



Draft of Chapter 4, *Outlining Goes Electronic*

A History of Outlining: From Papyrus to Electrons

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Where did outlining come from? In this article, I look back at earlier conceptions that culminated in the “outline” as modeled in school textbooks of the last 50 years. As we explore the history of outlining, we will, I think, see how heavily that model was influenced by the media it unconsciously assumed—paper and pen.

Johnson (1997) points out that our era’s rapid development of new media—the “sheer velocity with which technology now advances” (p.4)— gives us a historically unique opportunity to compare one medium after another, seeing how each affects our worldview.

We can grasp the way different media shape our habits of thought because we can see the progression, the change from one form to another. You’re born into a world dominated by television, and then suddenly you find yourself acclimating to the new medium of the World Wide Web. The shift is startling, even thrilling, depending on your mindset—but however you respond to the new forms, their arrival has an illuminating force. (pp. 4-5)

We can, then, use outlining software as a contrasting background for a look at earlier ideas of the outline.

Outlining emerges from the great tradition of rhetoric, but becomes most common only when writers are familiar with the book as a medium (printed or not), as opposed to the scroll—because on each of the book’s distinct pages, the medieval copyists separated out headings, numbered individual verses, and used graphic devices

to distinguish paragraphs—designing all the raw materials that would be needed, later, for an outline. Immersed in this culture of the book, both hand-made and printed, Renaissance rhetoricians recommended crude proto-outlines to students who had to prepare speeches for court, church, or diplomacy. In the 16th century Ramus strongly recommended outlining, and his success among Puritan ministers seems to have influenced early scientific writers in the 17th century. In the 18th and 19th century, the success of scientific taxonomies and classification schemes may have given another boost to the outline as a form. Extensive note-taking, like that of Charles Darwin and the makers of the first *Oxford English Dictionary*, probably also nudged writers toward the outline as a way of taming the mass of data. Finally, rhetoric teachers in the 19th and 20th century codified the outline as a school exercise. Composition and technical writing textbooks of the last 50 years summarize this school model, while advocating it with various degrees of enthusiasm. Thus, a document that probably began as a crude aid to invention and organization—like a set of notes on a whiteboard—grew into a clearly defined formal genre, a carefully carved stick with which teachers and textbook authors could beat many generations of students. This article, then, considers how that history, and the media used, shaped the way the outline came to be thought about, explained, and justified, in these textbooks.

Clearly, the medium in which we regularly create communications will eventually influence our intellectual model of what we have created, and how we created it (Bolter, 1991; Heim, 1993; Innis, 1951; Johnson, 1997; Johnson-Eilola, 1994; Landow, 1992;

McLuhan, 1962, 1964a, 1964b). I use the term *medium* to refer to any substance or combination of substances that people can shape, mark or manipulate into dozens of discrete units, which can then be put together into thousands of combinations, which in turn can be built into an infinite number of different communications. To carve those shapes, make those marks, or organize those units, people use one or more tools. When a society adopts some combination of media and tools for semiotic purposes, we have a communication technology. For writers, the media combination of paper and ink has come to dominate the last half-millennium as our technological icon—that is, an emblem we worship, a concrete and outward manifestation of our ideas about written communication, and also, in our imagination, a constraint, limiting our idea of what writing can be.

Just as our thinking is influenced by the actions we perform on a regular basis, those actions are enabled or constricted by the media and tools we use. We tend to think of what we are doing in terms of what we see in front of us, what we manipulate, and what products we see emerge—all of which differ from one medium to another, and, to a lesser extent, from one tool to the next. In turn, the combination of media and tools—the technology—concretizes these ideas, stands for them, helps us represent them to ourselves. In this sense, any technology can potentially act as an “object-to-think-with,” to borrow Papert’s phrase describing a) the differential gears he played with as a child, b) Lego™ blocks that children use for construction, and c) Logo™, the program he created to allow children to learn vector geometry by tinkering with a microworld. (Papert, 1980, p. 11, and 1997, pp. 68-70; Barrett & Paradis, 1988, p. 157).

The technology affects our activities as we write, and we learn what “writing” is by building up a set of strategies, materials, and tools we can handle and manipulate, so, in the end, that microworld or culture offers us a set of metaphors through which we think about writing. As Daiute (1985) says,

The writing instrument itself can affect the cognitive process. The instrument can stifle the mental dynamism of writing, enhance it, or make no difference at all. As inscribed clay tablets dried, the writer in ancient times had to feel that the work was complete. In contrast, a writer who is using a computer tends to feel that the process is ongoing. ...The computer is the perfect tool for a *process* approach to writing, because it makes revising and recopying texts physically easy. (pp. 66-7)

The traditional idea of the outline—as presented by some 75 composition, rhetoric, and technical writing textbooks published over the last 50 years—contains many attributes derived from the medium, as we can see more clearly now that we have another medium for contrast. What we are looking at, then, is a model that developed through the actual practice of some writers, and, gradually became a standard assignment in schools, to judge by this sampling of textbooks.

The authors of these textbooks, as a group, show a strong, almost religious attachment to the medium of paper and ink, and, with a vision conditioned largely by their experience with paper documents, many of these writers continue to see notes, outlines, and drafts as discrete documents, each produced at a different stage. For most of these textbook authors, the advent of the typewriter, a new tool for an old

medium, did not disturb this kind of thinking. Only in the last five years or so, with the benefit of twenty-five years of word processing, and a dozen years of electronic outlining, do a few textbook authors explicitly recognize that the same electronic file can contain notes, outline, and draft.

Media are not easy to find or develop; but once a new medium has become popular in a society, people create many new tools for working it, and then start “improving” those tools. Early users of a new technology (new media and new tools together) tend to see it as a way of doing exactly what an earlier technology did, only better. But once people have used the new technology intensively, they develop new activities, transform previous practices, or relegate those practices to a minor role. For instance, copying had formed the core activity in the monastic scriptoria for hundreds of years, but, after Gutenberg, the practice gradually dwindled to a minor chore on the way to print (Daiute, 1985; Tuman, 1992). When video first appeared as a medium ordinary people could use, the early adopters imitated film, the medium of choice for both cinema and broadcast television until then; but as more people explored this medium, they discovered what it could do uniquely well, and stopped trying to make costume epics or high-resolution Kodak scenes, instead taking cameras out in the open air and into meeting rooms, making live cameras part of real-time art installations (Price, 1977).

As people get used to a new technology, then, and see new possibilities for action, they begin to change their ideas about the products they turn out, and to redefine the whole process. After a while, people are “working in” the medium. They

exploit its options, chafe at its limitations, but accept them, and work around them. Soon, those constraints begin to limit the way practitioners think.

Meanwhile, many people who are accustomed to the earlier media and tools retain their loyalty to them, and view the new technologies as intruders, bringing a decline in values (Tuman , 1992, p. 41), or, if they felt claustrophobic before, a breath of fresh air. Today's students, having less experience with ink pens, tend not to romanticize them as many of their elders do.

Many of these textbook authors show great loyalty to the paper and ink they grew up with, and even authors who know and use word processing tend to talk as if the computer is just an interesting plus, if a student happens to want to do a little more than can be done with pen and paper, or typewriter and paper. But the authors have not really changed their conception of a document from "a paper," to an electronic communication that can be displayed, printed, or transmitted. These authors still use ideas that were shaped by paper experiences, and downplay or ignore the benefits, challenges and ideas that come with computing. These authors almost never forefront the question of which media and tools will work best for their students. On the whole, these authors show a benign indifference to the impact of media.

Of course, anyone's choice of media and tools is usually overdetermined. Career aims, current work situation, class, finances, supervisors, clients, customers, local organizations all drive people toward certain media, and within those media, to particularly hot tools, offered by a technologically abundant culture (Apple, 1986, p. 171; Bell, 1975, p. 168; Tuman, 1992, p. 42). In some environments, like the

university, people can experiment with unfamiliar technologies, or drag their feet and refuse; but in most occupations, people have little control over the decision.

But the vast majority of these textbook authors—up to the last five years or so—act as if the technology one uses when creating an outline makes little difference. At best, some authors acknowledge that students might want to use word processing to create outlines—clearly, an add-on to the important discussion, which remains remarkably innocent of the deep influence of a medium and its tools, as if nothing significant had changed with the advent of electronic outlining.

Electronic outlining, as we have seen, speeds up the creation of an outline out of notes, encourages rather than discourages revision of the structure, and allows the writer to draft portions of the text on the fly, while glancing at the surrounding outline. The computer-enabled formatting helps identify structure automatically, relieving the writer of the painful chore of inserting labels, then revising them when a single change is made. Because any changes appear “neatly typed,” writers do not get bogged down deciphering patches of squiggles and arrows. The impersonal but clean display of the text on screen and in printouts can also give the writer more objective distance from the material, in a way that one’s own handwriting does not. Because the document is electronic, change becomes the norm; there is no “final product,” simply a series of snapshots in the form of printouts, whenever the writer reaches a pause, or a deadline. At the same time, skimming becomes more difficult, leading users to fold up sections not being worked on, and to unfold the subtopics as necessary, leading to a sense of structure as opening and closing, hiding and revealing, or containing—rather than

simply marching forward through the numbering system. The writer becomes a user, as well as creator, and sees the outline as a structure to move through, and modify, a live system.

But the vast majority of these textbook authors seem to assume that students will still mainly be using paper and ink for research, outlining, drafting, and revising. And for these textbook authors, paper is always primary—paper in the form of note cards, outlines, drafts, and, of course, final versions of student “papers.”

How outlines first appeared on paper

Outlines in some form have been with us since the early days of printing, and perhaps since parchment replaced papyrus. We do not know who cobbled together the first outline—perhaps a list of topics and subtopics, with some visual indication of sequence and hierarchy—as a plan for a speech or document. But we can guess at some of the precursors and preparations.

The classical rhetoricians consistently offered their students a kind of outline as template, when they discussed arrangement. We do not have any evidence that students of the classical rhetoricians made anything we would recognize as outlines for their speeches, but the fact that their instructors provided a list of the parts of a conventional speech (a list that varied from one instructor to another) meant that students began with what we would call a high-level outline of the oration, into which all their invention could pour. Imagine being handed this template:

- Exordium

- Narratio
- Confirmatio
- Refutatio
- Peroratio

Understanding the rhetorical purpose of each conventional section, the students were then to adjust the disposition of topics among these sections according to the type of speech, the subject, their own ethos, and their audience. Because of these considerations, the process could not be done mechanically. The students had to think whether a particular idea, story, or fact would work best in the introduction, the narration, the proof, or perhaps, the section attacking the opposition's ideas. And, finally, the question arose: should this topic be brought up again in the conclusion? In *De Inventione* (I, xxi-xvii), Cicero (1949) urges the speaker to list the parts of a speech in a section he calls the *partitio*, which divides up and displays the parts of the speech to come, acting as an overview or advanced organizer of the components that will follow. He does not describe an outline as we envision one, but he does view the partition as a methodical statement of the topics to come, a blueprint that must be followed section by section, "in order one after another as they have been planned in the partition." (I, xxiii, 33). This manner of thought, maintained throughout the Dark and Middle Ages, may have laid the foundations for structural thinking that led the renaissance to develop the outline as a model for a speech or document.

Similarly, early versions of tables of content offered another precursor model for what we think of as an outline. For instance, in the 1st century, having written 36 books of his *Natural History*, Pliny the Elder (1944, 1998) added another book which was nothing but a list of the contents of the others, with sources, arranged book by book (a three-level hierarchy). But a table of contents simply records the major sections of a work that has already been compiled, whereas an outline, as we are concerned with it, helps the writer create a plan for a work in progress. So, although these rudimentary tables of contents may have reinforced the model of a hierarchical list as a brief representation of the structure of a longer document, they were not functioning the way we think of an outline—as a tool for development. That work was reserved for later rhetoricians.

By the 4th century, most writers in areas that did not produce papyrus—particularly Christians—had generally adopted parchment (rectangular sheets of the skin of goats, sheep, or calves) or the finer vellum (sheets made from the skins of younger animals) instead of papyrus, fitting together these pages into volumes called codexes that we would recognize as books. Greeks and Romans had long used a pair of waxed wooden tablets, tied together by metal rings or leather thongs, for on-the-spot calculations in business and construction; gradually, sheets of papyrus and later parchment were slipped in between these “covers,” and over time these leaves came to be bound together, and attached to the wooden covers. Copyists and creators now took advantage of the new medium to widen the columns in which they wrote, and to write on both sides of the pages (Bolter, 1991; Innis, 1958; Microsoft, 1997; Ong, 1982).

This change in medium, though not as important culturally as the decline of the oral tradition or the later spread of printing, had a major impact on people's idea of what a document could be (Bolter, 1991; Innis, 1951, Ong, 1982). The resulting codexes were tougher, larger, safer to transport, and easier to flip through than the older, more fragile papyrus scrolls (Innis, 1951). Able to handle many sheets at a time, the codex encouraged combining numerous documents into a single volume, so that the New Testament could be presented as a single book, rather than a set of individual rolls. Over the next centuries, as papyrus supplies were cut off by the Mohammedans, and as more monasteries were founded with the preservation of books as a sacred duty, the monks worked out a design that began with the parchment page as the basic element of layout (rather than the roll). Text, instead of being conceived as an unending river, was locked up in a frame. Art, no longer just the pale washes possible on papyrus, took on detail and vivid color, and had to be worked into the same frame as the text, sometimes as decoration, sometimes as the main event; the interaction between a specific illustration and a particular passage of text became a challenge, making the monastic designers more and more aware of the distinct chunks of text they were dealing with. Over hundreds of years, headings (the title of a book, the title of a chapter) rose to prominence. Individual verses got their own decorated initial letters, paragraphing, and numbers. In fact, the idea of a paragraph as a graphic indicator of a distinct passage was probably born, somewhere in the Dark Ages, as a method for visually setting off a line of verse, or a sentence or two of the Bible. Thus, the switch from papyrus to parchment, making possible these early books, may have launched

design elements we still employ in the outline—headings, lines, individual paragraphs, initial labels (derived from decorated initial letters), and numbered sections.

