link immediately to the reference through hypertext linking, saving the reader an enormous amount of time.

Electronic technology affords electronic academic journals the advantage of giving the reader an augmented sensory experience. Print journals can only give the reader the experience of sight, and it is usually a very flat experience. Electronic academic journals have the advantage of electronic technology: sound, sight, color, dimension, moving images. With more of the senses involved in the reading experience, the reader becomes more engaged in the interaction with the journal. Ultimately, that is the greatest advantage of the electronic academic journal--the ability to provide the reader with a fuller experience with the journal.

More Economical

The academic community has been struggling under enormous financial strain. Budgets are cut, hiring is frozen, library budgets are slashed,

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technology is expensive, and departments are still expected to remain cutting

edge (Kling and Covi 264). Of this difficult situation, Peek says

> Technology often moves faster than society is
> prepared to deal with the changes . . . . Scholarly
> publishers are engaged in a volatile and heated
> debate about their role, particularly the role of
> the scholarly journal. Not only are other options
> technologically viable, but the financial pressures
> of maintaining and supporting scholarly journals
> are increasingly acute. (3)

Many see the answer to the financial strain from the cost of print journals as

the electronic journal. However, electronic technology is not totally free. Ira

Fuchs, in "Networked Information Is Not Free," says that although the

technology may be essentially free for the academician, it will eventually cost,

the toll for the demand will come (165). Some new charging scheme will be

developed; many schemes will probably be developed and tried, from flat-fee

charges to usage based fees to charging only when the bandwidth is

congested (176-78). Despite the inevitable future of charging for use,

electronic journals are still much more economical than the print

counterparts. With electronic journals more economical than print journals,

reaching more people ensures a smoothness that would not be created if only

a few had access to the journals. Access to knowledge for individuals and the

ability of the field to hear more voices combine to create a smoother rhetorical

space.

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Because of library budgets cuts, many print journals are harder to find (Peek 8). With the right hardware and software, which most universities already have, electronic journals are accessible at all times. Moreover, print journals go through numerous transformations in a library: the library houses the journal, then binds the journal, then puts the journal into microfilm, all the while housing all these forms of one journal. With the electronic journal, only one form of the journal is maintained, and the space to house an electronic journal is much less than that of a print journal (Peek 9).

If an electronic academic journal is housed on a server at a university/college/community college then the cost is relatively small. The only real commodity is server space, and if that space is already available then the cost is minimal. Some may say that paper is cheaper than hardware and software so print journals are cheaper. However, the hardware and software used for producing a journal can be used in many other ways; paper used for a journal cannot be used for other means (other than recycling). Also, the startup cost of the hardware and software will be balanced out in the long run, while the cost of paper each time the journal is issued will increase over time.

As far as producing the actual text, one can either code the text oneself or use a shareware code-generating program to produce the text. Creating

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graphics can also be relatively inexpensive. Although shareware graphics programs are available, for complex graphics a commercial graphics program is better. Nonetheless, most graphics for electronic journals do not need to be produced by professional graphic artists.

Moreover, when one produces a print journal, the size and page number is dictated by certain parameters (e.g., the length of articles and the physical dimensions of the journal), but such constraints do not exist in electronic form (Peek 11). In addition, indexing a journal is important and expensive; however, with all the new search engine programs, indexing for the electronic journal is relatively easy and inexpensive.

Print journals need to have advertisements to help alleviate the cost of production; however, for electronic journals advertising is unnecessary because journals produced electronically are minimal in cost. For example, *Kairos* is a journal created and published by graduate students, and *RhetNet* is created and maintained by a graduate student. Only through the electronic medium could the journals reach the audience they do. To reach the same audience these journals do, the cost for printing and mailing would be prohibitive. In addition, print journals require a subscription fee from the reader, but electronic journals rarely do. For example, according to Mary Lay, editor of *Technical Communication Quarterly*, one issue of *Technical*

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Communication Quarterly, for 1200 copies, costs $2950 to produce (email

correspondence July 1, 1997). That is for one issue, only 1200 copies,

compared to minimal cost and potential limitless audience for an electronic

academic journal. Electronic academic journals are thus less expensive for

both the creators and the readers.

