

SECTION 1 -- Theory

DRAFT

CHAPTER 01

WHY IS IT SO HARD TO WRITE AND EVALUATE WRITING ON THE INTERNET?

As professional writers, we may see ourselves as craftspeople (wordsmithing) or mechanics (fixing the texts) or sculptors (molding the text) or researchers (collecting information and documenting it) or even translators (making difficult material available to a lay population). In each case we are seeing ourselves with filters we construct of metacognitive metaphors. Often unique to the individual, these metaphors give us different vocabularies for understanding and discussing our writing processes. Often, we do not actually notice our metaphors until they are pointed out by others or we take the time to carefully explore our writing processes. Think about your own different writing processes. How would you describe them? To develop a vocabulary, you will necessarily construct descriptions based on metaphors you have internalized, usually subconsciously.

You may be aware of the processes in your writing, although you might never have considered them in detail, and you no doubt have different processes for different genres or modes of writing. For what it's worth, I see my theoretical and fiction writing as exploration. I seldom know when I sit down to write, where my ideas will go. As I write about a subject, I come to know it better. In a sense, the more I rewrite, the better I understand my topic. For computer documentation, my metaphor changes completely. I become a watchmaker, polishing, tinkering and repairing until the text is (hopefully) flawless.

Not only do we all have metacognitive metaphors for our writing processes, but those metaphors drive the processes to such a degree that one can tell (to some extent) which metacognitive metaphors were used while the text was being produced. In “Tuning, Tying, and Training Texts: Metaphors for Revision,” Barbara Tomlinson argues, “Such patterns of figurative expression are an important part of our socially shared knowledge of composing . . . and may well influence our composing behavior[1]. In her research, Tomlinson examined more than 2000 texts where writers described their writing process, consolidating the writers’ descriptions into a list of eight metacognitive metaphors.

One of Tomlinson’s eight is “sculpting [wet clay].” In this metaphor the writer is attempting to take something basic, perhaps not very good but containing a lumpy resemblance to an excellent topic, and convert it into a well formed and interesting, finished product. Obviously, at the core of the process is recursive writing. This sculptor might choose words that communicate well, but she may also be looking for elegance or surprise or grace or texture. In short, while the “mechanic,” writing the very best he can, may produce an excellent document, the “sculptor,” writing the very best she can, will also produce an excellent document, but the definition of “excellence” for the two documents will probably be different, as will the reading experiences.

When These Metaphors Fail

The metaphor we use can lead us in ineffective directions, however. Suppose a writer’s metaphor is more linear. Perhaps the writer sees himself as something akin to a conduit, spilling out the text in a singular and unaltered process – teachers often see this metaphor in the “midnight specials” they receive from their students, usually turned in with a mumbled apology.

This year, I looked at a high school, science essay written by a nephew. He had written ten pages about the impact of Copernicus, Galileo, and Einstein on astronomy, and he received a “D.” As I talked to him about his process I realized he saw himself as a funnel of sorts. He poured a variety of resources into his mind and dribbled them one-by-one onto the page. He didn’t even filter the material through his own opinions. He simply poured it out with never a thought for rewriting. Needless to say, the work was “D” quality, or worse. Fortunately for my nephew, the teacher asked for a rewrite for a final grade, and he ultimately got a “B.”

I am not suggesting that my nephew was thinking, “I am a funnel.” He saw himself as simply writing. But he saw writing as finding material and putting it on a new page – basically, nothing more than cutting and pasting. Had he seen himself as working within a metaphor that involved digesting the material, responding to it, and polishing his product with recursive writing, things would have been completely different from the beginning.

The end product of any metaphor can be flawed. The conduit and funnel metaphors will lead to defective writing if the topic has any complexity at all. The other metacognitive metaphors direct their authors similarly, sometimes with effect and sometimes in inappropriate directions.

Different Genres Demand Different Metaphors

The “mechanic” who sees herself as fixing problems has a definition of perfection that involves elimination of all errors. Part of being flawless for the “mechanic” is selecting vocabulary for maximum readability and effective transfer of information, making certain all statements are complete and accurate, and making certain there are no mechanical problems in the text.

Imagine writing a National Science Foundation (NSF) grant proposal. In this environment you meet severe style and formatting restrictions; everything being mechanically correct and accurate is critical. The NSF receives thousands of proposals every year. Often, the first thing reviewers look for is any stylistic or structural justification for rejecting the proposal. Missing or misnaming a topic can be enough to get a proposal thrown out. Moreover, if the vocabulary is surprising or the mechanics are faulty, reviewers will characterize the author as unprofessional and/or outside the discourse community. The demands of documentation and NSF grant proposals shout, “Be a mechanic!”

Such a metaphor can lead to competent work that communicates well. Still, the metaphor, itself, may keep the “mechanic” from seeing (or valuing) the possibility of going beyond a document that is correct or accurate to a document that could be called “aesthetically exceptional.” For example, sonnets, plays, works of creative nonfiction, should be something more than just correct and accurate. This is not to imply the metaphor “mechanic” is flawed or that computer documentation should be sublime. The “mechanic” metaphor is perfectly appropriate for the right documents, but it (as do all metacognitive metaphors) establishes a relatively specific vision for what an excellent document should look like – a vision that will never meet the needs of all documents.

In Short

As we write, the processes we choose can be described using a variety of metaphors that can help us understand them. The different processes we choose, and the metaphors we use to describe them, can lead to excellent works, but they can also blind us to interesting and different possibilities and direct us into unfortunate choices.

PEOPLE WHO VISIT WEBSITES AND CONTRACTORS WHO CONSTRUCT THEM

While computer documentation and NSF grants might demand we “be a mechanic,” sometimes documents are wrong when they seem to shout about how we should approach their publication. The metaphor apparently implied by a document and applied by its publishers is often not appropriate. The common metaphor used in web navigation, design, development, evaluation, and discussion is “place” (although we use the word “site”). We go to distant sites and navigate them, and we evaluate sites based on the quality of their navigation and our sense of the design of the place. Within this metaphor, when we describe appropriate writing, our descriptions tend to be based on structure – “keep it short,” “chunk it,” “use bullets,” “try not to write below the window,” “use subheads” – the list of prescriptions is quite long and almost always involves structural terms and virtually never includes descriptions of style or rhetoric.