In addition to these elements, the tree diagram arose as a way of showing a genealogy or branching categories as early as Cassiodorus (died ca. 585), and continued to expand throughout the middle ages, a verbo-visual diagram of a hierarchical structure (Bolter, 1991, p. 74). And as the codex became more popular, authors of encyclopediac works developed “more elaborate categories and deeper hierarchies” (Bolter, 1991, p. 90) to encompass all their material in proto tables of contents, or frameworks we would think of as outlines.

The advent of paper made all manner of writing cheaper, and therefore more plentiful. From its beginnings in China in the 1st century, paper quickly became the basis for woodblock printing, but only came to Europe in the 12th century, thanks to the Moors, taking hold in Italy in the 13th century, and expanding into the rest of Europe during the 14th century. With a pen, paper provided a cheap, discardable medium for temporary information—notes, personal letters, bills of lading, invoices, accounts. And, for the developing printing trade, paper provided a surface that worked well with the equipment and inks, so that printers could issue smaller, cheaper books to challenge the copyists, whose huge vellum volumes took so much time to make, and cost so much (Innis 1951). The printed paper books carried forward the design motifs invented for parchment, mechanizing their creation, but not substantially modifying their function. For writers, paper made all the aspects of pre-writing more convenient—note-taking, planning, sketching out a rough draft. Renaissance rhetoricians seem to have taken

advantage of this new ability to train students and other writers on paper, not just outloud, or on erasable wax tablets—media in which the creations soon disappeared, making them hard to reuse and analyze at a later time (compare Rouse & Rouse, 1989).

Because invention and arrangement had remained at the core of the rhetorical tradition from Aristotle through the Middle Ages, the idea of a fitting topics into a conventionally defined structure came easily to schoolmasters of the Renaissance. Topics could be summarized in headings, which in turn became branches in elaborate tree diagrams and similar diagrams (Bolter, 1991, pp. 16-21, 74-76; Ong, 1958, pp. 74-83, 104-130, 199-202, 314-318).

In working on arrangement, then the Renaissance rhetoricians advocated early forms of outlining in their teaching. For instance, assuming that his readers are familiar with bound volumes (whether printed or not), Erasmus (1978) advises youngsters to make up a commonplace album by starting with a full list of subjects, such as the main types and subdivisions of vice and virtue, plus prominent or common events. Each topic gets its own heading, and all its subtopics become subsections under that, and under each of those subheads one can drop any interesting story, idea or *bon mot* one hears.

So prepare for yourself a sufficient number of headings, and arrange them as you please, subdivide them into the appropriate sections, and under each section add your commonplaces and maxims; and then whatever you come across in any author, particularly if it is rather striking, you will be able to note down immediately in the proper place, be it an anecdote or a fable or an illustrative example or a strange incident or a maxim or a witty

remark or a remark notable for some other quality or a proverb or a metaphor or a simile. (Assembling Illustrative Material)

In 1512, Erasmus argues that dropping these quotations into this hierarchy of headings fixes the commonplaces in one's memory, and helps one make use of what one reads, because "Whatever the occasion demands, you will have the materials for a speech ready to hand, as you have all the pigeonholes duly arranged so that you can extract just what you want from them" (Assembling Illustrative Material). Hence, a prepared (but empty) outline encourages systematic note-taking, in preparation for speeches on these topics.ⁱ

Wilson's *Arte of Rhetorique* (1990) reflects his own school-teacherly devotion to outlining, with a proliferation of headings at three levels (one for each paragraph, section, and chapter), summary paragraphs that end in lists announcing the subtopics to be covered in the following subsections, and numbered lists introducing sections which contain these items as subsections (each again with its own numbered heading). To a modern eye, the book looks like an expanded outline. One imagines that as a tutor in the late 1540's and early 1550's, Wilson may have demanded that his noble and gentle tutees develop their speeches in this way, as preparation for future careers as English lawyers, politicians, or public servants (Schoeck, 1983). Certainly, some form of outline seems to have been used in the 16th century France by officials preparing letters and reports. As a Gentleman of the Chamber for Henri III, and Henri of Navarre, Montaigne (1580), for instance, boasts of beginning to write without any outline or plan, just

writing one word after another—which he clearly conceives of as contrary to the conventions followed at court.

In the same period, Puritan ministers learned to use crude outlines to prepare sermons, following Ramus' (1543) advice in the *Dialecticae partitiones*:

Sett forthe shortly the some of the text, which thou hast taken in hand to interpret: next... porte thy text into a few heads that the auditor may the better retaine thy sayings: Thirdly... intreate of every heade in his owne place with the ten places of invention...and last...make thy matter playne and manifest with familiar examples & aucthorities out of the worde of God (quoted in Miller, 1954, p. 338)

Ramus recommended that the writer follow a routine with four stages: 1) begin with a summary, 2) write down some major ideas about it as headings, 3) expand on and explain those ideas in text, and 4) add citations and examples in the text, to make the meaning clear.

Through these stages, a minister could develop a standard organization starting with an overview, offering key interpretative ideas as headings, then following each heading with a doctrinal explanation of the text, followed by examples, more quotations, and ways to apply the doctrine to the audience's life. This organization also had a standard visual format—summary, headings that express the gist of the points so the audience can remember them, occasionally followed by subheads and then text expanding on the idea with examples and further citations (Batschelet, 1988, pp. 288, 291).

Ramus undertook to reduce all previous knowledge to a series of outlines that could be printed for the use of students; he saw these outlines as a way students could learn—and quickly memorize—his own overview of rhetoric and philosophy going back to Aristotle and Plato. As Ong (1958) says, Ramus' outlines presented "a reorganization of the whole of knowledge and indeed of the whole human lifeworld" (p. viii). Looking back to the Ramus as the progenitor and propagandist of the printed outline, Heim (1993) agrees with Ong that Ramus represents the flowering of print:

Ramus advocated knowledge outlines. The printing press could reproduce any number of pages displaying graphic trees that present summaries of a body of knowledge. Each page is a skeletal outline of a subject arranged systematically, with the branches on the tree showing how the parts of the subject matter connect. The printed page thus becomes a chart of topics divided into dichotomies with their parts and interconnections made clearly visible. That is, the printed Ramist text is a visual encyclopedia of cultural literacy in which topics and their parts appear in a nutshell." (p. 43)

Ramus converted to Protestantism in 1561, and died during the Saint Bartholomew's Day massacre of Protestants (Ong, 1958). In part because of his conversion and martyrdom, and in part because of his intellectual approach, his works won a wide audience among Protestant scholars, particularly Puritans. His dialectical outlines, dividing a topic into a series of dichotomies that branched and branched to the edge and bottom of the page persuaded several generations of scholars that this method was a rigorous way to analyze almost any topic.

Science seems to have followed the rhetorical lead of religion. For instance, in discussing the way early American scientific writing grew out of the Puritan sermon, Batschelet (1988) shows how Samuel Danforth's 17th century book on Halley's comet includes a series of minor headings under the major headings, in a way we would recognize as similar to an outline. For instance, Danforth (1664) starts with the major heading, "1. The Comet is no sublunary meteor or sulphureous exhalation, but a Celestial Luminary, moving in the starry Heavens." (1) Batschelet shows how Danforth relates subheads to that major heading:

The heads are sometimes supported by proofs, statements of subordinate facts; for example, to support head 1 given above, Danforth supplies the following proofs,

The Truth therefor may be demonstrated.

1. By the vast Dimensions of it's (sic) body...
2. By the smallness of it's Parallax....
3. By it's large circular motion...
4. By it's long duration and continuance...
5. By it's Visibility to all Countries and Nations...

At other points the heads are supported by data such as dates, longitudes, and latitudes. (Batschelet, 1988, p. 291)

16th and 17th century officials, ministers, and scientists, then, may have begun planning their writing by setting down key headings and subheads, and even numbering the subheads, in what we would call a rough outline.

In the 18th century we begin to see writers, rhetoricians, and philosophers using the term “outline” to refer to a quick but incomplete glimpse of what is to come, or, as the 1933 edition of the *Oxford English Dictionary* says, “a description, giving a general idea of the whole, but leaving details to be filled in.” The citations indicate an emphasis on the very sketchiness of the outline, as if it were a painter’s preliminary drawing. For instance, in 1710, Steele says in *Tatler* No. 182, “His Drama at present has only the Out-Lines drawn.”(p. 6). In 1718, Murray, in the introduction to his *English Grammar*, proposes to offer “A distinct general view, or outline, of all the essential parts of the study”(p.8). In 1751, Hume in his *Essays and Treatises*, talks of “The faint rudiments, at least, or out-lines, of a general distinction between actions.” (Part II, p. 249). We may hear the influence of artists’ practice here, drawing charcoal sketches to rough out the large elements of a composition, without getting too precise; at the same time, the writers may be increasingly aware of the visual nature of an outline, even when constructed of text. The term *outline*, then, seems to bring overtones from the visual arts, to describe a verbal practice.

In 1828 the rhetorician Whately (1990) stresses the graphic and psychological benefits of an outline because it offers a brief visual preview of the contents of a composition—providing a striking miniature of the proposed larger composition, easy to remember, but loose enough to be overridden during drafting. He argues that teachers

ought to require many such outlines from their students—as long as the teachers “sedulously” correct them, pointing out applicable general rules. Whately phrases this advice in a way that suggests he may be reflecting (and correcting) many years of pedagogical practice:

Drawing up of outlines or skeletons

It should be added, as a practical rule for all cases, whether it be an exercise that is written for practice’s sake, or a composition on some real occasion, that an outline should be first drawn out, — a skeleton as it is sometimes called,—of the substance of what is to be said. The more briefly this is done, so that it does but exhibit clearly the several heads of the composition, the better: because it is important that the whole of it be placed before the eye and the mind in a small compass, and be taken in as it were at a glance; and it should be written therefore not in sentences, but like a table of contents. Such an outline should not be allowed to fetter the writer, if, in the course of the actual composition, he find any reason for deviating from his original plan. It should serve merely as a track to mark out a path for him, not as a groove to confine him. But the practice of drawing out such a skeleton will give a coherence to the Composition, a due proportion of its several parts, and a clear and easy arrangement of them; such as can rarely be attained if one begins by completing one portion before thinking of the rest. And it will be found a most useful exercise for a beginner, to practise—if possible under the eye

of a judicious lecturer—the drawing out of a great number of such skeletons, more than he subsequently fills up; and likewise to practice the analysing in the same way, the Compositions of another, whether read or heard. (p. 842)

Interestingly, in 1877, in his *Science of Rhetoric* (1990), the American Hill attempts to systematize rhetoric as a method of “producing mental changes” (p. 881) in the audience. He discards traditional notions of arrangement, but his very emphasis on system leads him to provide a detailed three-level outline of his entire book, as a table accompanying this panegyric for his “scientific” approach (p. 880): His defense sounds like Ramus: “A systematic analysis, by insuring a progressive exposition and avoiding repetition, enables the learner to master the whole work in a very short time” (p.879).

Indeed, as science moved toward classifying the natural world, during the 18th and 19th centuries, the layout of heads and indented subheads in an outline seems to have been given new cachet. Scientific taxonomies and other categorization schemes gave dramatic evidence of the usefulness of numbered, bulleted, and indented outlines. Following the developing conventions of the field of biology, for instance, Charles Darwin started a new project by sorting his information spatially. He relied on portfolios of notes, open shelves for sorting books and papers, multiple complex cabinets with wide labeled drawers (Darnton, 1996, p. 4) , books with personal indexes he made up in the back, and paper indexes on separate sheets for books he had had to return to other people. To draw all this material together, he relied on outlining.

...with my large books I spend a good deal of time over the general arrangement of the matter. I first make the rudest outline in two or three pages, and then a larger one in several pages, a few words or one word standing for a whole discussion or series of facts. Each one of these headings is again enlarged and often transferred before I begin to write *in extenso*. As in several of my books facts observed by others have been very extensively used, and as I have always had several quite distinct subjects in hand at the same time, I may mention that I keep from thirty to forty large portfolios, in cabinets with labeled shelves, into which I can at once put a detached reference or memorandum. I have bought many books, and at their ends I make an index of all the facts that concern my work; or, if the book is not my own, write out a separate abstract, and of such abstracts I have a large drawer full. Before beginning on any subject I look to all the short indexes and make a general and classified index, and by taking the one or more proper portfolios I have all the information collected during my life ready for use. (Darwin, 1889, pp. 79-80)

By the beginning of the twentieth century the outline appears in media we find familiar: ink or pencil on standard-sized sheets of paper, often with ruled lines to write on. Given the media, the writer can indicate structure by arranging individual headings (and whole paragraphs) using indentation, depth, and prefixed numbers and letters, following some convention or other. The main visual tools in the paper outline are white space, starting horizontal position (how far from the left margin?), vertical position

in relation to the next higher topic (how far down?), and labels at the beginning of each topic. Each chunk is conceived of as a distinct topic, in its own paragraph, whether it is a single phrase, a sentence, or a heading with subordinate material attached. Thus, paper and ink provide several ways to distinguish between units in a complex hierarchy—and, because the paper outline itself is distinct from any notecards one may have developed, this medium suggested to many people that essentially an outline must be a different physical object, distinct from the notecards, related only intellectually.

How notes appeared on cards

For more than 50 years, textbook writers have recommended that their students record their research on note cards, a medium that seems to have developed as an improvement on cut or torn slips of paper such as those originally used for citations in the *Oxford English Dictionary*. Clear (1993) describes the context for those citation slips:

During the nineteenth century in Britain, the scientific community working in the area of philology and related disciplines became increasingly concerned with data gathering as a proper preliminary to serious scientific investigation. Compilation of the *Oxford English Dictionary* (OED), a monumental work of scholarship in lexicography, was based from the beginnings in the 1860s on the painstaking collection of citations from text. (p. 164)

In the 1870s and 1880s, when James Murray was recruiting volunteers to send in citation slips for terms that would end up defined in the *Oxford English Dictionary*, he was paying his children a penny an hour to collate these scraps of paper. (Willinsky, 1994, p. 38). How grateful I imagine those children would have been, to receive the quotations on what we now call index cards—they may be bulkier, but they're so much easier to sort, stack, group, and divide!

