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LINDA FLOWER

Writer-Based Prose: A Cognitive Basis for Problems in Writing

IF WRITING IS SIMPLY THE ACT of "expressing what you think" or "saying what you mean," why is writing often such a difficult thing to do? And why do papers that do express what the writer meant (to his or her own satisfaction) often fail to communicate the same meaning to a reader? Although we often equate writing with the straightforward act of "saying what we mean," the mental struggles writers go through and the misinterpretations readers still make suggest that we need a better model of this process. Modern communication theory and practical experience agree; writing prose that actually communicates what we mean to another person demands more than a simple act of self-expression. What communication theory does not tell us is how writers do it.

An alternative to the "think it/say it" model is to say that effective writers do not simply *express* thought but *transform* it in certain complex but describable ways for the needs of a reader. Conversely, we may find that ineffective writers are indeed merely "expressing" themselves by offering up an unretouched and underprocessed version of their own thought. Writer-Based prose, the subject of this paper, is a description of this undertransformed mode of verbal expression.

As both a style of writing and a style of thought, Writer-Based prose is natural and adequate for a writer writing to himself or herself. However, it is the source of some of the most common and pervasive problems in academic and professional writing. The symptoms can range from a mere missing referent or an underdeveloped idea to an unfocused and apparently pointless discussion. The symptoms are diverse but the source can often be traced to the writer's underlying strategy for composing and to his or her failure to transform private thought into a public, reader-based expression.

In *function*, Writer-Based prose is a verbal expression written by a writer to himself and for himself. It is the record and the working of his own verbal thought. In its *structure*, Writer-Based prose reflects the associative, narrative path of the writer's

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own confrontation with her subject. In its *language*, it reveals her use of privately loaded terms and shifting but unexpressed contexts for her statements.

In contrast, Reader-Based prose is a deliberate attempt to communicate something to a reader. To do that it creates a shared language and shared context between writer and reader. It also offers the reader an issue-centered rhetorical structure rather than a replay of the writer's discovery process. In its language and structure, Reader-Based prose reflects the *purpose* of the writer's thought; Writer-Based prose tends to reflect its *process*. Good writing, therefore, is often the cognitively demanding transformation of the natural but private expressions of Writer-Based thought into a structure and style adapted to a reader.

This analysis of Writer-Based prose style and the transformations that create Reader-Based prose will explore two hypotheses:

1. Writer-Based prose represents a major and familiar mode of expression which we all use from time to time. While no piece of writing is a pure example, Writer-Based prose can be identified by features of structure, function, and style. Furthermore, it shares many of these features with the modes of inner and egocentric speech described by Vygotsky and Piaget. This paper will explore that relationship and look at newer research in an effort to describe Writer-Based prose as a verbal style which in turn reflects an underlying cognitive process.

2. Writer-Based prose is a workable concept which can help us teach writing. As a way to intervene in the thinking process, it taps intuitive communication strategies writers already have, but are not adequately using. As a teaching technique, the notion of transforming one's own Writer-Based style has proved to be a powerful idea with a built-in method. It helps writers attack this demanding cognitive task with some of the thoroughness and confidence that comes from an increased and self-conscious control of the process.

My plan for this paper is to explore Writer-Based prose from a number of perspectives. Therefore, the next section, which considers the psychological theory of egocentrism and inner speech, is followed by a case study of Writer-Based prose. I will then pull these practical and theoretical issues together to define the critical features of Writer-Based prose. The final section will look ahead to the implications of this description of Writer-Based prose for writers and teachers.

INNER SPEECH AND EGOCENTRISM. In studying the developing thought of the child, Jean Piaget and Lev Vygotsky both observed a mode of speech which seemed to have little social or communicative function. Absorbed in play, children would carry on spirited elliptical monologues which they seemed to assume others understood, but which in fact made no concessions to the needs of the listener. According to Piaget, in Vygotsky's synopsis, "In egocentric speech, the child talks only about himself, takes no interest in his interlocutor, does not try to communicate, expects no answers, and often does not even care whether anyone listens to him. It is similar to a monologue in a play: The child is thinking aloud, keeping up a running accompaniment, as it were, to whatever he may be doing."[1] In the seven-year olds Piaget

[1]Lev Vygotsky, *Thought and Language*, ed. and trans. Eugenia Hanfmann and Gertrude Vakar (Cambridge, Mass.: M.I.T. Press, 1962), p. 15.

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studied, nearly fifty percent of their recorded talk was egocentric in nature.[2] According to Piaget, the child's "non-communicative" or egocentric speech is a reflection, not of selfishness, but of the child's limited ability to "assume the point of view of the listener: [the child] talks of himself, to himself, and by himself."[3] In a sense, the child's cognitive capacity has locked her in her own monologue.

When Vygotsky observed a similar phenomenon in children he called it "inner speech" because he saw it as a forerunner of the private verbal thought adults carry on. Furthermore, Vygotsky argued, this speech is not simply a by-product of play, it is the tool children use to plan, organize, and control their activities. He put the case quite strongly: "We have seen that egocentric speech is not suspended in a void but is directly related to the child's practical dealings with the real world . . . it enters as a constituent part into the process of rational activity" (*Thought and Language*, p. 22).

The egocentric talk of the child and the mental, inner speech of the adult share three important features in common. First, they are highly elliptical. In talking to oneself the psychological subject of discourse (the old information to which we are adding new predicates) is always known. Therefore, explicit subjects and referents disappear. Five people straining to glimpse the bus need only say, "Coming!" Secondly, inner speech frequently deals in the sense of words, not their more specific or limited public meanings. Words become "saturated with sense" in much the way a key word in a poem can come to represent its entire, complex web of meaning. But unlike the word in the poem, the accrued sense of the word in inner speech may be quite personal, even idiosyncratic; it is, as Vygotsky writes, "the sum of all the psychological events aroused in our consciousness by the word" (*Thought and Language*, p. 146).