In short, the process to create the journal, to produce the journal, to

distribute the journal, and to house the journal is far less expensive in

electronic form than in print form.

Quick Response to Current Issues

Print academic journals usually have a production cycle of at least

three months, whereas electronic academic journals can respond to a current

issue almost immediately. Print journals can never tell when submissions

will be in abundance, so they keep a "backlog" to guarantee production flow.

Of that backlog, Peek says

> This, of course, extends the delay before the paper
> becomes available to the scholarly community. In
> a worse scenario, the journal must wait until there
> are enough papers, which also delays the release of
> the scholar's work. Such delays can be particularly
> irritating in the scholarly community because a scholar
> hopes that he or she will be the one who "got there
> first." Unfortunately, publishing in paper is a slow,
> sometimes painfully drawn-out affair. (10)

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Peek says that in this age of instant communication the time a print journal takes seems even worse in light of the speed of electronic communication. Developments are happening at an alarming rate, and delays in publishing can be detrimental to a "publish or perish" career (10).

Electronic academic journals are not constrained with the same production cycle as print journals. Moreover, programs such as HyperNews allow readers to respond immediately to an article and read and respond to previous readers' comments as well. Print journals cannot offer the reader a continuous conversation nor the rapid response time to current issues being debated in the field. And being able to respond quickly makes temporality dynamic and not static; therefore, the smoothness of the continuous conversation can exist.

What are the research and pedagogical implications of electronic academic journals for the field of English, specifically computers and writing?

Changing Demands on the Field of English

One implication for the field is that research needs to adapt to the medium of electronic communication. Electronic academic journals are becoming a medium by which to distribute and build bodies of knowledge. These journals are the venue used to study electronic communication and the

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new rhetorical spaces being created. Scholars will need to access electronic academic journals to keep up with advancements in the field of computers and writing. In addition, electronic academic journals are examples of new rhetorical spaces that need to be researched in order to inform our field.

Another implication for the field is that pedagogy must take into account electronic environments. Teaching the concept of smooth and striated rhetorical spaces, and using electronic journals to demonstrate these spaces can provide a new dimension for the pedagogy. Students can use electronic academic journals to analyze and learn about this important form of electronic communication. Students can also read electronic academic journals to learn the body of knowledge.

A third implication for the field is that there need to be new ways to create rhetorical space in this new medium. We cannot apply theories of document design for the print medium to the electronic medium; if so, the creators of the rhetorical spaces in the electronic medium will be failing to explore all the new medium has to offer. Electronic academic journals provide a venue to develop new rhetorical spaces, exploring the degrees of balance between smoothness and striation.

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Needed Future Research for Broader
Implications

A broader implication of electronic academic journals is in the changing face of publishing companies. Print journals are going online, products are being sold online, and much of the new information in demand will focus on some aspect of electronic technology. Electronic academic journals will also be affected. Currently, these journals are free to the reader while print journals require subscription. Soon, though, publishers will control the production of the electronic academic journals (instead of the many volunteers that currently produce them) and they will require a subscription. Based on the historical pattern of development, once the demand for the invention is perceived, businesses move in to see if there is money to be made by supplying that demand. And most publishing companies are already online, selling books electronically. Requiring subscriptions will reduce the potential smoothness of the electronic academic journal because it will prioritize voices, and the voices of the poor (including individuals, institutions, countries) will be cut out of the conversation because they will not be able to afford a subscription to the conversation of the community. In our scholastic endeavors it is important to listen to all voices; prioritizing voices can hurt the potential to share knowledge and learn new information from our rich, diverse discourse community. By not requiring a

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subscription, by allowing for the participation of all voices, rich and poor alike, we as a discourse community encourage the smoothness of our electronic journals.