During the same period, as more and more professionals published books that others in their discipline had to read, and as more people became readers, the growing number of public libraries had to list their books not in order of acquisition, or by room, but by author, title, and subject, for easier lookup. Dewey's decimal system (launched in 1876) and the emerging card catalogs popularized a move from bound notebooks and paper to sets of interchangeable cards (Jackson, 1974).

The invention and commercial distribution of cheap cards one could write on, often with an open space at the top for headings and light blue lines for script, helped any scholar study a single document while taking individual notes on many different topics. After having read dozens or even hundreds of books, the scholar could sort the notes by category rather than source, drawing out his or her own themes, grouping a number of quotations in order to come up with a personal synthesis. By the 1940s, these cards were so easily available even students could afford them, and textbook authors felt no hesitation sending their readers out to the stationery store for a supply.

As a medium, then, these cards helped anyone trying to organize a collection of notes. At creation, each note became a separate chunk of information, not a sentence

or two buried in a page, or a paragraph hidden somewhere in a multi-page document. The note card held the chunk of information as an individual object, so now a researcher could sort those objects, group them, divide them into subcategories, and sequence them in many different arrangements, just by flipping cards. The scholar was not held back by the recalcitrant sheaf of paper, containing multiple information objects on each page.

In practice, note cards provide a way to organize complex material by laying out piles of topics on a broad surface. The student can arrange the piles in a certain order. The layout of the piles tends to burn itself into the mind, as a person sorts the cards. As the student makes a decision about each card, the mind is, in effect, reconsidering the overall structure of the material. By engaging the sensations of movement, appealing to the eye, and demoting for the moment the detailed text, focusing instead on the headings alone, notecards provide a kinesthetic, visual, and verbal impression of the intellectual organization.

In this way, the medium encourages constant reorganization. Santmyers (1949) says:

You are urged to adopt, without hesitation, a loose-card method for planning and outlining reports. ...With only one topic to a card you can shift the order of the cards in any manner you see fit. By merely moving a card, you can see how a topic will look here or look there in your plan. If you cannot find a suitable and fitting place for it, you can put it aside for the time being and go ahead with the arrangement of your other topics.

As you pick up each card, you can examine the topic on it objectively—look it as it is, a thing in itself. (p. 32)

Freed from the role of sentence or paragraph in an unending stream of text on a long sheet of paper, the note takes on its own life, as an independent object, one that can be placed in some new relationship to other objects. Santmyers (1949) stresses the analogy with an engineer putting together a model.

The principle involved is as old as planning itself. When planning, free the mind for the hard work of thinking—for thinking about the things that cannot be seen; put the things that can be seen into such shape or form that they can be looked at by themselves, can be moved easily and quickly, to be tried in different combinations, or can be completely discarded. The engineer and mechanics are following this principle when they build a model or make a template. (pp. 32-3)

Smith (1940) foresaw the need for regularly reshuffling the organization, dealing out the cards in new combinations as one learns more about the subject.

This allows you to rearrange and regroup your cards at stated intervals as your work proceeds. Such elasticity of organization is necessary, for you will find that often your subject will take a new direction, or an altered emphasis while being investigated. (p. 272)

Some textbook authors who favor the note card seem to do so because they recognize that the writer will need to reorganize the material regularly during research, to figure out what else to look up (Sypherd et al., 1957, p. 143), to ensure that no key

material gets left out (USGS, 1957, p. 9), and to watch the “architecture of the document take shape in the writer’s mind” (Bell, 1995, p. 80) Evidently, the shuffling involves grouping, dividing, and sequencing topics, as well as mulling over major issues, such as the thesis, if one is needed.

The nature of the medium does not dictate any particular activities, but encourages certain manipulations—because the individual cards are all pocket size, they are light enough to carry to the library and back, easy to stack, quick to shuffle, small enough to lay out in an array on a table, and compact enough to bundle together with a rubber band, for safekeeping. Of course, the medium also limits the manipulations. The height (three or four inches) restricts the number of topic headings that can be inscribed on any one card, and the width (five or six inches) constrains the number of indented levels. The very chunkiness, so right for an individual notation, becomes a challenge when a student wants to synthesize all the chunks in a pattern. One can stack the cards up in a pile (grouping), order the cards in the pile (sequencing), and one can move groups forward and back, but one is still limited to working with the top levels (the group categories, or the topics within each category). And, as objects, they retain their individuality, communicating source names and quotes. But where does a particular card fit into its sequence? How is it part of the larger structure? To define that, one can overwrite the top line, with some generalization, and carefully arrange the cards so as to view only these higher level topics, but one sneeze, and the fragile outline is blown apart.

As the student moves from mere grouping and linear sequencing, ideas arise about the meaning of the material, thoughts that are not on the cards, and cannot easily be added to them. Also, the more complex the subject, the more levels one needs, each with meaningful headings summarizing the point of the section. Eventually, when developing a very complicated subject, the piles are not enough, even supplemented with books with yellow stickies poking out of them, and photocopies marked up with highlighters. Although the cards help a student organize the major topics, and may also let one sequence the cards within each pile, they do not allow the student to see, at a glance, any structure below the top level; one has to keep that information in the back of the mind. The student does not yet have a detailed flow, narrative, or argument turning these isolated chunks into a unity, or, as these books sometimes describe it, “a paper” (for instance, Lester, 1990, p. 120; Baugh, 1993, p. 58).

So between the notecards and the final draft one needs an interim, working document—an outline. Offering an overview of multiple levels, and a convenient site in which to develop and modify the structure of a document, the outline emerges from history as a workaday planning device.

Moving from notecards to outlines

Generally, the textbook authors who favor note cards also recommend preparing an outline based on them (Andrews & Blicke, 1982 p. 90; Baugh, 1993, p. 58; Johnson, 1992, p. 143; Lester, 1990, p. 120; Pickett (1984) 425; Sandman, Klompus, & Yarrison,

1985, p. 63; Sherman, 1970, p. 49; Sypherd et al., 1957, p. 143; Weidenborner & Caruso, 1990, p. 117.). Weidenborner & Caruso (1990), for instance, portray the outline as a way to get those piles under control:

No one can tell how many subtopics you will end up with, but you can usually expect to find between ten and twenty groups of cards on the table. In order to come up with a rough outline of the paper, you should consolidate some of the small groups into fairly large ones representing major divisions of the essay. (p. 114)

An outline of some sort is essential if you hope to control all the information that lies spread out on the table in front of you. Outlining can be done in several stages, culminating in a detailed plan for the paper, in which each note card has been assigned to a specific point in the outline. (p. 117)

So the first phase of outlining is actually to manipulate the cards a few more times. The outline, in this view, is a simple recording of the final order of the cards.

But other textbook authors recognize that creating the outline may involve more than transcribing the grouping and sequencing of note cards, so there has to be more give and take between the outline and the notes. Marckwardt (1960) sees the outline as helping direct the actual research, and being improved by what a student learns while reading.

The advantage of making your outline early is that it will guide you in reading and note taking. You may find that in some division of your

subject you need to read further. It also gives you a pattern by which to sort your notes. Keep enlarging and improving your outline with all necessary subdivisions until you have finished your reading. Then go over it carefully and correct any inconsistencies or faults of structure. Decide what details you will use and discard the others. (p. 410)

Similarly, Weisman (1962) argues that the outline “permits the investigator to test the adequacy of his data” (p. 261), suggesting the author compare the information on the paper outline with the notes on the cards.

Sherman (1970) recognizes that the outline may take the organization beyond that seen in the cards, and tells students to “Rearrange your notecards according to the final outline” (p. 44). In 1989 Samuels suggests transporting the subject headings from the first outline onto the notes, sorting the cards according to those headings, and then rereading each pile in order to “determine the overall significance of your research” (pp. 58-9), coming to conclusions that may, in turn, change the outline itself. So do Weidenborner & Caruso (1990, p. 114). As Johnson (1992) says, “As you sort your cards, notice how the material helps you to create an outline at the same time that the outline helps you to shape your material. ... It’s a back-and-forth operation” (p. 143). Alred et al. (1992), who quite forthrightly argue in one place that a student should complete all research before outlining, admit that the outline itself may reveal places “where more research is necessary before you begin to write the draft” (p. 111). Rubens (1992), who also argues for outlining as a stage that must be completed before drafting, sees a similar benefit in regard to research when the outline “reveals missing

information and other obstacles" (p. 17). And Houp, Pearsall, & Tebeaux (1995) approach the matter cautiously, declaring that a writer should not actually do outlining while discovering thoughts and studying the subject, but, at least, use "familiar arrangement patterns as aids in discovering your material" (p. 22).

So, a few of the textbook authors who sometimes describe a series of discrete stages (researching, then outlining, then writing) recognize an intellectual benefit to comparing the paper outline with the note cards, to bring both into synchronicity. But the physical pieces of paper prevent complete synthesis.

Pickett & Laster (1984), for instance, urge students to go back from the formal outline and "mark each note card with a Roman numeral, letter of the alphabet, or Arabic numeral to show to what section or subsection of the outline the note card corresponds. Then rearrange the note cards accordingly" (p. 425). Sandman et al. (1985) give the same advice (p. 63).

This recommendation (surely ignored by all but the most obedient students) points to a major problem with notecards and paper as media. Having created an outline on standard 8.5"x11" or 8.5"x14" writing paper, the writer cannot easily make clear the relationship between a particular outline heading and a specific group of 3"x5" or 4"x6" note cards. How can the writer make the connection between the heading in the outline and the right pile of notecards? Of course, the writer could draw a mental arrow from the outline sheet to the pile of cards, or scribble code numbers from the outline on the individual cards, but in either case, the cross-referencing between outline

and note remains tenuous, a challenge to memory. The information does not appear in a single document.

Underneath such discussions is a fundamental assumption: that the outline, logically connected to the notes, will remain physically separate, a document visibly distinct from the notes. And the draft, although based on the outline, must become yet another discrete document. To people who spend most of their days using pencil and paper, this concept seems “obvious.” In effect, the paper medium has suggested or re-enforced an idea of notes and outline as discrete entities, rather than as, say, two views of the same material. (By contrast, a single electronic outline can contain headings, with notes folded underneath them, to be viewed when necessary, or hidden, and one can write the draft using the same outline, viewed in word processing mode, so that, in reality, all three aspects of the material appear in the same document).

From discrete documents to discrete stages

Perhaps working from the media-influenced assumption that notes and the outline must be physically discrete entities, a large group of the textbook authors—stretching from the 1940s to the 1990s—tend to portray creation itself as a sequence of discrete steps or stages, each resulting in its own document. First one makes an outline, then one writes a draft; once one has completed the outline, one moves to the next step, and, if one has further thoughts about structure, one incorporates those in the draft, rather than going back to the outline.ⁱⁱ

Some textbook authors envision only a few stages, some as many as nine (Perrin, 1955, p. 5). A few explicitly use the term *stages* (Alred, , Oliu, & Brusaw, 1992, p. 112; Baugh, 1993, p. 58; Johnson, 1992, p. 133; Perrin, 1955, p. 5; Santmyers, 1949, p. 24)), some refer to *steps* (Alred et al., 1992, p. 112; Ehrlich & Murphy, 1964, p. 28; Lester, 1990, p. 123; Myers, 1955, p. 258; Santmyers, 1949, p. 24; Sypherd et al., 1957, p. 148; Trzyna & Batschelet, 1987, pp. 98, 107; Wilcox, 1977, p. 84), but most simply draw sharp distinctions in terms such as “before” (Hacker & Renshaw, 1979, p. 102; Lester, 1990, p. 120; Rubens, 1992, p. 16; Sherman, 1955, p. 9) and “afterward” (Fowler et al., 1992, p. 38; Smart & Lang, 1943, p. 27) or “finishing” (Houp et al., 1995, p. 25) the “completed” (Baugh, 1993, p. 67; Ehrlich & Murphy, 1964, p. 28) outline before beginning the draft. Often the phases are numbered, to emphasize the sequential nature of the stages. In the most common model, the research stage yields the note cards, the planning stage ends in an outline, the drafting stage comes up with a first draft, and the revision stage produces a final version.

Warriner (1950) and Warriner et al. (1958) articulated this separation of the writing process into distinct stages in his famous handbook.

In practice, as you know from your own experience, a writer begins with a general plan and ends with details of wording, sentence structure and grammar. First he chooses the subject of his composition. Second, he tackles the preparation of this material, from rough ideas to final outline. Third, he undertakes the writing itself, once again beginning with a rough

form (the first draft) and ending with a finished form (the final draft) that is as nearly perfect as he can make it. (p. 11)

How plausible this sounds, when not examined carefully. How sensible! How untrue. Even Warriner must have recognized that in general students tend to take notes, organize, and write, in fits and starts, now doing one activity, now another.

Emig (1971) struck an important blow against this odd separation of structuring and drafting, by pointing out that none of the 16 professional and academic writers she interviewed did what the textbooks said was standard practice.

The data from the questionnaire also suggest that a second generalization of rhetoric texts and manuals about planning is not valid, at least for this sample of writers--that is, all planning precedes all writing as all writing precedes all revising. The metaphor implied in these accounts about the writing process is linear: each "stage" is monolithic, and holds a fixed position in a lock-step chronological process. There are, in other words, no major recursive features in the writing process. ...Clearly, for these authors the so-called "stages" of writing are not fixed in an inexorable sequence. Rather, they occur and reoccur throughout the process. These data then make suspect the straight line which rhetoric texts imply as an appropriate metaphor for the writing process. (p. 67)

The work of Emig (1971), Flower & Hayes (1981a, 1981b, 1984), and Flower et al. (1990), among others, led theorists to view writing as "a dynamic multistep process that involves discovering ideas as we think and even as we write" (Daiute, 1985, p. 65).