Finally, a third feature of egocentric/inner speech is the absence of logical and causal relations. In experiments with children's use of logical-causal connectives such as *because*, *therefore*, and *although*, Piaget found that children have difficulty managing such relationships and in spontaneous speech will substitute a non-logical, non-causal connective such as *then*. Piaget described this strategy for relating things as *juxtaposition*: "the cognitive tendency simply to link (juxtapose) one thought element to another, rather than to tie them together by some causal or logical relation."[4]

One way to diagnose this problem with sophisticated relationships is to say, as Vygotsky did, that young children often think in *complexes* instead of concepts.[5] When people think in complexes they unite objects into families that really do share common bonds, but the bonds are concrete and factual rather than abstract or logical. For example, the notion of "college student" would be a complex if it were based, for the thinker, on facts such as college students live in dorms, go to classes, and do homework.

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[2]Jean Piaget, *The Language and Thought of the Child*, trans. Majorie Gabin (New York: Harcourt, Brace, 1932), p. 49.

[3]Herbert Ginsberg and Sylvia Opper, *Piaget's Theory of Intellectual Development* (Englewood Cliffs, N.J.: Prentice-Hall, 1969), p. 89.

[4]John Flavell, *The Developmental Psychology of Jean Piaget* (New York: D. Van Nostrand, 1963), p. 275. For these studies see the last chapter of Piaget's *Language and Thought of the Child* and *Judgment and Reasoning in the Child*, trans. M. Warden (New York: Harcourt, Brace, 1926).

[5]*Thought and Language*, p. 75. See also the paper by Gary Woditsch which places this question in the context of curriculum design, "Developing Generic Skills: A Model for a Competency-Based General Education," available from CUE Center, Bowling Green State University.

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Complexes are very functional formations, and it may be that many people do most of their day-to-day thinking without feeling the need to form more demanding complex concepts. *Complexes* collect related objects; *concepts*, however, must express abstract, logical relations. And it is just this sort of abstract, synthetic thinking that writing typically demands. In a child's early years the ability to form complex concepts may depend mostly on developing cognitive capacity. In adults this ability appears also to be a skill developed by training and a tendency fostered by one's background and intellectual experience. But whatever its source, the ability to move from the complexes of egocentric speech to the more formal relations of conceptual thought is critical to most expository writing.

Piaget and Vygotsky disagreed on the source, exact function, and teleology of egocentric speech, but they did agree on the features of this distinctive phenomenon, which they felt revealed the underlying logic of the child's thought. For our case, that may be enough. The hypothesis on which this paper rests is not a developmental one. Egocentric speech, or rather its adult written analogue, Writer-Based prose, is not necessarily a stage through which a writer must develop or one at which some writers are arrested. But for adults it does represent an available mode of expression on which to fall back. If Vygotsky is right, it may even be closely related to normal verbal thought. It is clearly a natural, less cognitively demanding mode of thought and one which explains why people, who can express themselves in complex and highly intelligible modes, are often obscure. Egocentric expression happens to the best of us; it comes naturally.

The work of Piaget and Vygotsky, then, suggests a source for the cognitive patterns that underlie Writer-Based prose, and it points to some of the major features such a prose style would possess. Let us now turn to a more detailed analysis of such writing as a verbal style inadequately suited for the needs of the reader.

WRITER-BASED PROSE: A CASE STUDY OF A TRANSFORMATION. As an introduction to the main features of Writer-Based prose and its transformations, let us look at two drafts of a progress report written by students in an organizational psychology class. Working as consulting analysts to a local organization, the writers needed to show progress to their instructor and to present an analysis with causes and conclusions to the client. Both readers—academic and professional—were less concerned with what the students did or saw than with *why* they did it and *what* they made of their observations.

To gauge the Reader-Based effectiveness of this report, skim quickly over Draft 1 and imagine the response of the instructor of the course, who needed to answer these questions: As analysts, what assumptions and decisions did my students make? Why did they make them? At what stage in the project are they now? Or, play the role of the client-reader who wants to know: How did they define my problem, and what did they conclude? As either reader, can you quickly extract the information the report should be giving you? Next, try the same test on Draft 2.

DRAFT 1:
GROUP REPORT

(1) Work began on our project with the initial group decision to evaluate the Oskaloosa Brewing Company. Oskaloosa Brewing Company is a regionally located brewery man-

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ufacturing several different types of beer, notably River City and Brough Cream Ale. This beer is marketed under various names in Pennsylvania and other neighboring states. As a group, we decided to analyze this organization because two of our group members had had frequent customer contact with the sales department. Also, we were aware that Oskaloosa Brewing had been losing money for the past five years and we felt we might be able to find some obvious problems in their organizational structure.

(2) Our first meeting, held February 17th, was with the head of the sales department, Jim Tucker. Generally, he gave us an outline of the organization from president to worker, and discussed the various departments that we might ultimately decide to analyze. The two that seemed the most promising and most applicable to the project were the sales and production departments. After a few group meetings and discussions with the personnel manager, Susan Harris, and our advisor Professor Charns, we felt it best suited our needs and the Oskaloosa Brewing's to evaluate their bottling department.

(3) During the next week we had a discussion with the superintendent of production, Henry Holt, and made plans for interviewing the supervisors and line workers. Also, we had a tour of the bottling department which gave us a first hand look into the production process. Before beginning our interviewing, our group met several times to formulate appropriate questions to use in interviewing, for both the supervisors and workers. We also had a meeting with Professor Charns to discuss this matter.

(3a) The next step was the actual interviewing process. During the weeks of March 14-18 and March 21-25, our group met several times at Oskaloosa Brewing and interviewed ten supervisors and twelve workers. Finally during this past week, we have had several group meetings to discuss our findings and the potential problem areas within the bottling department. Also, we have spent time organizing the writing of our progress report.

(4) The bottling and packaging division is located in a separate building, adjacent to the brewery, where the beer is actually manufactured. From the brewery the beer is piped into one of five lines (four bottling lines and one canning line), in the bottling house where the bottles are filled, crowned, pasteurized, labeled, packaged in cases, and either shipped out or stored in the warehouse. The head of this operation, and others, is production manager, Phil Smith. Next in line under him in direct control of the bottling house is the superintendent of bottling and packaging, Henry Holt. In addition, there are a total of ten supervisors who report directly to Henry Holt and who oversee the daily operations and coordinate and direct the twenty to thirty union workers who operate the lines.