If a website is really a place, perhaps there is no need for style or rhetoric, but I argue that websites are never places; they are always documents (usually confused for places), and although web developers are often programmers, the process is actually publishing.

This is completely counter to the advice suggested by Janice Redish in Letting Go of the Words: Writing Web Content that Works.

In her recent book Redish begins with a list of things she did on the Internet “yesterday:” She says, “[I] downloaded a file, ordered a book, compared prices on a new cameras, read a few of my favorite blogs, checked the Wikipedia entry for usability looked for information on a health topic for my elderly aunt (2007, 1).” Ironically, I also did many of the things she describes. But I also did things she does not mention. I read an essay about Tiger Woods, and how he once again

pulled out a miraculous victory, coming from behind, taking another trophy. I went to ABCNews.com and read several news stories and the reader comments that followed. I went to CBSNews.com and watched 60 Minutes in its entirety. I marked up several student papers in an online class, using Word's remote editing tools. I also taught the online class. I read several of the latest reviews on the new BMW 330 diesel. I read all of the research I could find on biofuels. And I read a 25 page, scholarly paper about genres. Moreover, I downloaded a good book onto a computer (a Kindle) and took it to bed. In other words, I treated the Web exactly as I would a library. I read a variety of different things written in a variety of different genres and in a variety of different styles – some casual, some exceedingly dense.

Redish claims, “Most web users are very busy people who want to read only as much as they need to satisfy the goal that brought them to the web” (2), and for writing to this community she suggests, “Think of your web content as your part of a conversation – not a rambling dialogue but a focused conversation started by a very busy person” (4). I suggest the writer should fully understand the genre (purpose, audience, demands on the writer, and structure) and write the text based on that. In other words, I suggest that genre and not medium (even on the Internet) defines writing style and quality.

In Letting Go Redish continues a tradition begun by Jacob Nielsen in the mid-nineties. He did a series of studies on how people read on the web, and accurately concluded that people tend to scan rather than read on the Internet. Based on that, he devised a series of important and valuable design rubrics. They have become the standard for Web evaluation because in the beginning they seemed to work. But he and others extended those rubrics to the act of writing and evaluating writing, creating a one-size-fits-all approach that is proposed to this day by him and the others: “Don't require users to read long continuous blocks of te[x]t; instead, use short

paragraphs, subheadings, and bulleted lists.” In a nod to rhetorical traditions, they also sometimes suggest, “know your audience.”

I suggest that the justification for Nielsen’s usability studies for evaluating quality of websites is valid, but only in evaluating quality of structure and navigation. Usability is but one of many tests we should use for evaluating quality on a website. Others include:

- reader cognition for identifying what readers take away in terms of information and attitude
- reader preference for identifying what readers like and dislike
- text quality evaluation for identifying how accurate and relevant the text is
- rhetorical quality for identifying how persuasive the text is
- Delphi studies for identifying what tests need to be run and what questions need to be asked
- Web analytics for tracking users through websites (of which usability is a small part).

Of the list, reader preference studies and usability studies are best done by relevant professionals (designers and IT professionals in these cases) and not by writers, but we should have or should acquire the skills to do all of the rest.

Incorrect Metaphors Interfere with Evaluation of Interactive Media

I suggest “place” is the first big problem with evaluating websites. Just as we write with metaphorical filters, we also evaluate with metaphorical filters. When we read, we read through filters designed to help us evaluate the text – honesty, quality of writing, quality of mechanics, design, etc. When we visit a place, we use completely different filters – ease of navigation, ambience, design, lighting, odor, background sound, etc. The two metaphorical environments

(published documents and remote place) only overlap in the sense they are designed. But even “design” means something completely different for each environment.

Every year, I have a group of professional writers evaluate a website. Invariably, they will begin with quality of design, move to quality of navigation, and finally to the quality of textual structures, but without exception they stop short of carefully examination of the quality of the content. I invariably have to insist that the pages they are evaluating have critical flaws in the content and they need to find them. Even with that assignment, they seldom see any of the problems. Their inability to identifying the flaws in writing is always a result of the common metaphors they use, and their metaphors begin with them seeing the website as a place we can all visit.

“Visitors” tour websites

Suppose you build hotrods. You can go to GMPPerformanceParts.com and “shop the Performance Parts store” to buy your new engine. Or you can go to WhiteHouse.gov and tour the West Wing with the President of the United States. The metaphor for the site is “you as a guest of the President in the White House.” Although all of these sites are different, developed for significantly different purposes, the common metaphor for all of them is they are distant places we can visit. You can also go to any number of airlines and purchase tickets. Usability studies guru Jacob Nielsen points out that some early airline sites imitated the ticketing desk, giving purchasers the ability to click on virtual objects on the desk for information. The trend continues unchecked. Virtually all sites selling a product have shopping carts.

These, of course, are all valuable metaphors for the users of the sites, but because they distract authors and evaluators from the publication process they are not so valuable for them.

The publisher needs to recognize that while it is perfectly appropriate for the reader to see the site as a location, the publisher must publish the site as a document that only looks like a location (a complicated popup book of sorts).

Usability studies

For the past ten or so years, the preeminent tool for evaluating websites has been the usability study. The usability study can be a powerful tool for identifying structural problems in a hyperdocument, but it is less effective when applied to some of the other reader experiences – reader cognition and reader preference for example. Knowing exactly what the reader takes away from a marketing document in terms of attitude, knowledge, and intent can be very valuable.

Knowing how much the reader enjoys the site is also valuable. Usability studies have few tools and no vocabulary for evaluating reader preferences or changes in the readers' cognitive condition. This is not to imply that a usability study is a problem for evaluating websites. It is a perfectly acceptable tool, but we should keep in mind it is only one evaluative tool in a place where many evaluative tools are needed. There are other studies that also need be done – reader cognition, reader preference, rhetorical evaluation, and content relevance studies, metadata and code examinations to name only a few. I will discuss the strengths, weaknesses and effective processes for all of these studies later in this book, beginning with usability in Chapter four.