But despite this new line of thinking, some textbook authors continued to talk as if all research could end when one starts the outline, and all thinking about structure and thesis could come to a halt when one stops outlining and starts an entirely new activity, known as drafting.

Of course, this model does not derive simply from the media used. Pedagogy may be another force driving the textbook authors to talk about outlining as one step, drafting as another. Sorting the work of creation into stages makes for neater syllabi, more clearly distinguished sections in the book, and more convenient teaching, because one can discuss each activity separately, and assign different documents as exercises. Santmyers (1949) justifies his stages in this way: "Because the four stages have their own techniques and activities, you can consider and think about each in order, separately and purposefully" (p. 26). Perrin (1955) believes that dividing the work up into stages may also simplify the actual work:

Writing a paper can be divided for convenience of discussion into nine stages...The problems of all the stages attempted together are enough to swamp anyone, even a professional writer, but if one step is undertaken at a time and disposed of, an orderly, workmanlike process can replace the jumble of worries. (p. 5)

Stages seem reasonable, at first glance. For instance, Alred et al.(1992) argue that you cannot do an outline when you know little about the subject. "You should not try to create your outline until you have completed your research and recorded all your notes, of course, because until then you will not know enough about your subject to be

able to create a good outline” (p. 111). This argument, though, ignores the fact that writers accumulate ideas and facts gradually, and during that time, the writers need to keep thinking about their goals, and therefore, the structure of their material.

Talking about stages as if writers must finish one to move on to the next, and as if each stage yields a single definite document that is never again modified, gives a false idea of the way real people write, a model that may, in part, be based on what people saw when notes were on cards, and outlines on paper.

But the stages model is undermined, in many of these same textbooks, by the actual tasks the authors assign students to perform, when creating the outline. At the very least, these activities require so many revisions of the outline, so many iterations, that students would have to emerge with a series of outlines, not just one. And some authors recognize that outlining may take place side by side with writing and revising, thus fuzzing the edges of the stages even more.

What happens during outlining, then?

Whether the authors present outlining as a stage, or an ongoing process that interacts with other activities such as research, writing, and revision, most textbook authors give students some general guidelines on what to do when outlining, while acting as if the detailed activities are well-known to their readers, and need not be discussed in much depth. Individually, most authors only mention three or four particular activities the student might do to create an outline. But collectively, the textbook authors’ recommendations add up to almost the same set of activities as we

saw with electronic outlining—with three significant differences: these authors leave out any note-taking and research, as separate activities operating on separate documents; add a distinctive emphasis on one kind of outline (for an essay); and do not consider drafting part of outlining. The activities that are mentioned include the following (with some representative citations):

- Making a list of topicsⁱⁱⁱ
- Adding or deleting topics^{iv}
- Moving topics from place to place^v
- Eliminating duplicate topics and specifically making sure that a topic does not appear as a subtopic under itself^{vi}
- Classifying or grouping related topics^{vii}
- Dividing one topic into its component subtopics^{viii}
- Subordinating some topics to others^{ix}
- Sequencing^x
- Confirming completeness, by checking to make sure you have not left out anything important in your notes^{xi}
- Making the text of related headings consistent^{xii}
- Working on one layer at a time^{xiii}

- Making the outline match the structure of an essay, by including an introduction,^{xiv} starting with a thesis statement^{xv}, ensuring that the headings support the thesis^{xvi}, including a conclusion^{xvii}, and adopting a consistent point of view^{xviii}
- Double-checking to make sure you have done these activities correctly^{xix}

These activities may operate on various documents, from scratch notes (Leggett et al., 1991, p. 359; Perrin, 1955, p. 13; Warriner et al., 1958, p. 11), trees (Leggett et al., 1991, pp. 359, 365) and nonlinear outlines for brainstorming (Andrews, 1982, p. 88; Rubens, 1992, p. 19) through simple lists (Alred et al., 1992, p. 113; Leggett et al., 1991, p. 359; Mansfield & Bahniuk, 1981, p. 268; Markel, 1984, p. 69; Mills & Walter, 1978, p. 68; Wilcox, 1977, p. 84), numbered lists (Pickett & Laster, 1984, p. 118; Weisman, 1962, p. 261), a preliminary outline (Alvarez, 1980, p. 157; Andrews, 1982, p. 88; Hacker, 1994, p. 27; Sandman et al., 1985, p. 63; Sherman, 1970, p. 48; Trzyna & Batschelet, 1987, p. 102), and working outline (Alred et al., 1992, p. 113; Alvarez, 1980, p. 176; Hacker, 1994, p. 27; Leggett et al., 1991, p. 359), which may itself take the form of a topic outline (Alred et al., 1992, p. 113; Mills & Walter, 1978, p. 55; Pickett & Laster, 1984, p. 118), sentence outline (Mills & Walter, 1978, p. 55; Pickett & Laster, 1984, p. 118; Sandman et al., 1985, p. 65), or paragraph outline (Mills & Walter, 1978, p. 55; Samuels, 1989, p. 72). The proliferation of distinct documents, across the spectrum of textbooks, suggests a common model, that is, one that envisions a series of distinct physical entities.

Very few textbook authors like to admit how many, many versions the students would have to go through, to do a thorough job. The authors who stress revising or re-checking the outline move students a lot closer to the reality they face, I believe. Those who mention a series of outlines (such as a simple list, a topic outline, a formal outline) also communicate the idea that outlining itself means working with a series of documents.

Most writers will probably have to make many passes through the material, doing different activities on each pass (not even one activity per pass!), looping back, jumping here and there, redoing and undoing, as they develop the outline, and, when they are using paper, they will probably have to make several copies of the outline. Thus, Wilcox (1977) actually warns the students that they will probably not get away with a single outline (as document).

Write a working outline. This is the outline from which you actually write.

Since often it must be revised several times, it would be more accurate to say "outlines." (p. 84)

Trzyna & Batschelet (1987) recommend "multiple outlines" (p.102). And more than 20 other authors admit, or suggest, or forthrightly announce that students may often have to make more than one version of "the" outline^{xx}.

All this creation and revision; all this to-and-fro, combined with the mutual interplay of research and planning; all these versions of the emerging outline suggest a dynamic, recursive, interlocking set of activities. How could they really be carried out in a series of neat stages, as in a factory turning out tin cans? No matter what sequence

an author might use to list these activities, the student cannot hope to walk through them as a neat sequence of steps in a procedure. As Markel (1984) says, "The human mind is not so structured or orderly" (p. 69).

Mills & Walter (1978), who spend more than thirty pages explaining how to organize an outline logically, point out that students cannot expect to proceed step by step directly to an organized outline, because the mind doesn't work that way, but has what we would today call a fuzzy logic.

It is hard to discuss the subject without implying one idea that is actually ridiculous. This ridiculous idea is that the minds of intelligent people work in an orderly process just as an outline is developed. Nothing could be further from the truth. Of course the purpose of an outline is to establish an orderly relationship among a group of facts or ideas. And intelligence could almost be defined as the ability to perceive relationships.

Nevertheless, intelligent thought processes appear to be infinitely more complex and more varied in structure than is even remotely implied in the concept of an outline. (p. 67)

But the paper medium makes changing a single outline difficult, messy, and unappetizing (Smith, 1990). Handwriting an outline does not encourage constant reorganization. It's hard enough to get the ideas down once. To make a change, one has to erase and rewrite, or draw circles around a passage and add an arrow pointing to its new location, cross out a dud section, or scribble in a new one in very small text so that one can fit it between two lines. But this exploding outline, with stars, cross-

hatchings, additions, and deletions, quickly becomes difficult to read. What started as a way of considering alternate structures quickly gets too complicated to figure out. Instead of emerging with a high-level overview that one can scan through for patterns, one gets a mess, and to decipher it, one has to descend to the level of words and arrows, and follow the material sequentially.

Of course, one can copy the entire outline over, making the changes as one goes, which means writing the same headings over and over, just in a different order. But handwriting is never easy, and the task of copying the same text over and over, even if in slightly different order, is enough to drive many people to rebellion (Daiute, 1985, pp. 36-7).

The medium of paper, then, is adequate when all a student must do is dash off a single, instantly perfect outline, or even two, but balky when a person must continuously reconsider the organization, as with a large, complex topic—but such reconsideration is a major reason these textbook authors recommend making an outline in the first place. The textbook authors, then, are asking for students to rethink their structures in many passes, but not saying how to handle the changes on paper. What remains unacknowledged is the difficulty placed in the students' way by the medium. The textbooks put students in a double bind: they must make changes to the outline in order to define the most effective structure, but they must use paper, which militates against their making very many significant changes.

The emphasis on product

The dilemma these authors put their readers in, then, resembles the confusion caused by teachers who overemphasize the final product. To hear theorists tell the story, composition instructors during the Fifties focused so intently on the product that they gave beginners the impression that anyone ought to be able to compose a complete outline in a single sitting, and then write a perfect final draft just as simply. Daiute (1985) shows how this product orientation may have been reinforced by the recalcitrance of the paper medium.

Unfortunately, this focus on the end product often gives beginners the idea that writers always compose good texts. ... The emphasis on writing as a static product may have come about, in part, because the traditional writing instruments and surfaces do not allow writers to change the page easily. Thus, writers have a physical stake in producing final products on the first try because revising and even minor editing involve recopying.
(pp.52-53)

Such a feat—producing a perfect outline or essay in one try—involves so many complex and overlapping activities that even the most experienced writers would have trouble managing the juggling act.

Here's one reason, I suspect, that students have come to hate outlining, at least in its purest paper form, considering it "the unpleasant assignment" (Santmyers, 1949, p. 43), or "an unreasonable imposition...an extra task" (Myers, 1955, pp. 257-8).

And perhaps sensing some of that resentment, some teachers came to encourage students by promising that they could stop working on the outline as soon as they

started writing. As teachers, they probably understood how exasperating it could be to make real revisions to any outline, so as textbook authors they implied that there was a complete separation between the outline work and the writing of the draft—a separation modeled by the fact that on paper, these are different documents. Just get through the outline, they pleaded, and then you can let that sit, while you write the draft. “After the outline is completed, the writer is ready for the actual writing of the article,” which consists of “filling in the outline” with details, said Smart & Lang (1943, p. 27). “If you write a good enough outline, you don’t have to do much more than copy to get your final paper,” claims Myers (1955, p. 258). And Baugh (1993) says encouragingly: “All you have left to do is fill in the words for each main point, one paragraph at a time” (p. 67).

Writing as part of outlining

Most of the group of textbook authors who describe writing in terms of stages draw a sharp distinction between outlining and writing. Smart & Lang (1943) set the tone: “After the outline is completed, the writer is ready for the actual writing of the article” (p. 27). Warriner et al. (1958) say that in the third step the writer undertakes “the writing itself” (p. 11). Dietrich & Brooks (1958) dismiss the idea of writing as an active part of outlining: “The emphasis in every outline is on ideas, not on phraseology” (p.110).

But instead of making such a clean separation between the outline stage and the drafting stage, a few—very few— of the textbook authors recognize that as writers

outline they are working with words, and, just to articulate the structure, they must write. For instance, Myers (1955) says, "If you write a good enough outline, you don't have to do much more than copy to get your final paper" (p. 258). Note the difficulty that Perrin (1955), a stages theorist, tries to overcome when he admits "Of course some writing has been going on in the last three steps, but actual consecutive writing ordinarily takes place as the sixth step in developing a paper"(p.15).

Certainly, the writing of headings and subheadings involves shorter, more concentrated chunks than discursive writing does. But if the headings are to communicate to the reader, they must be written with the care we give to a maxim, or title. Mills & Walter (1978) argue that some headings are just placeholders, that is, "signals to write" (p. 65), but points out that other headings act as potential titles for sections, and must therefore convey the contents adroitly to the reader. Weiss (1982), too, stresses that the headings need to be made "persuasive ... instead of the usual uncommunicative noun strings (categorical or topical)" (p. 59). "The first improvement, changing the headings from dull and descriptive to thematic and evocative, is a basic journalist technique. Actually, it involves turning headings into headlines" (p. 60).

In a backhanded way, Sandman et al. (1985) also recognize how much writing is involved in a thorough outline, arguing that if one is going to do all that writing in an outline, one might as well do it in the first draft, instead. "In truth, however, though virtually all good writers use some kind of outline, few people spend the time and effort it takes to write a formal one, because it takes nearly as much time to write a sentence outline as it takes to write a first draft" (p. 65).

The most straightforward recognition of the value of the outline as writing comes from journalist Tom Wolfe, quoted by Hacker (1994): "By writing an outline you really are writing in a way, because you're creating the structure of what you're going to do. Once I really know what I'm going to write, I don't find the actual writing takes all that long" (p. 36).

That's been my experience, too. But most people continue to think of an outline as just a kind of aid to memory, not "real writing," and so they scribble the headings with no sense of the reader, including instructions to themselves ("Put Doggett material here."), or making dummy headings, with the understanding that they can be fixed later. In this way, much of the value of outlining is lost.

In fact, the only "writing" activity these authors generally recommend during outlining is to impose parallel structure on all headings. Usually, this activity means converting all headings of the same level in the same section to the same grammatical form. Many textbook authors just insist on the student carrying out this action without giving any rationale. Most of those who do provide an explanation stress structural logic:

- 1) All the headings have the same importance, and are at the same level in the hierarchy, so, logically, they should be parallel in grammatical form (Elsbree & Bracher, 1967, p. 40; Leggett et al., 1960, p. 201; Pickett & Laster, 1984, p. 118; Sypherd et al., 1957, p. 144; Wicker & Albrecht, 1960, p. 58).

2) A single principle must be applied to divide a topic into a set of components, and parallel format proves one has done so methodically. As Jordan (1965) says, "You cannot alternatively file your correspondence chronologically by date of writing and alphabetically by addressee" (p. 109). (Compare Shelton, 1995, p. 41).

A few other authors argue for parallelism rhetorically, saying it will ensure that the reader can see the headings all belong in the same group, and can then compare them easily, with little extra thought required. As Sherman (1955) says, "Such a practice enables a reader to become familiar with the pattern and hence to read more efficiently" (p. 14).