(5) During production, each supervisor fills out a data sheet to explain what was actually produced during each hour. This form also includes the exact time when a breakdown occurred, what it was caused by, and when production was resumed. Some supervisors' positions are production staff oriented. One takes care of supplying the raw material (bottles, caps, labels, and boxes) for production. Another is responsible for the union workers assignment each day.

These workers are not all permanently assigned to a production line position. Men called "floaters" are used filling in for a sick worker, or helping out after a breakdown.

(6) The union employees are generally older than 35, some in their late fifties. Most have been with the company many years and are accustomed to having more workers per a slower moving line. They are resentful to what they declare "unnecessary" production changes. Oskaloosa Brewery also employs mechanics who normally work on the production line, and assume a mechanics job only when a breakdown occurs. Most of these men are not skilled.

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DRAFT 2:
MEMORANDUM

TO: Professor Martin Charns

FROM: Nancy Lowenberg, Todd Scott, Rosemary Nisson, Larry Vollen

DATE: March 31, 1977

RE: *Progress Report: The Oskaloosa Brewing Company*

WHY OSKALOOSA BREWING?

(1) Oskaloosa Brewing Company is a regionally located brewery manufacturing several different types of beer, notably River City and Brough Cream Ale. As a group, we decided to analyze this organization because two of our group members have frequent contact with the sales department. Also, we were aware that Oskaloosa Brewing had been losing money for the past five years and we felt we might be able to find some obvious problems in their organizational structure.

INITIAL STEPS: WHERE TO CONCENTRATE?

(2) Through several interviews with top management and group discussion, we felt it best suited our needs, and Oskaloosa Brewing's, to evaluate the production department. Our first meeting, held February 17, was with the head of the sales department, Jim Tucker. He gave us an outline of the organization and described the two major departments, sales and production. He indicated that there were more obvious problems in the production department, a belief also implied by Susan Harris, personnel manager.

NEXT STEP

(3) The next step involved a familiarization of the plant and its employees. First, we toured the plant to gain an understanding of the brewing and bottling process. Next, during the weeks of March 14-18 and March 21-25, we interviewed ten supervisors and twelve workers. Finally, during the past week we had group meetings to exchange information and discuss potential problems.

THE PRODUCTION PROCESS

(4) Knowledge of the actual production process is imperative in understanding the effects of various problems on efficient production; therefore, we have included a brief summary of this process.

The bottling and packaging division is located in a separate building, adjacent to the brewery, where the beer is actually manufactured. From the brewery the beer is piped into one of five lines (four bottling lines and one canning line) in the bottling house where the bottles are filled, crowned, pasteurized, labeled, packaged in cases, and either shipped out or stored in the warehouse.

PEOPLE BEHIND THE PROCESS

(5) The head of this operation is production manager, Phil Smith. Next in line under him in direct control of the bottling house is the superintendent of bottling and packaging, Henry Holt. He has authority over ten supervisors who each have two major responsibilities: (1) to fill out production data sheets that show the amount produced/hour, and information about any breakdowns—time, cause, etc., and (2) to oversee the daily operations and coordinate and direct the twenty to thirty union workers who operate the lines. These workers are not all permanently assigned to a production line position. Men called "floaters" are used to fill in for a sick worker or to help out after a breakdown.

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(6) The union employees are highly diversified group in both age and experience. They are generally older than 35, some in their late fifties. Most have been with the company many years and are accustomed to having more workers per a slower moving line. They are resentful to what they feel are unnecessary production changes. Oskaloosa Brewing also employs mechanics who normally work on the production line, and assume a mechanics job only when a breakdown occurs. Most of these men are not skilled.

PROBLEMS

Through extensive interviews with supervisors and union employees, we have recognized four apparent problems within the bottle house operations. First, the employees' goals do not match those of the company. This is especially apparent in the union employees whose loyalty lies with the union instead of the company. This attitude is well-founded as the union ensures them of job security and benefits. . . .

In its tedious misdirection, Draft 1 is typical of Writer-Based prose in student papers and professional reports. The reader is forced to do most of the thinking, sorting the wheat from the chaff and drawing ideas out of details. And yet, although this presentation fails to fulfill our needs, it does have an inner logic of its own. The logic which organizes Writer-Based prose often rests on three principles: its underlying focus is egocentric, and it uses either a narrative framework or a survey form to order ideas.

The *narrative framework* of this discussion is established by the opening announcement: "Work began. . . ." In paragraphs 1-3 facts and ideas are presented in terms of when they were discovered, rather than in terms of their implications or logical connections. The writers recount what happened when; the reader, on the other hand, asks, "Why?" and "So what?" Whether he or she likes it or not the reader is in for a blow-by-blow account of the writers' discovery process.

Although a rudimentary chronology is reasonable for a progress report, a narrative framework is often a substitute for analytic thinking. By burying ideas within the events that precipitated them, a narrative obscures the more important logical and hierarchical relations between ideas. Of course, such a narrative could read like an intellectual detective story, because, like other forms of drama, it creates interest by withholding closure. Unfortunately, most academic and professional readers seem unwilling to sit through these home movies of the writer's mind at work. Narratives can also operate as a cognitive "frame" which itself generates ideas.[6] The temporal pattern, once invoked, opens up a series of empty slots waiting to be filled with the details of what happened next, even though those details may be irrelevant. As the revision of Draft 2 shows, our writers' initial narrative framework led them to generate a shaggy project story, instead of a streamlined logical analysis.

The second salient feature of this prose is its focus on the discovery process of the writers: the "I did/I thought/I felt" focus. Of the fourteen sentences in the first three paragraphs, ten are grammatically focused on the writers' thoughts and actions rather than on issues: "Work began," "We decided," "Also we were aware . . . and we felt. . . ."

[6]The seminal paper on frames is M. Minsky's "A Framework for Representing Knowledge" in P. Winston, ed., *The Psychology of Computer Vision* (New York: McGraw Hill, 1973). For a more recent discussion of how they work see B. Kuipers, "A Frame for Frames" in D. Bowbow and A. Collins, eds., *Representation and Understanding: Studies in Cognitive Science* (New York: Academic Press, 1975), pp. 151-184.