Writing Theories Evolving out of Usability

Janice Redish's book Letting Go of the Words: Writing Web Content that Works describes writing for the Internet. The book begins with "What did you do on the Web yesterday? Were you just browsing around or were you looking for something specific?" She answers with, "Most people say, 'something specific.'" Of course, she is absolutely right. Most

people look for specific things on the Internet. But Redish moves from that statement to a claim right out of usability theory, “Most people skim and scan a lot on the web.” Well this is also true. But then she asks, “What makes good writing work well on the Web?” and answers with “Good web writing is like a conversation, answers people’s questions, lets people grab and go.” That is decidedly not true. The truth is much more complicated. Good writing for the Internet is appropriate for its genre (purpose, audience, authorial need, etc.). It is carefully considered and crafted by its author, and it meets the needs of its exigency. Good writing is not some prescriptive, one-size-fits-all (brief and friendly), style.

Landing page optimization and Web analytics

More recently, new studies have evolved that more effectively embrace the rhetorical concerns of writers. In general, the purpose of a webpage is to get someone to do something (called “conversion” by practitioners. Maybe the author wants the reader to click a specific button or ask for more information or go out and protest. Web analytics recognizes that the purpose of almost any webpage is rhetorical. . . .

In short

In my experience, authors who develop interactive media within the metaphor of place (and evaluators who test them) have trouble seeing the sites as documents. They design, construct, evaluate, and discuss their sites as if the sites were structures. Because authors see the sites as structures, they lose sight of the purposes of the texts and write in styles prescribed by usability studies experts, and because evaluators see the sites as structures, they tend to evaluate structures and environments and not texts. On the other hand, authors see some sites as

documents with perfectly clear genres (e.g., portfolios and online help) and have no comparable problem.

THE NATURE AND ORIGINS OF THE STRUCTURE METAPHOR USED IN INTERACTIVE MEDIA

People who build places tend to be contractors or assemblers. As a consequence, the cognitive metaphor for producing websites tends to involve something akin to “assembly” or “construction” or “manufacture” or even “putting together Chinese puzzles.” This has not always been the case, however. Early scholars who examined the new, interactive genres being developed in the late ‘80s and early ‘90s saw them as textual—documents written with interesting new formats in interesting new ways offering us interesting new possibilities for (and freedoms in) communication. Online help and websites have evolved together pretty much throughout the history of interactive media. Although they are fundamentally the same (particularly with the advent of server centered online help), no one has a problem seeing a help file as a document. This is largely because help file design and development have traditionally been under the control of documentation specialists. Major websites, on the other hand, were initially seen as programs developed by programmers; and so, although online help and the World Wide Web are structurally the same thing at the fundamental level and although they evolved together, they took diverging metaphorical paths.

Early Scholars Saw Interactive Texts as Documents

In a groundbreaking article written in 1993, Stephen Bernhardt described the nature of texts in interactive media, effectively predicting what a web page would look like today [2].

Situationally Embedded: The text doesn't stand alone but is bound up within the context of the situation—the ongoing activities that make the text part of the action.

Interactive: The text invites readers to actively engage with it—both mentally and physically—rather than passively absorb information.

Functionally Mapped: The text displays itself in ways that cue readers as to what can be done with it.

Modular: The text is composed and presented in self-contained chunks, fragments, blocks.

Navigable: The text supports reader movement across large pools of information in different directions for different purposes.

Hierarchically Embedded: The text has different levels or layers of embedding; text contains other texts.

Spacious: The text is open, unconstrained by physicality.

Customizable and Publishable: The text is fluid, changing, dynamic, the new tools of the text make every writer a publisher.

Note, that he refers to the product in every case as “the text,” and he concludes by making every “writer a publisher.”

Long before there was a World Wide Web (in computer years, where a year is a generation), Jay Bolter also described the potentials of hypermedia as communication [3].

Once video and sound are taken into the computer . . . they too become topical elements. Writers can fashion these elements into a structure. They can write with images, because they can direct one topical image to refer to another and join visual and verbal topics in the same network (27).”

Bolter and Bernhardt voiced the opinions of many others of the day (including me), who all suggested hypertext or (later) hypermedia documents contained all of the various possible tools for communication – including video, animation, and interactivity. They recognized that the world was receiving new, complicated documents that would enhance the democracy of publishing and open writing up to unimaginable vistas in the future. They were correct.

Devolution of digital documents

Over time this recognition that interactive media is a text has devolved (except for online help and a few genres on the Internet), and it is not difficult to see why. The original webpages were difficult to create. Only people who bothered to learn “tagging” in SGML and, later, HTML could do it, and the vast majority of these people were programmers. While Bernhardt and Bolter were describing what these documents could be, programmers such as Robert and Timothy Calliau were creating them on the Internet. Although the early websites were produced in a markup language and not a program, the early websites were developed by programmers who used the common programming mindset of the time. All programming was done with line command programs such as Basic, Fortran, and Pascal. By far the best approach to using these programs was to carefully pre-design the entire project before putting down a single character of code.

Programmers would pour over requirements, design specification documents, and flow charts again and again until everything seemed ready and they were convinced they could produce the program as a complete and bug-free product. Only then did they begin programming. It was called “the waterfall model.” These same programmers created the first

hypertexts and at that time their descriptions of the best method for creating these documents fit within this waterfall model.

Rapid prototyping, extreme programming, rugby, and agile software development

Over time (and with the advent of object oriented programming) the waterfall model has become less popular, largely replaced by variations of rapid prototyping. Rapid prototyping involves creating the product (the website for example) in simple form and improving it in iterations. The process exactly parallels rewriting as it is taught in pretty much any high school or college. A more contemporary term with a more specific meaning is “agile software development.” As “agile software development” implies, in this model the programmers (usually a small group) develop the program changing things as the need demands. There are a variety of agile software development models including extreme programming, scrum (hence the rugby allusion above), and spiral programming.

Although agile programming parallels the writing process in many respects, no form of programming privileges writing to any degree, nor do programmers use any of the writing metaphors I mention at the beginning of this chapter. Instead, programmers see themselves as constructing a finished product. Waterfall programmers view the process much like construction – design a structure very carefully, then build it. Object oriented programmers view the process as assembling the components into a completed product, moving them around and modifying them as necessary until finished – although one tenet of agile programming is the assumption that the project is never actually finished.