But because the textbooks offer so little real advice on how to write meaningful, persuasive headings, we may conclude that most authors still, unconsciously, have not recognized the degree to which an outline can actually become the document itself. Once a writer uses electronic outlining, this transformation becomes easy; and the point these few authors bring up becomes obvious—that every ounce of writing one does in the outline can move the emerging document forward.

Dealing with new ideas that come up as one writes

Because so many textbook authors conceive of outlining as the culmination of all planning, and consider drafting as a simple matter of carrying out the plan, they often overlook the fact that people come up with new ideas as they write.

In the traditional theory, there is a simple relationship between outline and draft, expressed in metaphors such as the blueprint and the map. The writer just has to follow the outline without deviating from its path; one need not expect to learn anything new as one writes. Evidently, encouraged by the idea of pure stages, many classroom teachers over the years have frightened their students into near paralysis by insisting that the outline exactly match the final draft. No unexpected ideas should creep in, nothing should be discovered, no detours explored, no life arise during writing.

In those circumstances, many students emerged from English classes hating the outline as a dead hand. "Some will warn you that the outline will make your writing wooden, lifeless, or at best the mere thumping of a treadmill" (Santmyers, 1949, p. 43). Rose (1980) found that many students who were blocked were just trying to work within a set of rigid rules, in this way.

Recognizing that many high school teachers had made students think of the outline as a straitjacket, limiting their future movement, several textbook authors admitted that the outline might not, in fact, foresee all possible ideas or structures. As early as 1949, Thomas stressed elasticity, allowing students a little give and take before the outline snapped them back in line. "The fact is that the outline serves as a place of departure and return during actual composition" (p. 140). He recognized that the writer might need to defer, add, or combine points for emphasis or suspense, insert an illustration, make a transition, or put in an introductory remark, but he still saw the outline as a useful form of control for the writer.

He may purposively take by-paths but he does not wander in a maze. As a rule, radical divergence from the general scheme shown in the outline is neither necessary nor desirable. If a paper drifts away from the basic plan, probably there are logical flaws, in either the outline or the composition--or very likely, in both. ... No matter how much variance is permitted in detail, the following test of over-all content always is valid: *Nothing in the outline should fail to be presented in the composition; conversely, no essential topic or major body of material in the composition should fail to be indicated in the outline.* (pp. 140-141)

Student reaction over the last fifty years has often been to write the outline after the composition—completely avoiding any possible benefit from outlining, but fulfilling the requirement for a one-to-one match between outline and draft, quite neatly. Thomas (1949) complains: “Students who first write their own papers without method and afterwards attempt to outline them, “because we have to turn in an outline,” usually are simply wasting time, paper, and energy—not to mention the patience of their instructors” (p. 130).

Elsbree & Bracher (1967) acknowledge that students often fake outlining, putting one together after their draft, but the authors try to shame the students into writing the outline first. “The student who hurriedly makes one up after writing the paper usually cheats himself more than he does the instructor” (pp. 30-31).

Elsbree & Bracher (1967) do not take a severe attitude, though, because they envision students veering away from their outlines during drafts, and encourage that:

“Try regarding your outline as a guide to your structure and plan, not as a fixed commitment. If, while writing, you discover necessary changes, feel free to make them in the outline and the composition” (p. 45).

In the 1980's we get even more mellow advice, encouraging students to wander away from their outline, if they need to. Alvarez (1980) says

Don't be afraid to deviate from your outline as you write. The shape of a piece, scientist Gregory Bateson reminds us, "sometimes emerges out of a sort of wrestling process." So rather than hang on to a plan that no longer reflects reality, go with the flow of the piece as it develops. Most of us learn as we write—one of the prime benefits of writing. (p. 177)

Similarly, Markel (1984) says

Few people are able to create a perfect outline—either public or private. With private outlines, you will find that as you write your first draft, you have forgotten something or that something in the outline isn't relevant and has to be dropped. This doesn't mean that the whole outline is flawed; it simply means that you never know what you really want to say until you try to put it on paper. Writing forces you to examine your ideas. (p. 68)

The new freedom extends into the 90's, with Bell (1995, p. 100), Brusaw et al. (1993, p. 485), Fowler et al. (1991, p. 43), and Leggett et al. (1991, pp. 365-6). For instance, Bell (1995) quotes a Bob Velasquez on the outline as a general (but not strict) guide: “No matter how carefully I outline my material in advance, I always seem to

discover new possibilities or interesting side roads as I write. It doesn't make sense to exclude good ideas just because they didn't appear in an original outline. So I try to use my outline as a general guide to writing, not as a fixed agenda of points and subpoints" (p. 100).

We might characterize this emerging approach as soft outlining. One develops a structure with the outline, but leaves the outline behind as one writes the draft itself. So even among people who live with word processing, the idea persists that an outline and a draft must be separate documents, and there is no explicit recognition that a writer can have multiple views (page layout, normal, outline) of the same emerging draft.

A second approach toward handling ideas that come up during writing is to revise the outline as a working model of the structure of the document. Thomas (1949), for instance, suggests a sentence outline during research, a perfected version before writing—and revisions "during the actual writing of the paper, should new interpretations occur or new material be discovered" (p. 131).

Hammond & Allen (1953) reassure their readers that "The outline does not 'set' the report, in the sense of imposing a rigid immutable form upon it, for the outline itself is not rigid. It may be changed if necessary" (p. 59). If a valuable idea occurs to the writer during the writing, what should be done? Hammond & Allen show why the writer should incorporate the idea into the outline before going on.

If the writer is not using an outline, he may choose one of three courses:

(1) He may insert the idea into whatever portion he happened to be writing when it occurred to him, which may or may not be the most

effective position. This is what usually happens. (2) He may try to file the idea away in his mind for use in an appropriate context. This course is distracting and uncertain of fulfillment. (3) He may simply drop the idea altogether. None of these courses is really satisfactory. On the other hand, if the writer to whom a useful idea occurs is working from an outline, all he has to do is refer the idea to the outline, discover the most pertinent, effective place for it, and incorporate it into his plan.(p. 59)

Perrin (1955) agrees: "But it is necessary to remember that a paper cannot always be completely visualized ahead of writing, that any preliminary outline is a working plan—the best way you can see to lay out the material before you begin to write. Even the most perfectly numbered outline should be changed in the process of writing if there is good reason to change it" (p. 15).

Pickett & Laster (1984) envision the revising process involving "several drafts of the outline and the report" (p. 426). Johnson (1992) sees such revisions taking place during the first draft (p. 141); Fowler et al. (1992) encourage students to revise the outline "no matter when it's made" (p. 35), even after the draft. Hacker (1994) offers a significant qualification of her approach to stages when she acknowledges that students may need to circle back to revise their outline:

Of course the writing process will not always occur for you quite as simply as just described. While drafting, for example, you may discover an interesting new approach to your topic that demands a revised plan. Or while revising you may need to generate more ideas and draft new

material. Although you should generally move from planning to drafting to revising, be prepared to circle back to earlier stages whenever the need arises. (p. 2)

Houp et al. (1995) make the strongest current statement on behalf of revising the outline as you discover ideas during writing:

Discovery does not stop when you begin to write. The reverse is usually true. For most people, writing stimulates discovery. Writing clarifies your thoughts, refines your ideas, and leads you to new connections.

Therefore, be flexible. Be willing to revise your plan to accommodate new insights as they occur. (p. 28)

This approach—taking new ideas that come up during writing, and incorporating them into the outline—requires defacing the clean paper outline with added scribbles, lines, and arrows, or recopying the whole with additions. Of course, if one were working on an electronic document, one could switch from word processing to outlining in a moment, make the modification, then return to discursive prose. When an outline is simply one view of a document, the switch between word processing and outlining becomes a fast way to pursue a sudden realization, placing a note about it in the right place, and returning to the original task quickly enough to pick up where you left off. In this sense, electronic outlining is a visible exemplum of the approach recommended by this second group of textbook authors, even though they themselves do not urge students to do the revisions electronically. It's interesting, though, that after the writers of the 1940's and early 1950's, we have to wait for the era of word processing for

textbook authors to talk this way again. And even these authors do not start from the assumption that all work should be done electronically.

Revising a draft with an eye to structure

In the traditional view, once a writer has completed a draft, any revision—even changes in structure—should take place in the draft, not the outline. Thus, when one realizes that the structure isn't quite right after writing a draft, one leaves the old outline untouched, having moved beyond that stage. Now any modifications to the structure should be applied to the draft (Alvarez, 1980, p.177; Bell, 1995, p. 100; Brusaw, 1993, p. 485; Fowler, 1992, p. 43; Markel, 1984, p. 68; Thomas, 1949, p. 140). Perhaps the difficulty of going back and changing the outline, when it is on paper, convinced the textbook authors to fit any new ideas into the draft, rather than going back and revising the outline to incorporate them in a new structure.

Hacker & Renshaw (1979), for instance, envision students "reshaping" the draft with numbers, arrows, scissors, and tape, "possibly moving paragraphs and sentences about" (pp. 102, 109). Crews (1980) points to the practice of professional writers when he stresses the importance of making major structural changes, as opposed to what Sommers (1980) calls "rewording activity," but he too sees the site of revision as the draft.

A few authors do encourage students to create an outline of their draft, to be able to see its structure clearly, when revising. But these outlines are not modifications of the original outline. They are new. Martin (1957) sees a new outline as "a tool for

reorganizing what has already been composed” (pp. 139-140), particularly after a writer has written “without preliminary concern for neat and efficient order” (p. 140) Sypherd et al.(1957) recognize that students may be required to hand in an outline along with the draft, but, even if they don’t have to, Sypherd et al. argue that students ought to revise the outline “to conform to the paper” because it will help the students check over the document for “gaps in information or development of thought” (p. 149). Elsbree & Bracher (1967), who have already encouraged students to deviate from their outlines in writing the draft, suggest “outlining the defective structure of the composition” as a way of diagnosing what has gone wrong. “Used diagnostically, the formal outline can reveal the particular failures in plan and structure” (p. 31). The original outline, then, has been left behind, and the writer is looking at an entirely new one, pulled together by rereading the draft itself.

In the 1980's, textbook authors begin to reflect contemporary research on how real people actually write (such as Emig, 1971 and Sommers, 1980, and summarized in Nystrand, Greene, & Wiemelt (1993), pp. 280-83), research which shows that professional writers usually start revising a draft by working at a global level on content and structure, before descending to words, phrases, and sentences. Coe (1981) urges confused students to clarify the structure of a jumbled first draft by creating an outline of what has already been written, in order to consider its organization, free of the details. He tells students that they ought to act like “experienced writers” and focus first on structure. How to spot the structure in the draft? Make a new outline, diagnosing the structure inherent in that draft:

One of the clearest distinctions between experienced and inexperienced writers is that inexperienced writers rarely reorder. Inexperienced writers add, delete, and substitute, but they rarely reorder. Thus there is a whole type of revision that inexperienced writers typically do not even consider. That type of revision is concerned with structure—logic, organization, and development—and is often the key to successful writing, especially in academic and professional contexts. ... In order to revise the structure of a piece of writing, you must see it. This is often difficult, especially with longer writings. The basic structure can get lost under a mass of details. The solution is to make an outline of what is already written. (p. 91)

Hacker (1994) suggests that “a formal outline may be useful later in the writing process, after you have written a rough draft, especially if your subject matter is complex” (p. 27). After a complete first draft is written, she too stresses that students ought to make “global improvements” rather than “moving words around” (p. 40). But before restructuring the draft, students might want to “consider sketching a revised outline” (p. 46).

This diagnostic use of a new outline suggests how valuable outlining can be for analyzing and understanding a text. Of course, if one is working electronically, one can move a heading—and its attached paragraphs—from one place to another, in a few seconds. Instead of having to discern the structure through a haze of words, one already has the structure visible or can switch to outline view, and, if one decides to

change the structure, one can do so without creating a second document to reflect the first.

Once again, the textbooks present a world dominated by the paper-based idea that writers create a series of separate documents—the notes, the outline, the draft, and now, the second outline. In many ways, then, the intractability of paper may have contributed to the idea that an outline must be one document, and the draft another. And, since there are two distinct products, the idea naturally arose that writers create them in two distinct stages.

Ideas often outlast the media environments and technologies that spawned them. But the uncritical attitude most of these textbook authors show toward paper leads some of them to gloss over its drawbacks, and sketch a misleading picture of a sequence of creative stages, as if they really exist, or should, each neatly producing a distinct document.

We can get a sense of the persistence of this mental model when we look at the way it resisted acknowledging the arrival of another machine for writing—the typewriter. How much did that change ideas of outlining?

The advent of the typewriter

By the 1960s we begin to hear a few textbooks talk of students using typewriters, which made drafting and recopying faster for some students, and slower for others (Ehrlich & Murphy, 1964, p. 37; Harwell, 1960, p. 120; Wicker & Albrecht, 1960, p. 59). First released commercially in 1874, the typewriter had gradually taken over offices by

the turn of the century, when secretaries organized the Typewriters' Union (Bliven, 1954, p. 77). Typewriters then infiltrated newspapers, and became cheap mass-production office machines by the mid-1950's, with 3.5 million professional typists (Bliven, 1954, p. 229). By the 1960's most college students were using typewriters extensively.

Ehrlich & Murphy (1964) sketch the scene as the writer sits down to work:

The writer gets ready for drafting his research paper by arranging all the tools he will need throughout his work: The outline is on the desk before him, along with paper, pencils, and typewriter. Desk dictionary, writing handbook, and thesaurus, or other word books are available, but beyond arm's length, preferably across the room from the student's desk. Nothing else is needed or desirable. (p. 37)

The media are the same: ink on paper. But the tool is different. What advantages did these authors see in typing an outline? Neatness, mostly. With a typewriter, Wicker & Albrecht (1962) can specify that each new level should be indented "five spaces further in" (p. 59). Of the few authors who explicitly mention typewriting, only Harwell (1960) sees the typewriter as an opportunity for new formatting. Daringly, he suggests that students handle first-level heads this way: "Centered between margins, written in all-capitals, underlined. Three blank lines above, two below. No punctuation follows" (p. 120). (Compare Schriver, 1997, on the "unattractive conventions" (p. 40) imposed by the typewriter). Ugly as this formatting now seems to us, it at least took

advantage of the typewriter as a tool, to emphasize the importance of these major headings.