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In the fourth paragraph the writers shift attention from their discovery process to the facts discovered. In doing so they illustrate a third feature of Writer-Based prose: its idea structure simply copies the structure of the perceived information. A problem arises when the internal structure of the data is not already adapted to the needs of the reader or the intentions of the writer. Paragraph five, for example, appears to be a free-floating description of "What happens during production." Yet the client-reader already knows this and the instructor probably does not care. Lured by the fascination of facts, these writer-based writers recite a litany of perceived information under the illusion they have produced a rhetorical structure. The resulting structure could as well be a neat hierarchy as a list. The point is that the writers' organizing principle is dictated by their information, not by their intention.

The second version of this report is not so much a "rewrite" (i.e., a new report) as it is a transformation of the old one. The writers had to step back from their experience and information in order to turn facts into concepts. Pinpointing the telling details was not enough: they had to articulate the meaning they saw in the data. Secondly, the writers had to build a rhetorical structure which acknowledged the function these ideas had for their reader. In the second version, the headings, topic sentences, and even some of the subjects and verbs reflect a new functional structure focused on Process, People, and Problems. The report offers a hierarchical organization of the facts in which the hierarchy itself is based on issues both writer and reader agree are important. I think it likely that such transformations frequently go on in the early stages of the composing process for skilled writers. But for some writers the under-transformed Writer-Based prose of Draft 1 is also the final product and the starting point for our work as teachers.

In the remainder of this paper I will look at the features of Writer-Based prose and the ways it functions for the writer. Clearly, we need to know about Reader-Based prose in order to teach it. But it is also clear that writers already possess a great deal of intuitive knowledge about writing for audiences when they are stimulated to use it. As the case study shows, the concept of trying to transform Writer-Based prose for a reader is by itself a powerful tool. It helps writers identify the lineaments of a problem many can start to solve once they recognize it as a definable problem.

WRITER-BASED PROSE: FUNCTION, STRUCTURE, AND STYLE. While Writer-Based prose may be inadequately structured for a reader, it does possess a logic and structure of its own. Furthermore, that structure serves some important functions for the writer in his or her effort to think about a subject. It represents a practical strategy for dealing with information. If we could see Writer-Based prose as a *functional system*—not a set of random errors known only to English teachers—we would be better able to teach writing as a part of any discipline that asks people to express complex ideas.

According to Vygotsky, "the inner speech of the adult represents his 'thinking for himself' rather than social adaptation [communication to others]: i.e., it has the same function that egocentric speech has in the child" (*Language and Thought*, p. 18). It helps him solve problems. Vygotsky found that when a child who is trying to draw encounters an obstacle (no pencils) or a problem (what shall I call it?), the incidence of egocentric speech can double.

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If we look at an analogous situation—an adult caught up in the complex mental process of composing—we can see that much of the adult's output is not well adapted for public consumption either. In studies of cognitive processes of writers as they composed, J. R. Hayes and I observed much of the writer's verbal output to be an attempt to manipulate stored information into some acceptable pattern of meaning.[7] To do that, the writer generates a variety of alternative relationships and trial formulations of the information she has in mind. Many of these trial networks will be discarded; most will be significantly altered through recombination and elaboration during the composing process. In those cases in which the writer's first pass at articulating knowledge was also the final draft—when she wrote it just as she thought it—the result was often a series of semi-independent, juxtaposed networks, each with its own focus.

Whether such expression occurs in an experimental protocol or a written draft, it reflects the working of the writer's mind upon his material. Because dealing with one's material is a formidable enough task in itself, a writer may allow himself to ignore the additional problem of accommodating a reader. Writer-Based prose, then, functions as a medium for thinking. It offers the writer the luxury of one less constraint. As we shall see, its typical structure and style are simply paths left by the movement of the writer's mind.

The *structure* of Writer-Based prose reflects an economical strategy we have for coping with information. Readers generally expect writers to produce complex concepts—to collect data and details under larger guiding ideas and place those ideas in an integrated network. But as both Vygotsky and Piaget observed, forming such complex concepts is a demanding cognitive task; if no one minds, it is a lot easier to just list the parts. Nor is it surprising that in children two of the hallmarks of egocentric speech are the absence of expressed causal relations and the tendency to express ideas without proof or development. Adults too avoid the task of building complex concepts buttressed by development and proof, by structuring their information in two distinctive ways: as a narrative of their own discovery process or as a survey of the data before them.

As we saw in the Oskaloosa Brewing Case Study, a *narrative* structured around one's own discovery process may seem the most natural way to write. For this reason it can sometimes be the best way as well, if a writer is trying to express a complex network of information but is not yet sure how all the parts are related. For example, my notes show that early fragments of this paper started out with a narrative, list-like structure focused on my own experience: "Writer-Based prose is a working hypothesis because it works in the classroom. In fact, when I first started teaching the concept. . . . In fact, it was my students' intuitive recognition of the difference between Writer-Based and Reader-Based style in their own thought and writing. . . . It was their ability to use even a sketchy version of the distinction to transform their own writing that led me to pursue the idea more thoroughly."

The final version of this sketch (the paragraph numbered 2 on p. 20) keeps the reference to teaching experience, but subordinates it to the more central issue of

[7]L. Flower and J. Hayes, "Plans That Guide the Composing Process," in *Writing: The Nature, Development and Teaching of Written Communication*, C. Frederikson, M. Whiteman, and J. Dominic, eds. (Hillsdale, N.J.: Lawrence Erlbaum, in press).

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why the concept works. This transformation illustrates how a writer's major propositions can, on first appearance, emerge embedded in a narrative of the events or thoughts which spawned the proposition. In this example, the Writer-Based early version recorded the raw material of observations; the final draft formed them into concepts and conclusions.

This transformation process may take place regularly when a writer is trying to express complicated information which is not yet fully conceptualized. Although much of this mental work normally precedes actual writing, a first draft may simply reflect the writer's current place in the process. When this happens rewriting and editing are vital operations. Far from being a simple matter of correcting errors, editing a first draft is often the act of transforming a narrative network of information into a more fully hierarchical set of propositions.

A second source of pre-fabricated structure for writers is the internal structure of the information itself. Writers use a *survey* strategy to compose because it is a powerful procedure for retrieving and organizing information. Unfortunately, the original organization of the data itself (e.g., the production process at Oskaloosa Brewing) rarely fits the most effective plan for any given piece of focused analytical writing.