In Short

Programmers do not see hypermedia elements as texts; they have never seen hypermedia elements as texts, and so they established production metaphors compatible with construction and assembly. And at some point in the evolution of digital communication technical communicators began following the programmers' structural metaphor.

MARKETING WEBSITES ARE CATALOGS, NOT STORES

Although writers were among the ones who saw the opportunities of hypermedia very early on, they were not the ones who selected the names or working metaphors. So although Amazon.com and Cabelas.com, and GMPerformanceParts.com are all really online catalogs, they are all presented as virtual stores. Today the New York Times describes its customers as “readers” – implying it still sees itself as a text -- but CBSNews.com, Newsweek Online, and ABCNews.com all describe their customers as “users.” Users are not readers. The word “user” has no connotation that implies “reader.”

Using Metaphors to Control and Evaluate Writing Quality

Earlier, I suggested that even on the Internet the metaphors we use affect (even effect) the quality of what we write. Those few authors who are the very best use the best metacognitive metaphors, the metaphors that lead them to the most carefully polished texts. Naturally the best writers have more than their metaphors going for them. Some writers are so good with words they can produce excellent documents whatever their metaphor. For the rest of us, however, even with the best metaphors the most we can hope for is excellence. But I think excellence is a worthy goal. Writers who write and rewrite and craft and sculpt and polish and do whatever else

they have to do to produce excellent texts, produce the best documents. But a writer who doesn't even know he is writing has no chance of producing good texts by any measure.

Assembly and manufacturer

Earlier, I suggested that web developers tend to see the web development process as “assembly” or “manufacture.” Using such a process, developers tend to construct excellent navigation and design, but the content is viewed as a component, basically a module that is added – usually later and often much later. But if, as I suggest, a website, any website, is a document, all of its component parts are texts. The texts are not added to the site; they are the site.

Assembly and manufacture and evaluation

One of the best known usability experts, Jacob Nielsen describes the sites in terms of location and navigation. Although he suggests that “content” is critical, he describes good content in terms of its structure. In Designing Web Usability, he suggest the following for good writing for the Web [4].

- Be succinct. Write no more than 50 percent of the text you would have used to cover the same material in a print publication.
- Write for scannability. Don't require users to read long continuous blocks of text; instead, use short paragraphs, subheadings, and bulleted lists.
- Use hypertext to split up long information into multiple pages (101).

Nielsen does suggest using plain language, “Because users don't take time to read through a lot of material, it is important to start each page with the conclusion” (111). It would be unfair to suggest that Nielsen never discusses writing style. In his 10 heuristics [5], he suggests that “the

system should speak the user's language, with words, phrases, and concepts familiar to the user, rather than system-oriented tools." But as I search through Nielsen's many texts on the topic, I see two important things. First, Nielsen sees websites as places to visit, and so he discusses effective design in terms of place and navigation. Secondly, he sees "text" as the alphanumeric words spread across the page and so makes no effort to discuss how the many different texts on a page can be used in concert.

Jared Spool, et al., also examined effective writing for the Web in Website Usability: A Designer's Guide [6]. They used Fog, Flesch, and Flesch-Kincaid readability studies and concluded that, "the less readable a site was, the more the users were successful with the site" (68). In short, Spool used readability heuristics, and nothing more, to evaluate writing on the Internet, using that to prescribe how documents should be written -- and the less readable the better. In terms of other texts, Spool, et al, suggest that graphic design has no impact on Website usability (7).

Of all the books available on the topic of evaluating websites, Carol Barnum's Usability Testing and Research is my first choice. Barnum is a technical communications professor (a writing teacher), and her approach to evaluating websites is much more comprehensive and expansive than most other usability studies experts. In Usability Testing and Research [7], Barnum effectively consolidates and updates the work of her predecessors in the field. She not only discusses many methods for how to do usability studies, she also details many (and more comprehensive) processes for designing and developing sites. But Barnum, a writing teacher, says virtually nothing about writing. In her list of the top ten mistakes of Web design, she names,

- Slow Download times
- Non-standard link colors
- Long scrolling navigation pages
- Scrolling text or looping animation
- Frames
- Orphan pages
- Bleeding-edge technology
- Complex URLs
- Lack of navigation support
- Outdated information

In terms of writing, I believe there are far worse mistakes. In the cut-and-paste pastiche of the Internet, there are thousands of pages torn from original documents and pasted on websites. Many of these pages are on topic, but written for wrong audiences or purpose. This, in my opinion, is the most dangerous mistake authors make when publishing a website. And in an examination of more than 100 books and articles on the subject of evaluating websites, I have found no one who has discussed this problem.

Examples

It is possible to look at several sites and see how they fall into this trap. The first two examples are from a collection of pages meant to attract sophomores into a technical communications program. The example page from the first site offers an overview of the careers graduates might enjoy.

Careers

Students thinking about majoring in English inevitably confront the question: "What are you going to do with an English major?" Contrary to popular belief, however, career

opportunities for English majors are quite favorable because English majors are adaptable. They have the critical thinking skills to adjust to a variety of different career paths, and in a world where workers can expect to make major career changes more than five times during a lifetime, adaptability is no small asset.

English majors have found job opportunities in financial institutions, insurance companies, federal and state government agencies, the hospitality industry, universities, museums, and service organizations. They are employed as personnel and planning directors, administrative associates, marketing directors, technical librarians, wage and salary representatives, service correspondents, claims adjusters, and insurance agents. The English major is also an excellent undergraduate major for those who wish to enter law, medical, or dental school; complete post-graduate work in literature, film, creative writing or library science; or enter sales, management, and marketing programs in large organizations. [8]

The title of the segment promises to be about careers, and so the text discusses careers – it is on topic. But, insurance companies? The hospitality industry? Planning directors? Marketing directors? Sales, management, and marketing? These are indeed job possibilities for English majors. But Jobs for technical communication graduates? Technical communication graduates typically get jobs as technical communicators. The paragraphs were written by an unknown someone who wrote them for the university's general bulletin. Someone who knew nothing about technical communications pulled them from the online general bulletin and pasted them into the undergraduate technical communication website. They are on topic in the sense that they are obviously meant to attract students to the English program, but they are written for an entirely inappropriate audience – they are written for literature majors.