In general, then, the typewriter may have made the text clearer and easier to read than handwritten copy, but, at least for these authors, it did not suggest any new methods of articulating the outline structure in visual form. (In an office, a writer could change ribbon colors or type balls, but no textbook mentions these additional possibilities, probably because they were expensive, dirty, and time-consuming to perform.) In addition, for students who could touch type, the machine may have made the labor of recopying one outline with changes, to create a new one, somewhat less tedious than before, when working with pen and paper. But then, if one sees an outline as a one-shot document to be discarded after drafting, why would anyone care to make it easier to revise?

After the 1960s, most authors do not make specific mention of typewriting, but talk as if a writer could do exactly the same work with a pen, pencil, or typewriter. Why this silence on the effect of a new tool? Some reticence may be due to the fact that certain students could not afford typewriters, and the authors did not want to make these students feel like second-class citizens. But the authors do not show much sensitivity to media, evidently thinking that an outline is an outline, whether one makes it with a pen or a typewriter. Also, the typewriter had already appeared on the scene long before Marshall McLuhan (1962, 1964a, 1964b) and theorists of the 1960's spotlighted the importance of media, focusing on TV. As Tuman (1992) points out there are very few historical studies of the typewriter, most in the business libraries (p. 1).

In the 1950s typing was considered the domain of the clerical underclass. Bliven's (1953) book on the history of the typewriter begins with a long chapter about secretaries. Tuman (1992) finds a similar class bias when he reviews what the *Harbrace Handbook* of 1986 has to say about typing:

A work designed for profession-bound college students, those intended to create or author, rather than merely reproduce texts, [it] barely touches on the larger issue of manuscript preparation, devoting a scant nine pages (out of over 500) to the topic, with only a single six-sentence paragraph devoted to the issue of typing. This section, entitled 'Legible Typing', includes directions about checking the quality of the ribbon and the type, double-spacing, and not overstriking to make corrections. (p. 2)

But Tuman (1992) believes that some of this contempt for media analysis, at least as far as the typewriter is concerned, was justified, because typing had so little to do with the making of an original thought. For modern literacy, with its focus on the individual mind producing an essay full of critical insight, the typewriter was simply a device for producing clean copy, so, Tuman argues, the textbook authors and professors mentioned typing only to urge students to cross out irrelevancies on the page.

Behind this advice lies the basic assumption of higher literacy instruction embedded in college-level composition and literature classes--that what we mean by writing has little to do with the transcription of letters and far more to do with the ability to create a text containing original thought. Typing has had such little impact on

this higher-level literacy over the last 120 years precisely because it is not perceived as having anything substantial to do with literacy, that is, with creating or comprehending the content, rather than the physical form, of texts. Why should we expect so much more from computers?...Are computers really anything more than turbo-charged typewriters? (p. 2)

But many writers found that the keyboard offered a faster way to get their thoughts from mind to paper than the pen or pencil. Daiute (1985) points out that we can talk faster than we can write with a pen, so “speakers do not have to hold their ideas in mind as long as writers do before they can express themselves” (p. 53). The person using a pen therefore had to do more mental juggling, in short-term memory. Touch typing meant one’s fingers could move almost as quickly as their thoughts, removing the delays and hand pain involved with using a pen or pencil, allowing the ideas to pour out unchecked (Daiute, 1985, pp. 30-32).

But even when they give a nod to typing, the textbook authors don’t mention convenience, class, or the possibilities for alternate formatting of a typed outline, despite evidence from research such as that of Burtis, Bereiter, Scardamalia, & Tetroe (1983); Haas (1989a, 1989b, summarized in 1996), Haas & Hayes (1986), and Scardamalia & Bereiter (1983).indicating that there are real advantages in technologies that “enable writing to proceed more quickly, and that generate more legible text.” (Schriver, 1997, p. 36). Their indifference suggests they consider questions of tools (as well as media) unimportant or irrelevant.

Let us pause for a moment to summarize the school model of outlining, as presented in the majority of these textbooks. Leaving aside the occasional moments of doubt (flashes of realism, we might say), the model has these components, in its most common form: .

- Note-taking occurs during a research phase, before any outlining.
- The outline is a separate document, distinct from notes and draft.
- The outline is more a product that students should aim to create, than a process they should carry out.
- Outlining occurs during a discrete stage, coming after notetaking, and before drafting.
- Outlining involves organizing one's thoughts "logically."
- Very little writing is involved in outlining—mostly pushing groups of headings into parallel form.
- The outline offers a definitive hierarchical analysis of the topic, with levels indicated by formats and labels. Getting the labels and indentations right is extremely important.
- The outline may need to be revised, but not too often, because any change involves so much recopying.
- The draft must be based tightly on the outline.
- Any new ideas that occur while writing should be inserted in the draft, not the original outline.

- If the structure gets badly skewed during writing, the writer should make a separate, new outline to analyze the structure, with a view to modifying the draft.
- The medium in which the writer creates an outline has no effect on the activities involved, and therefore no impact on the end result; media are function-neutral.

Clearly, among the 75 textbooks we have encountered some disagreements, doubts, and shadings of gray. But on the last point, we find almost total agreement. Not that anyone says, directly, that media make no difference. Rather, no one acknowledges that the model itself is heavily influenced by the expectation that writers will be using paper and ink. We are interested, then, to see to what extent the advent of a dramatically different medium—word processing on the computer—affects the thinking of these textbook authors.

Word processing arrives, trailing outlining software

We might call the period before the 1990's, at least in these textbooks, the age of media innocence. Given their treatment of the typewriter as a tool, we can't be too surprised at how long it took some authors to come to terms with word processing.

The history of word processing begins with the electric typewriter (Price & Urban, 1984). In 1964 IBM brought out the first reusable storage medium for a typewriter--

magnetic tape--on their MTST (Magnetic Tape Selectric Typewriter). In 1969 IBM introduced MagCards--magnetic cards that were slipped in a box beside the typewriter. The operator typed on paper and the keystrokes were picked up on the card; the next time the operator wanted to send the same letter, the card could be used to recall (and retype) the text automatically. In 1972 Lexitron and Linolex added video displays, so users could edit text before committing it to paper—avoiding endless retyping. And in 1973 Vydec added floppy diskettes, which could store the electronic version of every document, for reuse. For the next ten years, companies selling standalone, “dedicated” word processor machines did a great business. But as the personal computer emerged, with the Apple II in 1978, the IBM PC in 1981, followed quickly by many imitators and the Apple Macintosh in 1984, people realized they could do more than just word processing with a machine costing much less. Unable to adapt, companies like Wang plummeted to bankruptcy. From early computer programs like WordStar, XyWrite, AppleWrite, and MacWrite, the market moved to word processing modules in “integrated packages” such as AppleWorks, Microsoft Works, and ClarisWorks (all stemming from the same original), and then stand-alone applications like Word or Word Perfect within “office suites” (not as tightly integrated as the beginner-level Works packages, but still able to exchange data with a spreadsheet, database, and slide-making program). Beginning in 1985, with Aldus PageMaker, Apple’s LaserWriter printer, and Adobe’s page-description language PostScript, the desktop publishing trend swept through publishing, along with cold type, electronic graphics, networking, and electronic mail. In response, vendors expanded the capabilities of word-processing products like Word so

that they have links to email packages, include a little drawing program, format better than the early desktop publishing programs, and dominate the office market. By the late 1990's, Word has become the lingua franca of business documents.

Unlike paper and pen, the computer is itself a very complex medium, composed of many materials such as electricity, copper, rubber, paint, ink, paper, plastic, silicon, and glass. But what makes any medium usable is the interface of its tools—the aspects we can actually manipulate, directly or indirectly. As users, we might then consider the computer medium to be the electrons inside the computer, the phosphor dots on the screen, the inked paper coming out of its printer. In order to manipulate this medium, we use tools, and with the computer those are hard or soft—the physical hardware, such as the keyboard, mouse, screen, modem, and printer, and then the software, including at a minimum the operating system, and applications such as word processing packages. When a society regularly works with a certain combination of media and a set of tools, you have a communications technology. In these terms, the textbook authors declined for a long time to say in print that the choice of media and tools could make a difference to the quality of thinking and writing.

Only in the 1990's, some twenty years after word-processing technology began to reach the general public, do the textbook authors acknowledge that some of their readers are using word processing software. And even then, some authors reveal an extremely narrow, and often out-of-date understanding of the electronic medium and word-processing tools. Lester (1990), for instance, talks of dedicated word processing computers five years after those manufacturers had been driven out of business by the

surge of personal computers. He seems to think that all word processing software has the commands he remembers from one of those old machines: he has, unfortunately, extrapolated from too narrow experience.

Your notes can then be moved around easily within the one document by BLOCK moves, which will also help you transfer them quickly into your TEXT document.....Write each note as a separate temporary file so that each can be moved later into the appropriate section of your TEXT file by a COPY or READ command. (p. 106)

Even as late as 1994 Hacker talks as if students were using dedicated word processing machines (p. 60). Bell (1995) includes the antique and rarely used WordStar in his list of "word-processing systems," just as if the year were 1983, and WordStar were a combination of hardware and software, not just an application. Gaffes like these suggest that some of these authors have not taken the time to study the computer as a medium, and word processing as a tool, or that they consider the choice of medium and tools irrelevant to the main purpose of their textbooks.

And what about outlining software? During the 1990s, some textbook authors begin to mention outlining software, as a feature of or alternative to word processing software (Alred et al., 1992, p. 116; Bell, 1995, pp. 88, 90; Brockmann, 1990, p. 24; Hacker, 1994, p. 60; Johnson, 1992, pp. 142-3; Oliu et al., 1995, p. 26.). Johnson (1992) envisions the student taking notes in one file, keeping that open on screen, and creating an outline in another file, then keeping that open while drafting the document in yet another window (pp. 142, 159). Brockmann (1990) recognizes the usefulness of

the outliner for large-scale movement of text during revision (p. 24). But Alred et al. (1992) argue that the outlining software is so crude it can only be used to analyze the logic of an existing draft, not for “creating logic out of chaotic bits and pieces of information” (p. 116). Of course, Alred et al. (1992) quote an article from 1987 as proof that outlining software is “still in its infancy” (p. 116), although by 1992 outlining software was at least eight years old—mature, in terms of software.

Most of these authors simply acknowledge the existence of outlining software, usually as a subset of word processing software, and fail to explore the radical impact of these tools on writing itself, and outlining in particular. Even after the advent of typing and word processing, authors diplomatically discuss outlining as if it were all done with pen on paper, and even with word processing available to most students in college, the authors tend to refer to it as an alternative, or extra option, not a routine tool.

Why the long silence, followed by half-hearted, incomplete, and even inaccurate information? Perhaps some of the authors ignored the emerging technology out of a feeling that many of their colleagues were experiencing—media resentment. The composition folks do, after all, live within English departments, as do many of the technical communications authors. During the 1970s and 1980s, the humanities area as a whole feared the invasion of the computer, and many instructors put off learning anything more than the minimum about word processing software, carping at the personal computer as a glorified typewriter (Kaplan & Moulthrop, 1993; Landow, 1992; Lanham, 1989; Slatin, 1990; Tuman, 1992). In 1985 Daiute says “Many humanists

believe that interacting with machines stifles creativity” (p. 13), and she acknowledges this general anxiety:

Computers are often portrayed as controlling, dehumanizing, and alienating entities. ... One controlling computer feature that many people resent is its demand for precision. ... People also fear that as we program computers to do more and more for us, they will make humans superfluous, and that those uniquely human virtues of unpredictability, creativity, and soul will no longer have value in a machine-dominated society. (p. 7)

Some composition, literature, and rhetoric theorists consider word processing a matter of prettying up the text. Like Halio (1990), who argues that the graphic user interface of the Macintosh somehow led students to write less disciplined papers, Tuman (1992) sees the biggest threat from word processing coming from its graphic options, which he sees undermining the students’ effort at critical inquiry in an essay. He believes that graphic design cannot possibly reflect critical thinking or a complex personal vision, bringing together a series of thoughts in a single, coherent document. Of course, Tuman here dismisses the distinguished work of many graphic designers, and the emerging field of document design, so well articulated in Schriver (1997). He seems to think that if there is no printed text, there is no unity. “Indeed, with electronic conversations and different forms of online documentation and electronic presentations, there is no printed form, no document, no unified text” (p.4). We should note that online documentation presents a coherent document, whether one looks at the table of

contents, or moves through a section using a Next button. Also, the design of hypertexts, as well as the design of onscreen page layouts, involves a great deal of critical thought, in part because they take users beyond the traditional layout of a dozen or so typed pages, paperclipped together as a report.

Other composition and literature theorists have dismissed word processing as relatively unimportant, compared to other software that seems so much more demonstrably an electronic publishing medium, producing a web of documents with structures and sequencing that cannot easily be captured on paper—hypertext authoring tools, electronic conferencing software, networks, and electronic mail (Barton, 1994; Hawisher, 1991, p. 47; Tuman, 1994, p. 4). Ulmer (1989) laments the decline of the novel and the essay: “The two principal forms of high literacy, invented to exploit fully the specific virtues of the print apparatus... are disintegrating in the culture of electronics, creating a reservoir of simple forms available for new combinations reflecting the capabilities of the new apparatus” (p. 45). Although the computer can be thought of as a mechanical apparatus, it constitutes a new medium, and all of these applications are tools for shaping the medium for communication. Intrigued by the wonderful tools that produce materials that go way beyond paper, many scholars have focused on hypertext authoring packages and the documents created with them. And some forms of hypertext have been staked out as intellectually exciting, because they seem to embody the theories of Barthes and Derrida. (Barthes, 1974, 1982, and 1986, particularly pp. 57-62; Derrida, 1973, 1981, and 1986; Landow, 1992; Moulthrop, 1989, pp. 20-21). Perhaps our textbook authors, working with and writing for so many people

who dismissed word processing as unimportant, decided to downplay the impact of the computer medium and the outlining tool, in a gesture of solidarity.