The prose that results from such a survey can, of course, take as many forms as the data. It can range from a highly structured piece of discourse (the writer repeats a textbook exposition) to an unfocused printout of the writer's memories and thoughts on the subject. The form is merely a symptom, because the governing force is the writer's mental strategy: namely, to compose by surveying the available contents of memory without adapting them to a current purpose. The internal structure of the data dictates the rhetorical structure of the discourse, much as the proceedings of Congress organize the *Congressional Record.* As an information processor, the writer is performing what computer scientists would call a "memory dump": dutifully printing out memory in exactly the form in which it is stored.

A survey strategy offers the writer a useful way into the composing process in two ways. First, it eliminates many of the constraints normally imposed by a speech act, particularly the contract between reader and writer for mutually useful discourse. Secondly, a survey of one's own stored knowledge, marching along like a textbook or flowing with the tide of association, is far easier to write than a fresh or refocused conceptualization would be.

But clearly most of the advantages here accrue to the writer. One of the tacit assumptions of the Writer-Based writer is that, once the relevant information is presented, the reader will then do the work of abstracting the essential features, building a conceptual hierarchy, and transforming the whole discussion into a functional network of ideas.

Although Writer-Based prose often fails for readers and tends to preclude further concept formation, it may be a useful road into the creative process for some writers. The structures which fail to work for readers may be powerful strategies for retrieving information from memory and for exploring one's own knowledge network. This is illustrated in Linde and Labov's well-known New York apartment tour experiment.[8] Interested in the strategies people use for retrieving information

[8]C. Linde and W. Labov, "Spatial Networks as a Site for the Study of Language and Thought," *Language*, 51 (1975), 924-939.

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from memory and planning a discourse, Linde and Labov asked one hundred New Yorkers to "tell me the layout of your apartment" as a part of a "sociological survey." Only 3% of the subjects responded with a map which gave an overview and then filled in the details; for example, "I'd say it's laid out in a huge square pattern, broken down into 4 units." The overwhelming majority (97%) all solved the problem by describing a tour: "You walk in the front door. There was a narrow hallway. To the left, etc." Furthermore, they had a common set of rules for how to conduct the tour (e.g., you don't "walk into" a small room with no outlet, such as a pantry; you just say, "on the left is . . ."). Clearly the tour structure is so widely used because it is a remarkably efficient strategy for recovering all of the relevant information about one's apartment, yet without repeating any of it. For example, one rule for "touring" is that when you dead-end after walking through two rooms, you don't "walk" back but suddenly appear back in the hall.

For us, the revealing sidenote to this experiment is that although the tour strategy was intuitively selected by the overwhelming majority of the speakers, the resulting description was generally very difficult for the listener to follow and almost impossible to reproduce. The tour strategy—like the narrative and textbook structure in prose—is a masterful method for searching memory but a dud for communicating that information to anyone else.

Finally, the *style* of Writer-Based prose also has its own logic. Its two main stylistic features grow out of the private nature of interior monologue, that is, of writing which is primarily a record or expression of the writer's flow of thought. The first feature is that in such monologues the organization of sentences and paragraphs reflects the shifting focus of the writer's attention. However, the psychological subject on which the writer is focused may not be reflected in the grammatical subject of the sentence or made explicit in the discussion at all. Secondly, the writer may depend on code words to carry his or her meaning. That is, the language may be "saturated with sense" and able to evoke—for the writer—a complex but unexpressed context.

Writers of formal written discourse have two goals for style which we can usefully distinguish from one another. One goal might be described as stylistic control, that is, the ability to choose a more embedded or more elegant transformation from variations which are roughly equivalent in meaning. The second goal is to create a completely autonomous text, that is, a text that does not need context, gestures, or audible effects to convey its meaning.

It is easy to see how the limits of short-term memory can affect a writer's stylistic control. For an inexperienced writer, the complex transformation of a periodic sentence—which would require remembering and relating a variety of elements and optional structures such as this sentence contains—can be a difficult juggling act. After all, the ability to form parallel constructions is not innate. Yet with practice many of these skills can become more automatic and require less conscious attention.

The second goal of formal written discourse—the complete autonomy of the text—leads to even more complex problems. According to David Olson the history of written language has been the progressive creation of an instrument which could convey complete and explicit meanings in a text. The history of writing is the transformation of language from utterance to text—from oral meaning created within a

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shared context of a speaker and listener to a written meaning fully represented in an autonomous text.[9]

In contrast to this goal of autonomy, Writer-Based prose is writing whose meaning is still to an important degree in the writer's head. The culprit here is often the unstated psychological subject. The work of the "remedial" student is a good place to examine the phenomenon because it often reveals first thoughts more clearly than the reworked prose of a more experienced writer who edits as he or she writes. In the most imaginative, comprehensive and practical book to be written on the basic writer, Mina Shaughnessy has studied the linguistic strategies which lie behind the "errors" of many otherwise able young adults who have failed to master the written code. As we might predict, the ambiguous referent is ubiquitous in basic writing: *he*'s, *she*'s and *it*'s are sprinkled through the prose without visible means of support. *It* frequently works as a code word for the subject the writer had in mind but not on the page. As Professor Shaughnessy says, *it* "frequently becomes a free-floating substitute for thoughts that the writer neglects to articulate and that the reader must usually strain to reach if he can."[10]

> With all the jobs available, he will have to know more of *it* because thire is a great demand for *it*.

For the writer of the above sentence, the pronoun was probably not ambiguous at all; *it* no doubt referred to the psychological subject of his sentence. Psychologically, the subject of an utterance is the old information, the object you are looking at, the idea on which your attention has been focused. The predicate is the new information you are adding. This means that the psychological subject and grammatical subject of a sentence may not be the same at all. In our example, "college knowledge" was the writer's psychological subject—the topic he had been thinking about. The sentence itself is simply a psychological predicate. The pronoun *it* refers quite reasonably to the unstated but obvious subject in the writer's mind.

The subject is even more likely to be missing when a sentence refers to the writer herself or to "one" in her position. In the following examples, again from *Errors and Expectations*, the "unnecessary" subject is a person (like the writer) who has a chance to go to college.