Ironically, the text above has been through numerous usability studies. It meets all of the relevant demands listed by both Barnum and Nielsen. It downloads quickly, a reader can scan it

relatively easily; it is a single topic hyperlinked to other segments of information, and it is chunked. For three years this page occupied its place on the site, undergoing examinations by annual usability studies classes and their teachers with nobody ever noticing it was written for the wrong audience. Moreover, this is one of the pages I have had scores of professional writers and advanced students examine (more than 100 each at this writing), and they also failed to identify the problem with the page.

I changed the above copy to

In the past thirty years our world and how we interact with it have completely changed. Back then, the ways we used our tools were self-evident; the processes of our day-to-day lives were self-evident; even the operations of various machines were self-evident. Today, very little about our tools, processes, and machines is self-evident. A world with so much growing complexity requires interpretation of almost everything we do. This "interpretation" is done by technical communicators. It's our job to provide communication between the creators of new technology and the users of new technology.

The information below will give you a brief overview to the job market for technical communicators and describe several opportunities students have for increasing their marketability.

Job Market

According to the Society for Technical Communication 2005 Salary Survey, salaries of technical communicators can range as follows: *

Entry-level: \$42,000 -- \$60,000

Mid-level: \$51,220 -- \$70,000

Senior-level: \$64,000 -- \$100,000+

* Actual Salaries depend on location and experience.

To find more information about technical writing salaries, visit the STC website at www.stc.org.

Job Titles

Technical communicators can have a variety of job titles ranging anywhere from technical writer to multimedia specialist. Depending on your emphasis of study, you can find a wide range of job opportunities and titles in this field. The following are examples of job titles:

Documentation Specialist

Marketing Director

Multimedia Specialist

Project Manager

Technical Writer

Web Master

More specifically, technical communications include the following areas of interest:

Computer documentation

Training development

Book publishing

Animation

Proposal writing

Document management

Editing

Article writing

Marketing writing

Web production and management

Environmental writing

Medical and pharmaceutical writing

Report writing

Game narration and design

Technical copy writing

Video script writing

VR design and production

Professional Duties

Since technical communicators have such a wide variety of skills, they are needed in almost every job field to do a number of jobs. The duties of technical communicators might include tasks such as:

Editing
Interpreting information, ideas, and concepts
Marketing
Writing instructional documents
Researching
Creating multimedia packages
Web design
Document design
Newsletter writing
Proposal writing

Student Chapter of the Society for Technical Communication

Graduates may enhance their networking and marketability through participation in the student chapter of the Society for Technical Communication. In the past six years, our chapter has distinguished itself nationally by winning the following awards:

2002: Region 5 Pacesetter Award
2003: Synopsis, Newsletter Award of Merit
2004: Synopsis, Newsletter Award of Excellence and Most Improved
2005: Synopsis, Newsletter Award of Excellence
2005: National STC Chapter of Merits
2006: International "Best of Show" Newsletter

STC meetings are typically workshops where members learn software, develop job skills, or interact with alumni or other technical writing specialists. [9]

Look at all the scrolling the reader has to do. This goes against almost everything the usability experts suggest (though it is chunked) about writing for the Internet. But when readers want information, the page should give them at least as much as they want. With the original text somebody cut and pasted the content without considering how carefully the information matched the audience, but it did meet the demands of a typical usability study.

A second example

A single sentence from a different page on the same site reads like an academician writing to another academician [10].

Students take classes in two areas: first, they build a theoretical foundation in rhetoric so that they can assess any writing situation and adapt their writing to the context as audience-aware, self-aware, self-confident writers; and, second, they learn about writing in a variety of contexts using the most up-to-date tools of technology so that they know both how to write and why they are writing, thus preparing them for the ever-changing job markets of the twenty-first century.

The sentence goes on and on and is used for both the wrong audience and the wrong purpose.

Originally, it was written to explain to Northwest Accreditation evaluators how the technical communication program worked. Its original purpose was not to recruit students but to impress highly educated evaluators. Later it was copy-pasted onto a page in the site meant to explain the philosophy of the program to sophomores considering their options vis-à-vis choosing a major.

A page describing the philosophy of the program would present a different voice, with a different vocabulary, and a different philosophy (if, indeed, a philosophy page is actually appropriate).

Another example of the same problem

I can identify the mindset of those who developed this third example, because it suffers from the exactly same symptoms exhibited by the first two. A bookstore is selling the original publication of Lewis and Clark's epic journey across the West. The copy reads like this. [11]

History of the Expedition under the command of Captains Lewis and Clark, to the Sources of the Missouri, thence across the Rocky Mountains and Down the River Columbia to the Pacific Ocean. Performed During the Years 1804-5-6. By the Order of the Government of the United States. Prepared for the Press by Paul Allen, Esquire. Philadelphia: J. Maxwell for Bradford and Inskeep, and Abm H. Inskeep, 1814.

Two volumes octavo (228 x 149 mm) pp. xxviii, 470; pp. ix, (1), 522. Large folding engraved map (70 x 30.2 cm). Folding map lightly foxed with a tear repair (6mm) in crease located in east Mississippi. Map was drawn by Samuel Lewis from Clark's original

and engraved by Samuel Harrison (1789-1818) who may also be the engraver of the plates.

5 engraved plates, foxed: "Fortification" facing p. 63, Vol.1; "Falls & Portage" facing p.261, Vol.1; "Great Falls of Columbia River" facing p.31, Vol.2; "Great Shoot or Rapid" facing p.52, vol. 2; and "Mouth of Columbia River" facing p. 62, Vol. 2.

Some foxing and soiling throughout both volumes, some marginal worming in volume 1, filled in on a few leaves, marginal tape repair on Ee2 in Volume 2. Original printed boards entirely uncut with the map as issued, rebacked. Boards rubbed and soiled. Handsomely housed in a morocco slipcase with a chemise for each volume.

Remarkable narrative of the most famous and significant American land expedition in history. 1,417 copies were printed in 1814. Approximately 23 copies remain extant with very few in private hands.