Another implication for the field of English, and for all societies using electronic communication, is the issue of cultural differences and what some call the Americanization of the Web. To what extent are we imposing American standards on the future of electronic technology, and electronic academic journals specifically? Do some cultures prefer to create rhetorical spaces that are smoother than those of another culture? Or more striated? And if one culture tends toward either the smooth or striated rhetorical space, does this have a chilling effect on the global interaction on the Web? For example, when *Kairos* was first created and published, we created numerous graphical elements (e.g., CoverWeb art, icons linking to journal sections, headers, frames) for a few reasons. We wanted to take advantage of the visual element in electronic communication. Many journals were being placed online in their original print form. We believed that this practice ignored the distinct advantages of electronic media. In addition, because our mission was to provide a space for people involved in cutting-edge work, we thought our journal needed to exhibit a state-of-the-art design. We determined that we wanted to reach a particular audience: teachers and

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researchers of writing in webbed environments. Therefore, we believed our

journal needed to contain the sophisticated Web-work to attract that

audience. However, some international academicians complained. They

were paying long-distance costs to access the Web because they had to access

the Web over telephone lines, and the downloading time for heavy graphic

content made the cost of accessing *Kairos* prohibitive. Inadvertently, we were

striating the rhetorical space of the journal, shutting down potential voices

and potential instances of knowledge-sharing. With computer technology

shrinking our world, helping create the "global village," we must consider

the consequences of the coming together of cultures in smooth and striated

spaces. Roger Rollin, editor of *The Americanization of the Global Village,* speaks

to this issue:

> To put it more generally, to what extent has the
> Americanizing of the global village changed the
> lives, including the hearts and minds, of the in-
> habitants of that village? It is an important ques-
> tion, though often, it seems, more important to
> those on the receiving end of American exports
> than to most Americans. (2)

It is important for Americans to study and be aware of the rhetorical spaces

created and the effect they have on other cultures. William Mitchell, in *City of*

Bits, cautions us that we should be "imagining and creating digitally

mediated environments for the kinds of lives that we will want to lead and

the sorts of communities that we will want to have" (5). In *War of the* Worlds,

Mark Slouka points out

> The implications of these new technologies are
> social; the questions they pose, broadly ethical;
> the risks they entail, unprecendented. They are
> the cultural equivalent of genetic engineering,
> except that in this experiment, even more than in
> the other one, *we* will be the potential new hybrids,
> the two-pond mice. (13)

The influence of American culture on the Web results in far-reaching

implications that we must begin now to explore.

There are many implications of this new medium for electronic

academic journals and for the field of computers and writing, as well as other

fields. Using the smooth/striated continuum to help research and create

rhetorical spaces may provide a means by which to come to a greater

understanding of the new medium. Electronic academic journals are a part of

the process of development of technology and can be an advantageous way

to create and disseminate bodies of knowledge. Important for the field of

computers and writing is to bear in mind the thought, purpose, and

objectives that drive the creation of that medium.

These broader implications raise two important issues: who

controls/owns the electronic academic journal and what possible constraints

will that put on the journal's ability to reach a global audience? The effect of

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power on culture is far-reaching, with a potential for publishers to striate

journals (e.g., require submissions, prioritize voices) to the point of excluding

part of the academic discourse community. We must decide if we are willing

to allow others to determine the future of our electronic academic journals.

As we are becoming a more international discipline, do we want to risk the

possible exclusion of the voices of other cultures? And can we use the

smooth/striated continuum model to allow us to see the dangers of power

over culture more clearly? If we can understand this new rhetorical space of

electronic academic journals, then we can potentially use its rhetorical power

to disseminate knowledge globally and create a more inclusive conversation.