> Even if a person graduated from high school who is going on to college to obtain a specific position in his career [ ] should first know how much in demand his possible future job really is.
>
> [he]

> If he doesn't because the U.S. Labor Department say's their wouldn't be enough jobs opened, [ ] is a waste to society and a "cop-out" to humanity.
>
> [he]

Unstated subjects can produce a variety of minor problems from ambiguous referents to amusing dangling modifiers (e.g., "driving around the mountain, a bear came into view"). Although prescriptive stylists are quite hard on such "errors," they are

[9]David R. Olson, "From Utterance to Text: The Bias of Language in Speech and Writing," *Harvard Educational Review*, 47 (1977), 257-281.

[10]Mina Shaughnessy, *Errors and Expectations* (New York: Oxford University Press, 1977), p. 69.

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often cleared up by context or common sense. However, the controlling but unstated presence of a psychological subject can lead to some stylistic "errors" that do seriously disrupt communication. Sentence fragments are a good example.

One feature of an explicit, fully autonomous text is that the grammatical subject is usually a precise entity, often a word. By contrast, the psychological subject to which a writer wished to refer may be a complex event or entire network of information. Here written language is often rather intransigent; it is hard to refer to an entire clause or discussion unless one can produce a summary noun. Grammar, for example, normally forces us to select a specific referent for a pronoun or modifier: it wants referents and relations spelled out.[11] This specificity is, of course, its strength as a vehicle for precise reasoning and abstract thought. Errors arise when a writer uses a one clause to announce his topic or psychological subject and a second clause to record a psychological predicate, a response to that old information. For example:

> The jobs that are listed in the paper, I feel you need a college degree.
>
> The job that my mother has, I know I could never be satisfied with it.

The preceding sentences are in error because they have failed to specify the grammatical relationship between their two elements. However, for anyone from the Bronx, each statement would be perfectly effective because it fits a familiar formula. It is an example of topicalization or Y-movement and fits a conventionalized, Yiddish influenced, intonation pattern much like the one in "Spinach—you can have it!" The sentences depend heavily on certain conventions of oral speech, and insofar as they invoke those patterns for the reader, they communicate effectively.[12]

However, most fragments do not succeed for the reader. And they fail, ironically enough, for the same reason—they too invoke intonation patterns in the reader which turn out to be misleading. The lack of punctuation gives off incorrect cues about how to segment the sentence. Set off on an incorrect intonation pattern, the thwarted reader must stop, reread and reinterpret the sentence. The following examples are from Maxine Hairston's *A Contemporary Rhetoric* (Boston: Houghton Mifflin, 1974):

> The authorities did not approve of their acts. These acts being considered detrimental to society. (society, they . . .)
>
> Young people need to be on their own. To show their parents that they are reliable. (reliable, young people . . .)
>
> (p. 322)

Fragments are easy to avoid; they require only minimal tinkering to correct. Then why is the error so persistent? One possible reason is that for the writer the fragment is a fresh predicate intended to modify the entire preceding psychological sub-

[11] "Pronouns like *this*, *that*, *which* and *it* should not vaguely refer to an entire sentence or clause," and "Make a pronoun refer clearly to one antecedent, not uncertainly to two." Floyd Watkins, et al., *Practical English Handbook* (Boston: Houghton Mifflin, 1974), p. 30.

[12] I am greatly indebted here to Thomas Huckin for his insightful comments on style and to his work in linguistics on how intonation patterns affect writers and readers.

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ject. The writer wants to carry out a verbal trick easily managed in speech. For the reader, however, this minor grammatical oversight is significant. It sets up and violates both intonation patterns and strong structural expectations, such as those in the last example where we expect a pause and a noun phrase to follow "reliable." The fragment, which actually refers backward, is posing as an introductory clause.

The problem with fragments is that they are perfectly adequate for the writer. In speech they may even be an effective way to express a new idea which is predicated on the entire preceding unit thought. But in a written text, fragments are errors because they do not take the needs of the reader into consideration. Looked at this way, the "goodness" of a stylistic technique or grammatical rule such as parallelism, clear antecedents, or agreement is that it is geared to the habits, expectations, and needs of the reader as well as to the demands of textual autonomy.

Vygotsky noticed how the language of children and inner speech was often "saturated with sense." Similarly, the words a writer chooses can also operate as code words, condensing a wealth of meaning in an apparently innocuous word. The following examples come from an exercise which asks writers to identify and transform some of their own pieces of mental shorthand.

The students were asked to circle any code words or loaded expressions they found in their first drafts of a summer internship application. That is, they tried to identify those expressions that might convey only a general or vague meaning to a reader, but which represented a large body of facts, experiences, or ideas for them. They then treated this code word as one would any intuition—pushing it for its buried connections and turning those into a communicable idea. The results are not unlike those brilliant explications one often hears from students who tell you what their paper really meant. This example also shows how much detailed and perceptive thought can be lying behind a vague and conventional word:

> First Draft: "By having these two jobs, I was able to see the business in an entirely (different perspective)." (Circle indicates a loaded expression marked by the writer.)
>
> Second Draft with explanation of what she actually had in mind in using the circled phrase: "By having these two jobs, I was able to see the true relationship and relative importance of the various departments in the company. I could see their mutual dependence and how an event in one part of the firm can have an important effect on another."

The tendency to think in code words is a fact of life for the writer. Yet the following example shows how much work can go into exploring our own saturated language. Like any intuition, such language is only a source of potential meanings, much as Aristotle's topics are places for finding potential arguments. In this extended example, the writer first explores her expression itself, laying out all the thoughts which were loosely connected under its name. This process of pushing our own language to give up its buried meanings forces us to make these loose connections explicit and, in the process, allows us to examine them critically. For the writer in our example, pushing her own key words leads to an important set of new ideas in the paper.

Excerpt from an application for the
National Institute of Health Internship Program

> First Draft: "I want a career that will help other people while at the same time be

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challenging scientifically. I had the opportunity to do a biochemical assay for a neuropsychophamocologist at X— Clinic in Chicago. Besides learning the scientific procedures and techniques that are used, I realized some of the (organizational, financial and people problems) which are encountered in research. This internship program would let me pursue further my interest in research, while concurrently exposing me to (relevant and diverse) areas of bioengineering."