Nicholas Biddle transformed the journal entries of Captains Lewis and Clark into an artful narrative. Biddle was the rare combination of genius coupled with financial solvency giving him the talent and the freedom to render the narrative highly readable and take no credit. Mr. Biddle chose Paul Allen to complete the publication process hence the name "Biddle — Allen edition." The *Journals* (as they were originally written) were not published in their entirety until one hundred years after the expedition. That definitive edition was brought to press by Reuben Thwaites in 1904.

"This is our national epic of exploration, conceived by Thomas Jefferson, wrought out by Lewis and Clark, and given to the world by Nicholas Biddle." (Coues, History, I, v-vi.) Every aspect of this set is testament to the sheer determination of those involved. The turbulence of time has decimated the number of copies remaining. This set is, in every way, a remarkable piece of Americana. Wagner-Camp 13.1; Tweney 89: 44; Streeter Sale Vol. 3: 1777; Sabin 40820; Howes L317; Graff 2477.

Price \$350,000.00

Like the careers page, the above quote is properly on topic, but the comments are a pastiche of physical bibliography and cut-and-pasted texts from elsewhere, paragraphs from different

writers, written in different times and for different audiences. Only the fifth and the last paragraphs make meaningful rhetorical statements, and one of the paragraphs isn't even about this book. Evidence that the copy is not based on informed rhetorical decisions, is reinforced by a variety of different rare books that are supported by nothing more than a physical bibliography and a request for reviews by customers: "be the first to comment on this book for a chance to win a prize."

It might be suggested that anybody interested in a book of such rarity and value needn't be sold on the book's importance and value. That is not unlike saying BMW need not bother marketing their \$115,000 M5, because anybody who is interested in it will know all there is to know about it and will willingly buy it without being sold. But this book, like the M5, has competitors. Other books are also important and valuable. I suggest the purchaser will buy the book or car with the most persuasive narrative (provenance).

Final example

If we examine ParrishBooks.com (a rare-book competitor), we see what looks for all the world like a page in a catalog of books. It has links to other pages, and although the directory for the site uses the name "store," the home page could as easily be in a traditional catalog. ParrishBooks.com sells rare books online, and the fundamental design principle of the site is rhetorical. Although they present their site as a place (store), they designed their site as a publication. According to the publishers of this site. . . . [NOTE TO EDITORS AND REVIEWERS: I still need to do interviews with developers and owners of this site, but I include an image of the first page in the appendix for your viewing.]

The authors also present their marketing pages as pages from a catalog, so their content is rhetorically sound, solving the correct needs, directed at the appropriate audience, doing what it is supposed to do rhetorically. On the other hand, their text is dense, and usability testers have suggested it is in desperate need of chunking – so for our purposes, I have chunked it. For example, in their presentation of author Tony Hillerman's, The Blessing Way, they say [12]

Inscribed By Author and Signed By Illustrator. . . . A spectacular First Edition (presumed) of Tony Hillerman's first book signed by the author and inscribed to his long-time friend and artist, Ernest Franklin. Harper & Row, 1970.

With 11 full pages of original illustrations by Ernest Franklin, each signed by him: 10 pages in ink and watercolor, one page in ink. Also, Franklin's signature "wolf" appears in ink on the free page following the front free endpaper.

Signed by the author on the title page along with an inscription "With my thanks to Ernie Franklin for showing me what Leaphorn looks like - TH."

Attractively bound in full black leather with brown leather inserts on the spine for the title and "1970," trimmed with gold trims. The interior is very clean and bright; the illustrations have been professionally tipped in. With dark blue endpapers, with a very small label of unknown origin on the bottom corner of the back endpaper.

"First Edition" stated on the copyright page but with a full-page illustration filling the last page where the number line should be. However, comparison with a true first with the number line page shows the pages are the correct size and the paper very similar in tone. Bibliographic sources also indicate consistency. (Louis A. Hieb, "Tony Hillerman: A Bibliography", "Collecting Tony Hillerman"), although the pagination is slightly different with additional pages inserted before and after the text block in the rebound edition.

The book rests in a beautiful matching full leather clamshell box with the body of the exterior in the brown leather of the titling on the book with a black leather insert holding the gold titling; with solid rounded spine with attractive ribbing ; also trimmed in gold like the book. The box is lined in shiny dark navy material. Overall, a spectacular

production of Tony Hillerman's first book that would be incomplete without the art of Ernest Franklin. Includes a Certificate of Authenticity.

Also includes a fine copy of Firsts Magazine, Vol. 1, Number 4, April, 1991 featuring an article about Ernest Franklin and the original artwork he creates for Tony Hillerman's books, "Illustrating Tony Hillerman." Parrish Books guarantees all signatures as authentic.

PRICE: \$9,500.00

Although the description would be much more readable if it were chunked, it nonetheless makes a strong contrast with the description from the PowellsBooks website. The purpose of the message is not to tell readers what the book about is as much as an attempt to persuade them to buy it. The content was written specifically for this book and specifically to the appropriate audience. In contrast, the PowellsBook description had no unified message and attempts at persuasion were spotty at best. Moreover, it had no discernable purpose or audience.

PowellsBooks.com, clearly sees their website as a place and their home page as its door. As a consequence, they seem to have no working metaphor for their design and no filters to use for evaluating their writing. Parrish Books also see their site as a place, but within that metaphor it was clearly designed as a document.

In Short

Properly done, the texts lead to a gestalt where the total of the page is worth more than its parts. The best websites will be written/edited/published because the writer/editor/publisher will make certain the navigation is excellent, make certain the design is elegant (to the degree that elegance is rhetorically important in a specific site), but will also make certain that all of the

component parts go together in a rhetorically sound manner. This becomes possible when writers realize they are constructing documents and not shopping centers.

DIGRESSION: WHAT IS “RHETORIC”

I keep using the word “rhetoric,” a word technical communicators tend to hate because it conjures up images of slippery language used for inappropriate purposes and because it is that “soft and fuzzy” part of language that technical communicators tend to think is irrelevant to their writing.