When an author leaves out a topic, or treats it casually, we cannot always pinpoint the reason for the omission. But omissions themselves are significant—their silence speaks. In this case, the textbook authors evidently did not believe that the choice of medium and tools would have any significant impact on the quality of the thinking, writing, and discussion in the classes using their books.

I disagree, and I would like to take a moment to review some theorists' thinking about the impact of the computer and word processing, and then to explore what else electronic outlining offers—functions regularly ignored or treated casually in these textbooks. Having considered this functionality, we can return to the question of why it has been overlooked.

The computer as a medium offers several advantages over pen and paper. The keyboard helps the user catch up to the speed of thoughts, as it did on the typewriter. The screen and the printer offer far more expressive layout and design, so the user can employ all the techniques of book design such as font, color, and layout to articulate the hierarchical relationships between elements, emphasize the significant, and lead the eye through the argument, in pursuit of the meaning. As Johnson (1997) says, "It's clear that the graphic interface played a crucial role in creating today's colossal market for word-processing applications, a market drawn not only to the functionality of the products but also to their look-and-feel." (p. 142). At the core of the medium are the electrons playing inside the central processing unit, setting switches inside the random-

access memory, lighting phosphor dots on the screen, or signaling dot patterns to a printer. Electrons, pixels, and dots all seem quite insubstantial compared to a pen in hand, and a piece of paper.

As Bolter (1991) says, "In the electronic medium several layers of sophisticated technology must intervene between the writer or reader and the coded text" (p. 43). In the same way, Johnson-Eilola (1994) reflects that a hypertext, "because it is electronic, is never completely physically 'there,' never able to be completely located in physical space because it is simultaneously located in the phosphor images on the computer screen; magnetic configurations of volatile silicon computer memory; more permanent floppy, hard, or optical disk storage; and sometimes electrical impulses in phone lines" (pp. 208-9). Of course, such virtuality is true of any electronic document, whether it is a spreadsheet, drawing, or outline.

Thanks to electrons, too, the activity of data entry is separated from the activity of display and both are separated from printout, so when one keyboards a sentence, one is not stuck with ink on paper; the letters appearing on the screen are "just" electronic, and one can change them quickly. Because input is separated from output, any document (text, mathematical formulas, art) can be revised quickly (Price & Korman, 1989, pp. xvii-xviii).

As a result, all electronic data—not just text—seems extraordinarily fluid, when compared to handwritten letters, typed notes, or photocopied materials. (Balestri, 1988; Baudrillard, 1983, p. 115; Bolter, 1991, p. 21; Costanzo, 1994, pp. 11-12; Heim, 1987 and 1993; Landow & Delany, 1993, pp. 8-12; Tuman, 1992, p. 57). In fact, the

document is freed from our unconscious association with paper; in effect, we no longer think of the document as “a paper.” We can now conceive of the document as a single intellectual communication, moving through a number of media environments, from our screen to the paper in the printer, to another person’s screen, a thousand miles away, and, perhaps, to the film printer at a production house, then to book or journal pages, and finally, photocopies.

Another unique capability of the computer is its responsiveness. The user moves the mouse, then clicks a hot spot on the screen, and it changes color, momentarily, then switches the information displayed on the screen. Daiute (1985) says that some people use the computer “as a tool for writing. This means not only using the computer in much the same way as we use pencils and typewriters, but also exploiting its interactiveness” (p. 17). Costanzo (1994) elaborates: “The computer’s responsiveness, its ability to perform quickly on command, to check spelling or suggest alternatives, to recast whole paragraphs in different arrangements for a fresh perspective--all contribute to the sense of a collaborative presence when one is writing deep into the night” (p. 16).

With the advent of the word processing tool, we see additional advantages for writers, most notably the ability to make editorial changes quickly without recopying the rest of the text (e.g., Bernhardt, Edwards, & Wojahn., 1989; Card, Moran, & Newell, 1983; Johnson, 1997; Kellogg, 1994). When handwriting, students may see the opportunity for an improvement, but hesitate, because they are just making more work for themselves. Daiute (1985) says, “Each time they decide to make an improvement,

they pay the price of incorporating the change into the text—recopying” (p. 116). And, comparing word processing to typing, Daiute (1985) points out how hard it is to back up on the typewriter, apply correction tape or fluid, then restrike (or retype the whole page) compared with the ease with which you can use the Delete or Backspace key on the computer keyboard, to glide over the mistake, eliminating it (p. 35).

The ability to change without recopying allows students to draw up lists of concepts, then move them individually or in clusters, making sense out of the topics by organizing them. These lists form the basis for an outline, whether the student ever turns to the outline view or not. The electronic advantage over paper is, again, that the student can move faster to consider new orders, new groupings, without getting a sore hand.

The ability to avoid “time-consuming recopying or retyping” (Daiute, 1985, p. 36) also encourages students to “act more like experienced writers, who revise extensively” (p. 37). The changes possible include cutting, moving, inserting, finding a word and replacing it, copying a passage and using it in another location or another document. And the changes need not be permanent, thanks to the Undo feature. Daiute comments on this aspect of deletions: “One advantage of electronic erasing is that it is not permanent. Text on paper that is crossed out or painted with correction fluid is no longer visible or usable. In contrast, erasing text on the computer is like putting it in a valise—the buffer. The text can be taken out of the valise and reinserted in a new location in the text” (p. 37).

In a document open to continuous change, users lose a sense of closure. One draft blends into the next, without clear distinctions; the document itself is never really finished, and a printout simply indicates its current stage (Kellogg, 1994; Bernhardt et al., 1989; Daiute, 1985; Hawisher, 1987). What Johnson-Eilola (1994) says of hypertext is true of any interactive software, including word processing: "In one sense, hypertext brings to the surface the resistance to closure, the infinite deferral of a single, univocal "meaning" in the text, concepts that are sometimes difficult to teach with print texts" (p. 211).

Word processing not only encourages change, it encourages reconsideration, comparison, testing of different approaches, each of which appears in well-formed type on the screen, looking like "final copy" even though it is still in the middle of transformation.

One of the most important opportunities we get when word processing is the chance to experiment with different organizations. Daiute (1985) points out that the software allows a writer to try out several different organizations of ideas without retyping. "By experimenting with alternative organizations or paragraphs, a writer might discover a new idea or a new relationship between the ideas already expressed" (p. 38). But on a typewriter, the writer might well stop experimenting after one or two retypings, which take a lot of time, and wear out wrist and fingers. Even Kellogg, who does not believe that word processing improves quality, agrees that "Planning and reviewing are qualitatively different when drafting on a word processor. Moreover, a clear quantitative

shift in cognitive effort occurs. The writer plans and reviews more intensely on a word processor" (p. 159).

Clean text onscreen and in immediate printouts give writers distance on the text, compared to the personal "feel" of their own handwriting. Bazerman (1994) points out that the text becomes an object to be inspected, in any writing situation. "In this complex interactive process, text emerges. That text itself becomes an element in the process as something to be inspected and used, as a framework for continuing action" (pp. 14-15).

With word processing on screen and instant printouts, the writer can look objectively at the text more often than with handwriting or typing. Costanzo (1994) argues that the distancing effect of the screen and printout decenters writers from their own texts by "altering the text's appearance through various formatting or fonts." Fitschen (1986) says, "Decentering is the process of stepping back from one's own writing in order to see it afresh before revision" (p. 105). And the computer allows one to do that many times, whereas, for most people, the typewriter limits one to two drafts, or at most three.

In exploring one's own text, the writer takes advantage of word processing's functions to move around quickly within a document, jumping, scrolling, or paging from one location to another; searching for a name or phrase; and to display several documents open at once, within close proximity, for comparison and study.

Of course, skimming is more difficult on screen than on paper, in part because the resolution is so much fuzzier. Close editing, too, suffers from the blurs onscreen,

when a comma inside an italic phrase gets lost underneath its slanting neighbor, and a typo does not jump “off the page” to our attention. The computer, though, is not just the screen—the printer is another key component, even though programmers call it a peripheral device. So the computer allows writers to get instant printout, at four to eight times the screen resolution, because printed paper is a more precise medium. Unfortunately, most theorists ignore the printer, treating it as some kind of typewriter add-on; they then complain that browsing and editing is tough when using the computer, when what they really mean is, on the screen (see, for instance, Costanzo, 1994, p. 12).

Word processing’s formatting options offer the opportunity to go beyond script or block lettering by hand, and beyond the Courier or Elite fonts most typewriters are limited to, so writers learn to take advantage of font, size, leading, kerning, and color, to indicate differences in emphasis, relationship, and completion (Fortune 1989). Documents are no longer just texts; they are an interweaving of the visual and verbal (Bernhardt, 1986; Hawisher, 1991; Kaplan & Moulthrop, 1990, p. 100, and 1993, p. 262; Landow & Delany, 1993, p. 5; Ruskiewicz, 1988). Not entirely approving, Costanzo (1994) asks, “What does it mean when we spend more time attending to the visual texture of our words than to their content?” (p. 15).

Word processing, then, transforms the process. “The truly interesting thing here,” says Johnson (1997), “is that using a word processor changes how we write—not just because we’re relying on new tools to get the job done, but also because the computer fundamentally transforms the way we conjure up our sentences, the thought process

that runs alongside the writing process” (pp. 142-3). In sum, word processing makes it easier for the writer to carry out a whole range of activities that the textbook authors have always tacitly recommended, but which the earlier media and tools made difficult.

- Making extensive changes to the draft (without massive recopying or retyping)
- Experimenting with style and organization (picking and choosing the most effective out of several alternatives)
- Getting more distance on the document so it can be viewed with more objectivity (by removing the personal flavor of handwriting)
- Turning out fast and multiple publications, for one’s own review, or sharing with a group
- Moving around quickly within documents, to ensure consistency, and development
- Formatting expressively, for easier viewing, browsing, and understanding

Authors like Hult & Harris (1987), and theorists such as Moberg (1986) and Schwartz (1985) have also recognized that word processing makes easier and more visible “the recursive nature of writing, an activity that loops back on itself” (Hawisher, 1991, p. 49). Costanzo (1994), for instance, points out that word processing software

“supports theories of composition that regard writing as a recursive process of discovery, elaboration, and revision” because the programs encourage writers to “move back and forth among the stages of generating, developing, organizing, editing, and reconceptualizing texts”(p. 17).

In addition, word processing makes visible many ideas that were, in a pen-and-paper world, fairly hard for students to grasp: the virtuality of text, the deferral of closure, the fact that a creator alternates rapidly between being a reader and a writer, the openness of text in process. Many of these ideas have been found “externalized” (Smith, 1994, p. 280) in hypertext (Balestri, 1988; Johnson-Eilola, 1994; Joyce, 1988; Landow, 1992; Landow & Delany, 1993). But any interactive document, including those being created in word processing, can be taken as a case in point, an object to think with, an exhibit on which to base discussion.

When we turn from word processing to its subset, electronic outlining, we find special additional features that highlight the fluid and evolving nature of the document’s structure—capabilities such as a dramatic visual display of the structure, the automatic formatting of any item when it lands at a particular level, the ability to promote or demote topics at a click of the mouse, or to move a topic by dragging it to a new location, the ability to show all the headings of a certain level, while hiding intervening text, the automatic placement of correct labels, whenever a topic is invented or moved to a new location, the ability to append notes, and write full text, within the outline itself. As Bolter (1991) remarks, the outliner sets the traditional outline in motion, treating each topic as a movable unit, where a word processor does the same to

individual words. The writer is looking at a visual schematization, putting structure in the forefront. (Compare Streitz, Rizk, & Andre on hypertext, 1990).

What all these outlining functions do is allow the writer to analyze and construct many different organizations more easily than with an ordinary word processor, and a lot more easily than with a typewriter, or pen and paper (Waern, 1989, p. 156).

Landow & Delany (1993) point out that print tends to fix the text in one form, making it difficult to work with. "No single arrangement of information proves convenient for all who need that information, and since print, like writing, fixes text in a specific physical form, it causes difficulties for all who do not wish to concentrate on the features emphasized by that particular form" (p. 6).

The writer, I would say, is the first one who needs to be able to consider the information from many different perspectives, weighing alternative organizations. Bolter (1991) points out that "The computer makes visible and almost palpable what writers have always known: that the identifying and arranging of topics is itself an act of writing. Outline processing is writing at a different grain, a replication on a higher level of the conventional act of writing by choosing and arranging words. The symbols of this higher writing are simply longer and more complicated "words," verbal gestures that may be whole sentences or paragraphs."

Hypertext pioneers talked of the immense value of alternate views of the same material (Carmody, Gross, Nelson, Rice, & van Dam, 1969, pp. 288-300; Engelbart & English, 1988, pp. 81-105; Meyrowitz & van Dam, 1982, p. 405; Nelson, 1967, pp. 193-5). As Coombs, Renear, & DeRose (1987) say, talking of similar functionality offered by

the outline within Standard General Markup Language editors: "The author can easily have the outliner display the outline to any desired depth of detail, the lowest level of detail being the full text, or, perhaps, the text with annotations and alternative versions. ... One may also employ editing utilities to move hierarchical components of the document, as displayed in an outline view, and have the overall document structure adjust accordingly" (p. 110).