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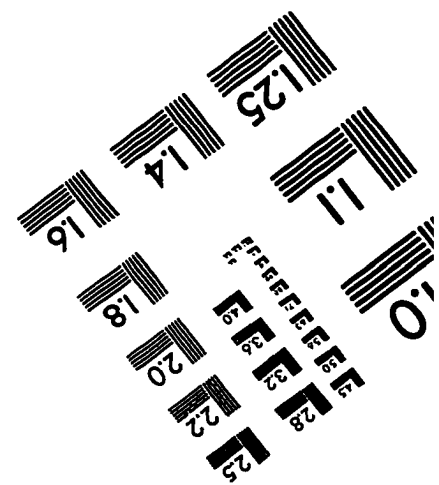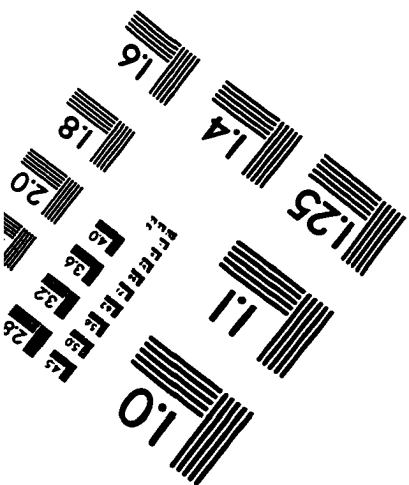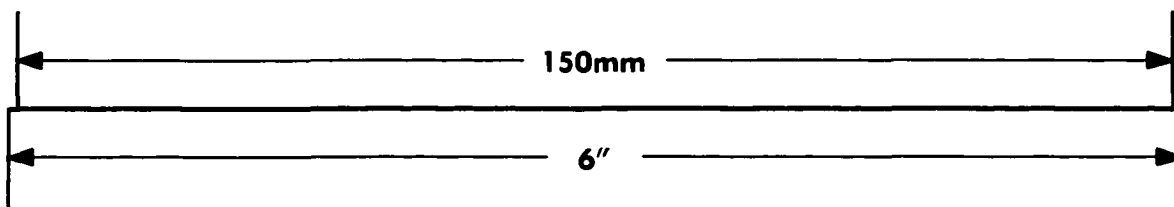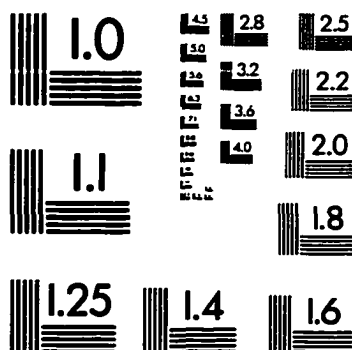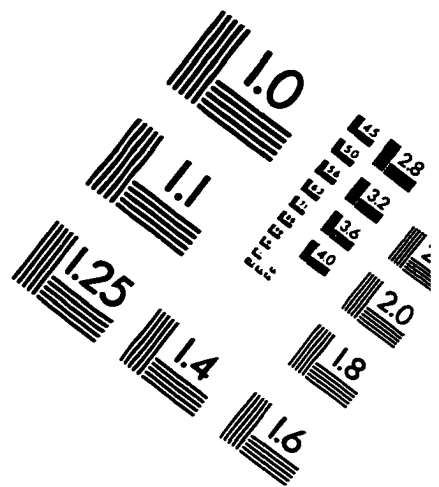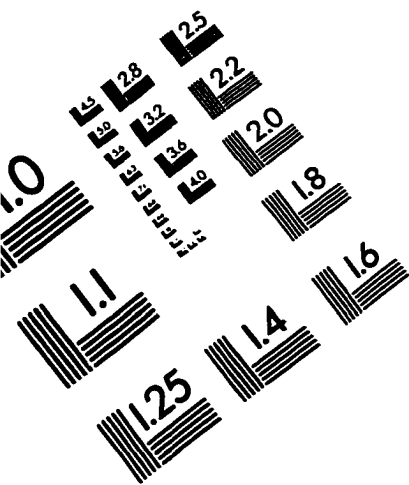
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