I would slip past the word, except (as we shall see) it is critical to excellent web design and evaluation. For the purposes of this discussion (and somewhat simplistically put), “rhetoric” is the part of communication that persuades, and even the most technical documents are rhetorical to the extent they persuade. This is a simple sentence, but it contains a great deal of theory and terms that need defining. So what do I mean by persuade? Imagine a help file. How rhetorical would you expect online help to be? Surely there is no place for pathos there – no need for emotion. After all, online help is all about ethos (accuracy in this case) and logos (logic). But that isn’t true. When a reader approaches a help file, the system has already broken down. As we shall see later, the excellent help file author deals with the assumption she has an anxious, perhaps even angry, reader. The best online help is written with defusing reader anxiety as one of its components. This is but one rhetorical component perhaps occurring at a subliminal level. Other rhetorical components that are similarly subliminal might include font selection, colors, shape, interface design, and more.

Rhetoric occurs at all levels in all documents. Writing on a Post-It Note is a rhetorical choice. The choice of pen or pencil (assuming such a choice is available) is a rhetorical choice.

Cursive or Roman is rhetorical. Red or black or blue ink is rhetorical. There can be no document produced by humans that does not contain rhetorical choices.

Why Is Rhetoric Important?

“Rhetoric” as a discipline has a long history. Aristotle suggested that it is the counterpart of dialectic (logical part of the discourse). If knowledge is a doorway, it has two doors – dialectic and rhetoric. Originally, “rhetoric” was described only in terms of oration, but over time it has come to mean more. When you design a page, you might choose a font that looks more professional (perhaps for a resume) or more friendly (a letter to a friend) or sillier (comic strip); these are rhetorical decisions. You might feel like your pages are too daunting, so you chunk your copy and insert more white space to make them friendlier -- a rhetorical decision. You choose to use grey on an IBM website instead of pink paisley. You choose to write documentation in a carefully crafted voice, as professional as you can make it -- rhetorical decisions and more rhetorical decisions. The font you choose is rhetorical; the colors you choose are rhetorical, the page shape is rhetorical; the photo choices are rhetorical; the decision to use animation rather than an illustration is rhetorical. The entire website is a complicated combination of rhetorical decisions. People who do not understand this, have difficulty producing meaningful websites – websites that “talk” to their readers.

Applying Rhetoric

Web analytics in this section somewhere.

Imagine you are helping design a website that sells a Harley Davidson Motorcycle tour across the Southwest. How different would your language be if you were selling a BMW tour in Bavaria, or if you were selling flowers, or collectable guns? Suppose you were attempting to sell

bird watchers on the idea of coming to New Mexico to look at the cranes in Bosque del Apache. How would that be different from selling western history buffs on a trip to Ft. Sumner to see Billy the Kid's stomping grounds? New Mexico needs to attract tourists from both groups and many more – many different audiences with many different rhetorical problems for a single site.

The need to apply rhetoric to different purposes and audiences applies to even the most technical content. It is one thing to point out that a \$350,000 book needs to be sold, but on the other hand technical content also needs to be sold, perhaps more subtly but sold nonetheless. People who go to online help documents are invariably under stress. The best online help documents defuse that stress as their readers solve their problems. Readers often see comments such as, “you can solve that problem by. . .” . . . and great information pages often end with “was this helpful?” These are rhetorical tools designed to control the emotions and expectations of the reader in addition to providing feedback to the web gurus. Just like all documents, online help is highly rhetorical. Space is designed so not to intimidate readers. Colors are chosen to enhance the ethos of the document. For example, you would never put a pink-paisley background in a help file designed to support legal software, although you might put a pink-paisley background in an online cookbook. To use a clean white or pale gray background in online help is a rhetorical decision. On the other hand, Microsoft uses pale yellow as a background for its online help – a different rhetorical decision.

The same rules apply to even the most complicated informational pages. IBM's discussion of XSLT, a tutorial, is exceptionally professional. [13] It recognizes that the person who reads it is likely a beginner at XML, and writes in an accessible language but avoids the attempts at humor or “baby talk” often common to such efforts.

Well crafted documents will contain a rhetorical stance. Your rhetorical stance combines your need with your audiences' needs and expectations. You recognize your audience and establish a stance that is appropriate for that audience and the conditions. It may include your exigency (the need or requirement driving your writing), but if it is well done, it will certainly include a crafted voice. For example, it may include (or specifically exclude) humor. It may exclude (or specifically include) contractions. The logic may be point by point with each point carefully spelled out and discussed, or it may be made up of enthymemes.

However it is crafted, the rhetorical stance will change with virtually every genre. The preacher's stance will be different from the teacher's stance or the conference presenter's stance or the angry father's stance.

In Short

All writing is infused with rhetoric to some degree. Uninformed writers are unaware of its presence or how to use it, but the best writers work hard to make sure it is under control and well groomed.

WHY IS A WEBSITE A DOCUMENT?

We all intuitively see websites as places we visit, but the claim that websites are documents is not difficult to demonstrate. First, one need only look at the source code. What we see when we "visit" a website is a façade. If you look under that façade, you will see the reality of the website. Although understanding of the code may not be immediate for the uninitiated, it all translates into plain English. "Change the font size to 2." "Begin boldface here." "Go and get photo.gif and put it here." "Go and get movie.swf and put it here." "Begin text at 300px in X and 150px in Y." The code also shows us what is really going on. We (users) do not "go" to

Amazon.com; we download pages into our own computers and display them. After the initial page comes in, our computer requests such art as photos, flash files, movies, or whatever else did not show up with the page. This, in some respects is like ordering a book from Amazon.com and receiving it the next day. In effect, we order a text, receive it, order supplemental texts, and read them. I recognize I am not saying anything new. In the depths of our logic, we all know we are not really going to remote places. But once we begin designing sites we are of two minds: while we are placing our texts onto the site, we are thinking in terms of how well the texts will load on remote computers, but when we think of how the readers will access the material, we think, talk, and write in terms of a remote place with users and navigation problems.

The Difference Between Writing and Constructing is Important

Here is where we see the difference between writing and constructing. We see and evaluate all writing through different sets of filters. If I send my wife a little love letter on a flowery Post-it note, she will probably not check my spelling or grammar (in fact, she might see intentionally misused grammar as cute), but she is also an NSF grant proposal reviewer. As she reads these proposals she sees nothing cute about mechanical problems, poor vocabulary, sloppy organization, and the like. We all typically evaluate any discourse we experience. Our filters are always in place, and to the extent we have the skills, we switch to the correct filters as we move from one genre to the other.