Excerpt from Writer's Notes Working on the Circled Phrases

Brainstorm

How did research of Sleep Center tie into overall program of X— Clinic? Not everyone within dept. knew what the others were doing, could not see overall picture of efforts.

Dr. O.—dept. head—trained for lab yet did 38-40 hrs. paperwork. Couldn't set up test assay in Sleep Center because needed equip. from biochem.

Difficulties in getting equipment

1. Politics between administrators
   Photometer at U. of — even though Clinic had bought it.
2. Ordering time, not sufficient inventory, had to hunt through boxes for chemicals.
3. Had to schedule use by personal contact on borrowing equipment—done at time of use and no previous planning.

No definite guidelines had been given to biochem. people as to what was "going on" with assay. Partner who was supposed to learn assay was on vacation. Two people were learning, one was on vac.

No money from state for equipment or research grants.
Departments stealing from each other.
Lobbying, politics, included.

My supervisor from India, felt prejudices on job. Couldn't advance, told me life story and difficulties in obtaining jobs at Univ. Not interested in research at Clinic per se, looking for better opportunities, studying for Vet boards.

Revision (additions in italics)

"As a biomedical researcher, I would fulfill my goal of a career that will help other people while at the same time be challenging scientifically. I had exposure to research while doing a biochemical assay for a neuropsychopharmocologist at X— Clinic in Chicago. Besides learning the scientific procedures and techniques that are used, I realized some of the organizational, financial and people problems which are encountered in research. *These problems included a lack of funds and equipment, disagreements among research staff, and the extensive amounts of time, paperwork and steps required for testing a hypothesis which was only one very small but necessary part of the overall project. But besides knowing some of the frustrations, I also know that many medical advancements, such as the cardiac pacemaker, artificial limbs and cures for diseases, exist and benefit many people because of the efforts of researchers.* Therefore I would like to pursue my interest in research by participating in the NIH Internship Program. The exposure to many *diverse projects, designed to better understand and improve the body's functioning, would help me to decide which areas of biomedical engineering to pursue.*"

We could sum up this analysis of style by noting two points. At times a Writer-Based prose style is simply an interior monologue in which some necessary information (such as intonation pattern or a psychological subject) is not expressed in the text. The solution to the reader's problem is relatively trivial in that it involves adding information that the writer already possesses. At other times, a style may be Writer-Based because the writer is thinking in code words at the level of intuited but

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unarticulated connections. Turning such saturated language into communicable ideas can require the writer to bring the entire composing process into play.

IMPLICATIONS FOR WRITERS AND TEACHERS. From an educational perspective, Writer-Based prose is one of the "problems" composition courses are designed to correct. It is a major cause of that notorious "breakdown" of communication between writer and reader. However, if we step back and look at it in the broader context of cognitive operations involved, we see that it represents a major, functional stage in the composing process and a powerful strategy well fitted to a part of the job of writing.

In the best of all possible worlds, good writers strive for Reader-Based prose from the very beginning: they retrieve and organize information within the framework of a reader/writer contract. Their top goal or initial question is not, "What do I know about physics, and in particularly the physics of wind resistance?" but, "What does a model plane builder need to know?" Many times a writer can do this. For a physics teacher this particular writing problem would be a trivial one. However, for a person ten years out of Physics 101, simply retrieving any relevant information would be a full-time processing job. The reader would simply have to wait. For the inexperienced writer, trying to put complex thought into written language may also be task enough. In that case, the reader is an extra constraint that must wait its turn. A Reader-Based strategy which includes the reader in the entire thinking process is clearly the best way to write, but it is not always possible. When it is very difficult or impossible to write for a reader from the beginning, writing and then transforming Writer-Based prose is a practical alternative which breaks this complex process down into manageable parts. When transforming is a practiced skill, it enters naturally into the pulse of the composing process as a writer's constant, steady effort to test and adapt his or her thought to a reader's needs. Transforming Writer-Based prose is, then, not only a necessary procedure for all writers at times, but a useful place to start teaching intellectually significant writing skills.

In this final section I will try to account for the peculiar virtues of Writer-Based prose and suggest ways that teachers of writing—in any field—can take advantage of them. Seen in the context of memory retrieval, Writer-Based thinking appears to be a tapline to the rich sources of episodic memory. In the context of the composing process, Writer-Based prose is a way to deal with the overload that writing often imposes on short term memory. By teaching writers to use this transformation process we can foster the peculiar strengths of writer-based thought and still alert writers to the next transformation that many may simply fail to attempt.

One way to account for why Writer-Based prose seems to "come naturally" to most of us from time to time is to recognize its ties to our episodic as opposed to semantic memory. As Tulving describes it, "episodic memory is a more or less faithful record of a person's experiences." A statement drawn from episodic memory "refers to a personal experience that is remembered in its temporal-spatial relation to other such experiences. The remembered episodes are . . . autobiographical events, describable in terms of their perceptible dimensions or attributes."[13]

[13]Edel Tulving, "Episodic and Semantic Memory," in Edel Tulving and Wayne Donaldson, eds., *Organization of Memory* (New York: Academic Press, 1972), p. 387.

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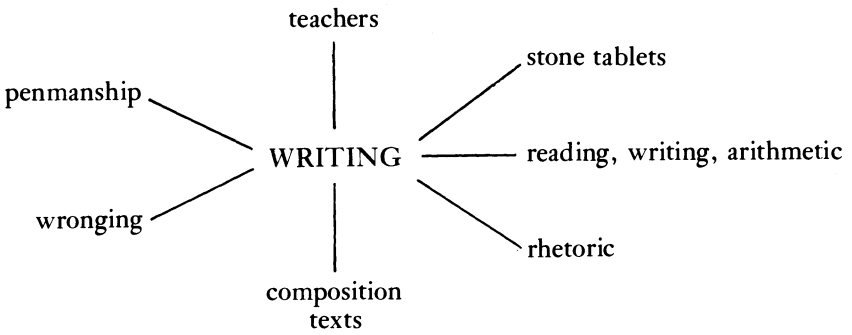
Semantic memory, by contrast, "is the memory necessary for the use of language. It is a mental thesaurus, organized knowledge a person possesses about words and other verbal symbols, their meaning and referents, about relations among them, and about rules, formulas, and algorithms for the manipulation of these symbols, concepts, and relations." Although we know that table salt is NaCl and that motivation is a mental state, we probably do not remember learning the fact or the first time we thought of that concept. In semantic memory facts and concepts stand as the nexus for other words and symbols, but shorn of their temporal and autobiographical roots. If we explored the notion of "writing" in the semantic memory of someone we might produce a network such as this:



In an effort to retrieve what she or he knew about stone tablets, for example, this same person might turn to episodic memory: "I once heard a lecture on the Rosetta stone, over in Maynard Hall. The woman, as I recall, said that . . . and I remember wondering if. . . ."