In effect, by "exploiting the natural hierarchical structure of text," (Coombs et al., 1987, p. 110), electronic outlining allows one to switch the scale at which one views the material, zooming from a very high-level overview down to minutia, while ignoring as much of the rest of the document as one wishes. What Lanham (1993) calls "this transformatory power of scale-change" (p. 45) allows quick analytical comparisons, confirming that, say, the minor details do indeed belong in a larger section, or that the phrasing of the higher topic genuinely reflects its contents, down to the lowest level. The ability to ignore is at least as valuable as the ability to view, when one is trying to adjust one's focus. One saves time, too, (no more scrolling too far and scrolling back), and that encourages further examination of structure. One can also open two related passages, and close all the intervening text, for easy comparison. The document's genre may dictate a certain sequence for the text elements, but that may separate two topics that are related, in one's mind. The outlining software allows the writer to get beyond the relentless flow of word processing text, to look at the related sections, juxtaposed. (Coombs et al., 1987, p. 109). Coombs et al. (1987) say this kind of "structure-oriented" editing (p.110) "enables authors to address their documents at a

level of abstraction appropriate to their authorial role” (pp. 111-112), minimizing cognitive demands such as recalling the rest of the structure when working on a particular section (compare Britton, Burgess, Martin, McLeod, & Rosen, 1975, and Kellogg, 1988, 1994), and helping authors focus on content. Kellogg (1994) says that in this sense, the outliner acts as a funnel because it hides distracting information, selectively displaying what the writer is working on, at different levels of the structure:

For instance, to plan the main ideas of a document, without concern for translating or reviewing those ideas, the writer could collapse the outline and display only its superordinate levels, hiding all subordinate ones. The subordinate levels might prevent the writer from giving full attention to the superordinate one. Thus, in the example, outlining programs encourage the writer to concentrate on high-level planning. Alternatively, to focus on translating a specific subordinate idea, the writer could hide all superordinate levels and expand only the subordinate point of interest at the moment. Once this subordinate point is completely translated, it could be selectively displayed for reviewing as well.” (pp. 166-167)

During such structure-oriented editing, the user alternates between being reader and writer, trying in both roles to discern a recognizable order, whether it is the conventional structure of a set genre (Beaugrande & Dressler, 1981; Mandler, 1984; van Dijk & Kintsch, 1983, pp. 55-59) or an unconventional, new, and personal structure. As readers, users “understand and learn most easily from texts with well-defined structures that clearly signal shifts between parts,” according to Charney (1994, p. 207). She

could have been talking about viewing a document in an electronic outline. Considering and reconsidering structure, in whatever ways one wants, also deepens one's understanding of the relationships involved, improving the depth and sophistication of one's thought. Charney, summarizing work by Lodewijks (1982), says that readers who get to regulate their own searches through material by using a structural overview end up with "better recall and better recognition of relations and inferences among the concepts than any of the teacher-provided sequences" (p. 252). Naturally, when the "reader" encounters confusing sequences, the "writer" steps in to clarify, if possible, acting to suture together the chunks, as Johnson-Eilola (1994) suggests writer-readers do when jumping from one hypertext node to another (p. 212), closing what Harpold (1990) calls "the gap in language by the subject's assumption of the place of the gap," binding up the "body of the text" (pp. 177, 176).

In addition to reorganizing the outline, one can write within its framework. Starting with the headings, one can add paragraphs of explanation, exposition, argument, example, or citation, then hide them from view to look around, and get one's bearings. Such a use of an outline fulfills one of the dreams of the textbook authors, that the outline can serve as a map, keeping the writer on track. Daiute (1985) argues that the outline helps the writer learn and remember the overall structure, reminds the writer to include necessary sections, and keeps them to the point. "While free-writing brings up the unexpected, writing with outlines ensures that the expected is included" (p. 81).

In fact, as we have seen, the electronic outliner, by adding structural editing to regular word processing, allows writers to break loose from the lockstep procession of stages, and, instead, work a little on some notes, then step back and see how that new information affects the overall structure, then, inspired, write a few sentences explaining the new vision, then go back to reading another source. Daiute (1985) points out that “as such a report evolves, disorganized notes, semi-organized outlines, outline sections, and paragraphs of varying degrees of completion appear together” (p. 108). Of course, one’s aim is always a thoroughly fleshed out, immaculately reasoned document. But on the way there, one does not go through one stage, and then another—rather, one takes different perspectives as one creates.

Perhaps, instead of envisioning these stages as chronological phases, we might recognize that what the authors are grappling with when they talk of stages are simply different activities we engage in, as we move from raw idea to completed document. Activities do not necessarily have to be done in a particular order; in fact, writers tend to do them over and over, in different sequences, depending on what seems most important at the time. Seen as a complex set of interlocking activities, creation is not neat. Writing is a wonderfully messy process.

Of course, working back and forth across the structure can occasionally be confusing, just as navigating hyperspace can lead to hypernausea. But in terms of the sense of place, electronic outlining offers more support for the user: where users often get lost in hyperspace (Johnson-Eilola, 1994, p. 210, for instance), users of an outlining

package can quickly climb back out of the depths, to view their position in the overall structure.

Many of the virtues our theorists have discovered in hypertext also reside, in a different hue, in electronic outlining software. Indeed, an electronic outline can be seen as one view of a menu, and a hypertext view as another. The parallels suggest that these different kinds of document have a great deal in common: in fact, they may both belong to a larger class.

Both invite users to participate in reading and writing a document interactively. The electronic outline, like a hypertext, or even an ordinary word processing document, allows extensive interaction; one clicks and goes, in a hypertext, folds and unfolds in the outliner, and edits in the word processing view. Each type of interactive document has aspects of the others, but foregrounds a particular set of functionality. In Word, each type of interactivity offers a different view of the same document. Where one can manipulate a paper book, opening the index, flipping to a page, skimming a chapter, one interacts with these electronic documents, effectively changing the language, structure, and meaning as one goes, while the document itself responds, grows, and transforms itself on command.

Such a blurred role for the user—what Johnson Eilola (1994) nostalgically calls the writer/reader—goes one step beyond the neat categories most of the textbook authors take for granted. The textbook authors talk as if the student they address is learning to write, and, on that road, must occasionally read, but that the two activities

are distinct. Once people acquire electronic tools, the distinction breaks down in a blur of interactivity.

The document becomes the focal point in a conversation, a temporary artifact that mediates the many dialogs that are taking place (between various identities of the writer, between the writer and an objective representation of the writer's collected earlier thoughts (compare Halliday, 1987), between writer and audience, between the writer's documents and the documents of other writers). Caught at any given moment, the document cannot be said to have a distinct, discoverable meaning. It just represents one turn in the conversation (Bakhtin, 1986), or, to be more precise, several turns in several overlapping conversations, none of which come to a conclusion, reach a decision, or prove any particular idea. As Halliday (1978) suggests, the overall conversation, including everyone's documents and talk, can be considered a sprawling text, "not something that has a beginning and an ending. The exchange of meanings is a continuous process" (p. 136).

But these textbooks are books, and their authors must have felt a deep commitment to the book as a medium, during the years they spent putting their masterpieces together. Now books have a great interface, a lovely cultural history, and a design that's been developed to a high level of sophistication over hundreds of years, offering many conveniences not available with electronic documents. The reader knows just where the document starts and ends; the reader knows how big it is, just by weighing it; the reader can quickly browse by flipping pages, thanks to the high resolution text; a person can read it on the beach, or in bed; the reader can turn down

a page for a bookmark; the reader can switch from one book to another faster than one can open a second window on the screen. But for all these wonderful aspects, a book is a book, and although it can be manipulated, it is not electronic, and so it can never be interactive in the way a document is in word processing, hypertext, or outlining software.

The early silence about electronic outlining, and the more recent casual mentions, may simply reflect the medium in which these textbook authors are writing, and its traditions, which, like blinkers on a horse, keep one headed down the road, without looking to either side. Such media innocence, then, is not a mature virtue. It reflects a half-conscious decision to ignore a large part of the conversation in our overlapping communities. And, as a result, these textbooks give a distorted picture of the process of creation—a paper model.

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Endnotes

ⁱ A horrifying example of this approach to commonplace books was du Maine's vast proposal in 1584 for a French royal library organized in 108 bookshelves, each devoted to a particular subject (such as author, dedicatee, or theme) and containing 100 volumes, each of which would be broken into books about different topics, with chapters about subtopics, notebooks on sub-sub topics, and finally, at the lowest level, commonplaces arranged alphabetically "to locate them more easily." This enormous enterprise, disassembling every printed book, memoir, and manuscript collection du Maine could find then reassembling the individual passages under his gigantic hierarchical outline, would not contain actual books, but instead, quotations arranged in

108 classes, with appropriate subdivisions, as Erasmus had suggested. Fortunately, the king did not fund du Maine's "universal library." (Chartier, 1994, pp. 74-88).

ⁱⁱ Andrews & Blickle, 1982, p. 90; Baugh, 1993, p. 67; Bell, 1995, p. 78; Crews, 1980, p. 75; Ehrlich & Murphy, 1964, pp. 28, 37; Hacker & Renshaw, 1979, p. 102; Houp et al., 1995, p. 25; Lester, 1990, pp. 118-120; Markel, 1984, p. 83; Myers, 1955, p. 258; Perrin, 1955, p. 5; Pickett & Laster, 1984, p. 425; Rubens, 1992, p. 16; Sandman et al., 1985, p. 65; Santmyers, 1949, p. 24.; Shelton, 1995, p. 47; Sherman, 1955, p. 9; Smart & Lang, 1943, p. 27; Sypherd, 1957, p. 148.

ⁱⁱⁱ Alred et al., 1992, p. 113; Leggett et al., 1991, p. 359; Mansfield & Bahniuk, 1981, p.268; Markel, 1984, p. 69; Mills & Walter, 1978, p. 68; Wilcox, 1977, p. 84.

^{iv} Mansfield & Bahniuk, 1981, p. 268; Markel, 1984, p. 69

^v Alred et al., 1992, p. 111; Andrews & Blickle, 1982, p. 86; Ehrlich & Murphy, 1964, p. 28; Mansfield & Bahniuk, 1981, p. 268; Santmyers, 1949, p. 32; Tuttle & Brown, 1956, p. 163)

^{vi} Harwell, 1960, p. 123; Weisman, 1962, p. 268

^{vii} Alred et al., 1992, p. 111; Alvarez, 1980, p. 157; Dietrich & Brooks, 1958, p. 109; Hays, 1965, p. 104; Leggett et al., 1960, p. 201; Marckwardt & Cassidy, 1960, p. 408; Markel, 1984, p. 70; Mills & Walter, 1962, pp. 60-65; Perrin, 1955, p. 674; Pickett & Laster, 1984, p. 118; Santmyers, 1949, p. 34; Sherman, 1955, pp. 12-13; Smart & Lang, 1943, pp. 22, 26; Trzyna & Batschelet, 1987, p. 98; Weiss, 1982, p. 52; Wellborn et al., 1961, pp.55-56; Wilcox, 1977, p. 84.

^{viii} Crews, 1980, p. 74; Elsbree & Bracher, 1967, pp. 30, 42-43; Fowler et al., 1992, pp. 39-40; Johnson, 1992, pp. 141-3; Jordan, 1965, p. 110; Leggett et al., 1960, p. 201; Mansfield & Bahniuk, 1981, p. 268; Marckwardt & Cassidy, 1960, pp. 410-1; Mills & Walter, 1962, p. 45; Mills & Walter, 1978, pp. 55-60; Naylor, 1942, pp. 48-9; Pearsall & Cunningham, 1978, p. 272; Perrin, 1955, p. 674; Santmyers, 1949, p. 31; Sherman, 1955, pp. 12-13; Smart & Lang, 1943, p. 26; Thomas, 1949, pp. 132-5; Trzyna & Batschelet, 1987, pp. 98, 103; Weiss, 1982, p. 51; Wellborn, 1961, p. 56; Wicker, 1960, pp. 54-58; Wilcox, 1977, p. 87.

^{ix} Alred et al., 1992, p. 111; Mansfield & Bahniuk 1981, p. 268; Sandman et al., 1985, p. 63; Tuttle & Brown, 1956, p. 162; Weisman, 1962, p. 261

^x Alred et al., 1992, pp.111, 115; Alvarez, 1980, p. 176; Mills & Walter, 1978, pp. 55-65; Trzyna & Batschelet, 1987, p. 98; Weisman, 1962, pp. 261, 268; Weiss, 1982, p. 52; Wilcox, 1977, p. 84

^{xi} Alred et al., 1992, pp. 113-114; Weisman, 1962, p. 268.

^{xii} Alred et al., 1992, p. 114; Alvarez, 1980, p. 176.

^{xiii} Hacker & Renshaw 1979, p. 108; Weiss, 1982, p. 52

^{xiv} Alvarez, 1980, p. 176; Leggett et al., 1960, p. 202; Smart, 1943, p. 26; Weiss 1982 52

^{xv} Harwell, 1960, p. 28; Leggett et al., 1991, p. 359; Lester, 1990, p. 120; Thomas, 1949, p. 131; Ward, 1968, p. 68; Wicker & Albrecht, 1960, p. 56

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- ^{xvi} Alred et al., 1992, p. 114; Alvarez, 1980, p. 176; Brusaw et al., 1993, p. 488; Sherman, 1955, p. 13; Weisman, 1962, p. 261
- ^{xvii} Alvarez, 1980, p. 176; Smart & Lang, 1943, p. 26
- ^{xviii} Myers, 1955, p. 259
- ^{xix} Harwell, 1960, p. 123; Perrin, 1955, p. 674.
- ^{xx} Alred et al., 1992, p. 113, Alvarez, 1980, p. 157; Andrews & Blicke, 1982, pp. 86-88; Brusaw et al., 1993, p. 488; Ehrlich & Murphy, 1964, p. 48; Hacker & Renshaw, 1979, p. 108; Hacker, 1994, p. 27; Leggett et al., 1991, p. 359; Mansfield & Bahniuk, 1981, p. 268; Markel, 1984, p. 70; Perrin, 1955, p. 13; Rubens, 1992, p. 19; Sandman et al., 1985, p. 63; Santmyers, 1949, p. 32; Trzyna & Batschelet, 1987, p. 102; Tuttle & Brown, 1956, p. 163; Weisman, 1962, pp. 261-8; Weiss, 1982, p. 52; Wilcox, 1977, p. 84.