The filters we use to evaluate texts goes well beyond my abilities to identify them, but a short list of them will include things such as:

- Conventions we have accepted for writing formal and informal texts
- Personal bias

- Individual expectations applied to different genres
- Recognition of purpose of the text and its audience
- Understanding of the age, sex, and experience of the author and audience
- Appropriate level of style
- Audience knowledge of the subject being discussed
- Expected level of verisimilitude

Of course this is a tiny fraction of the complete list, but each of these plays a role in our evaluation of a text. For example, verisimilitude is driven by the author's (and readers') knowledge of the subject matter of her story. But we also change our expectations as we change genres. In the movie Throw Mama from the Train, there is a delightful scene where an elderly lady is writing a novel about a submarine. She calls the periscope, "the thing the captain looks through to see out," and she calls the intercom, "the thing the captain uses to talk to the crew." Verisimilitude is not to be found in her novel. On the other hand, we see Harry Potter wave a magic wand to light a candle or drive off dementors or summon a flying broom and we don't bat an eye (well, most of us don't).

Because we conceptually visualize a website as a remote place, the filters we naturally use to evaluate the texts we read seem not to easily transfer. As a consequence, what we read on the Internet can be wrong, illogical, even irrelevant, and we may well not even notice. Sometimes we expect verisimilitude and sometimes we do not. We seldom know the age, sex, or experience of the author. Authors often create pages without considering their purposes or audience (which can easily all be different).

The thing I have noticed in 14 years of doing and teaching web design and instruction is that when people see web design as assembly or construction, they tend to see the text as added, often as an afterthought (this tendency even applies to writers). When they can, they will grab previously written texts and paste them into their sites. In fact, a current trend is to write texts (chunks) designed specifically for cutting and pasting in different places for different audiences and different purposes. I have no problem with chunking. It can be an efficient way to manage content in a constantly changing environment. But people who are “assembling” their sites, instead of “publishing” them, tend to pay only superficial attention to the texts they are pasting, and so we get content that is on topic but for the wrong audience, or is on topic but was written for a completely different rhetorical purpose, or is on topic but the information is irrelevant for the purpose of the site. These pasted texts will always be on topic, and so they look right, but they are often wrong nonetheless.

Difference between readers and authors

For readers, viewing the site as a place is not a problem. Good sites can easily be designed to create a virtual reality, of sorts, where readers tour through the many “rooms” of the site. But for professional writers, seeing the site as a place causes a serious blindness to many components of the site. Professional developers and evaluators who see websites as places, tend to focus their evaluations in terms of structure and navigation. They perform usability studies, and consider them the measure of quality. If users can quickly “navigate” through the site, it is an effective site. Spool’s entire book, Web Site Usability: A Designer’s Guide, is based on measuring the site for how quickly users can access data.

Earlier in the chapter, I introduced a page designed to describe careers graduating technical communicators might aspire to. Every year, I offer a graduate course where we begin the course by evaluating the defective pages on that site. Their inability to identify problems on the page seldom changes. First, students begin discussing design issues.

Student A. “I don’t like the use of this color.”

Student B. “I like the use of the colors.”

Student C. “There is too much white.”

Student D. “I like the white space.”

Student A. “I don’t like the page metaphor.”

Student D. “I like the page metaphor.”

At this stage, the students are discussing aesthetic issues as aesthetics, using no logical or rational justification for their comments. “I like (or do not like) this.”

Next, students typically begin evaluating navigation on the site. The site is small and uncomplicated, so navigation is not much of a problem. We use breadcrumbs, text-based links and the other accepted processes, so there is seldom much argument about navigation.

About this time in the process, I suggest they examine the text for quality of writing. Typically, they will find a mechanical problem or two but suggest that the site (including the pages you have already seen) is generally well written. When I suggest that there are egregious errors on the page, they go back and review everything more carefully, but seldom find anything more. Only in one case has anybody pointed out a problem, and he was unable to explain why it

was a problem. He suggested that the sentences on the philosophy page are too long. When I ask why long sentences are a problem, I got, “You should not use long sentences on the Internet.” My questions, “So should scholars not write for other scholars on the Internet?” and “Should science stay off the Internet? And “Should writing be restricted to middle school standards?” received no answer. As with all things in writing, sentence length should be driven by the audience and not the medium.

I invariably have to point out the specific problems and explain why they are problems. Once they see them, I get a big, “Aha!”

“But these are students,” you say, “They cannot be expected to already know this.” These are indeed students. But they are also all working technical communicators. They include editors, lead writers, Web designers, even communications directors. None of them are beginners at this, yet none of them ever recognize the problems in writing until I point them out.

COMPLEX INFORMATION SYSTEMS:

THE WORST IS YET TO COME

Relational databases, XML documents mining information from other XML documents and inserting that information into XHTML documents, and Darwin Information Typing Architecture are among the new systems that presage the evolution of knowledge management in our immediate future. For the past fifteen years, we have been cutting and pasting ill-considered texts all over the Internet. Imagine what it will be like when the cutting and pasting becomes automated. Computers already publish documents unaided by human intervention. In the near future this process could well become the rule and not the exception. I recently had a conversation with an IT manager for Lockheed Martin whose job information management in an

environment where information mining is a key component. Her greatest complaint is that documents are often a mish-mash of voices and rhetorical stances that dissolve into gibberish. In response to this problem, some information managers suggests that all documents be written for a universal audience. I suggest that a document written for everybody is written for nobody.

Typically, the automation of relational databases is built around metadata. Metadata is fast becoming a critical tool for managing and mining ideas, but I have never seen metadata that lists genres, rhetorical stances, purpose, audience, or any of the other of the critical components of human discourse. Communication is moving into exciting new directions, but to be effective it should remain communication and not database transfer. To make this happen, we need to remember that we are dealing with documents made up of complicated new texts in new combinations, and we need to remember that texts are made up of purpose, audience awareness, rhetorical stance, exigency, and much more that should not be left behind.

In Short

To effectively move into the future of communication we must expand our definitions of “text” and “genre” and “rhetoric” so that we have no difficulty seeing that interactive media (all interactive media) is communication not construction. This is necessary for effective writing and evaluating interactive media, but is critical in a future that includes automated document publication.

CONCLUSION

[The conclusion will be written in coordination with content of later chapters.]

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