Writers obviously use both kinds of memory. The problem only arises when they confuse a fertile source of ideas in episodic memory with a final product. In fact, a study by Russo and Wisher argues that we sometimes store our ideas or images (the symbols of thought) with the mental operations we performed to produce these symbols.[14] Furthermore, it is easier to recall the symbols (that fleeting idea, perhaps) when we bring back the original operation. In other words, our own thinking acts can serve as memory cues, and the easiest way to recover some item from memory may be to *reprocess* it, to reconstruct the original thought process in which it appeared. Much Writer-Based prose appears to be doing just this—reprocessing an earlier thinking experience as a way to recover what one knows.

Writing is one of those activities that places an enormous burden on short-term or working memory. As George Miller put it, "The most glaring result [of numerous experiments] has been to highlight man's inadequacy as a communication channel. As the amount of input information is increased, the amount of information that the man transmits increases at first but then runs into a ceiling. . . . That ceiling is always very low. Indeed, it is an act of charity to call man a channel at all. Compared to telephone or television channels, man is better characterized as a bottleneck."[15]

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[14]J. Russo and R. Wisher, "Reprocessing as a Recognition Cue," *Memory and Cognition*, 4 (1976), 683-689.

[15]George Miller, *The Psychology of Communication* (New York: Basic Books, 1967), p. 48.

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The short-term memory is the active central processor of the mind, that is, it is the sum of all the information we can hold in conscious attention at one time. We notice its capacity most acutely when we try to learn a new task, such as driving a car or playing bridge. Its limited capacity means that when faced with a complex problem—such as writing a college paper—we can hold and compare only a few alternative relationships in mind at once.

Trying to evaluate, elaborate, and relate all that we know on a given topic can easily overload the capacity of our working memory. Trying to compose even a single sentence can have the same effect, as we try to juggle grammatical and syntactic alternatives plus all the possibilities of tone, nuance, and rhythm even a simple sentence offers. Composing, then, is a cognitive activity that constantly threatens to overload short-term memory. For two reasons Writer-Based prose is a highly effective strategy for dealing with this problem.

1. Because the characteristic structure of Writer-Based prose is often a list (either of mental events or the features of the topic) it temporarily suspends the additional problem of forming complex concepts. If that task is suspended indefinitely, the result will fail to be good analytical writing or serious thought, but as a first stage in the process the list-structure has real value. It allows the writer freedom to generate a breadth of information and a variety of alternative relationships before locking himself or herself into a premature formulation. Furthermore, by allowing the writer to temporarily separate the two complex but somewhat different tasks of generating information and forming networks, each task may be performed more consciously and effectively.

2. Taking the perspective of another mind is also a demanding cognitive operation. It means holding not only your own knowledge network but someone else's in conscious attention and comparing them. Young children simply can't do it.[16] Adults choose not to do it when their central processing is already overloaded with the effort to generate and structure their own ideas. Writer-Based prose simply eliminates this constraint by temporarily dropping the reader out of the writer's deliberations.[17]

My own research suggests that good writers take advantage of these strategies in their composing process. They use scenarios, generate lists, and ignore the reader, but only for a while. Their composing process, unlike that of less effective writers, is marked by constant re-examination of their growing product and an attempt to refine, elaborate, or test its relationships, plus an attempt to anticipate the response of a reader. Everyone uses the strategies of Writer-Based prose; good writers go a step further to transform the writing these strategies produce.

But what about the writers who fail to make this transformation or (like all of us) fail to do it adequately in places? This is the problem faced by all teachers who assign papers. I think this study has two main and quite happy implications for us as teachers and writers.

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[16]Marlene Scardamalia, "How Children Cope with the Cognitive Demands of Writing," in *Writing: The Nature, Development and Teaching of Written Communication*, C. Frederikson, M. Whiteman, and J. Dominic, eds.

[17]Linda Flower and John R. Hayes, "The Dynamics of Composing: Making Plans and Juggling Constraints," in *Cognitive Processes in Writing: An Interdisciplinary Approach*, Lee Gregg and Irwin Steinberg, eds. (Hillsdale, N.J.: Lawrence Erlbaum, 1979).

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The first is that Writer-Based prose is not a composite of errors or a mistake that should be scrapped. Instead, it is a half-way place for many writers and often represents the results of an extensive search and selection process. As a stage in the composing process it may be a rich compilation of significant thoughts which cohere *for the writer* into a network she or he has not yet fully articulated. Writer-Based prose is the writer's homework, and so long as the writer is also the audience, it may even be a well-thought-out communication.

The second happy implication is that writing Reader-Based prose is often simply the task of transforming the groundwork laid in the first stage of the process.[18] Good analytical writing is not different in kind from the writer-based thought that seems to come naturally. It is an extension of our communication with ourselves transformed in certain predictible ways to meet the needs of the reader. The most general transformation is simply to try to take into account the reader's purpose in reading. Most people have well-developed strategies for doing this when they talk. For a variety of reasons—from cognitive effort to the illusion of the omniscient teacher/reader—many people simply do not consider the reader when they write.

More specifically, the transformations that produce Reader-Based writing include these:

Selecting a focus of mutual interest to both reader and writer (e.g., moving from the writer-based focus of "How did I go about my research or reading of the assignment and what did I see?" to a focus on "What significant conclusions can be drawn and why?").

Moving from facts, scenarios, and details to concepts.

Transforming a narrative or textbook structure into a rhetorical structure built on the logical and hierarchical relationships between ideas and organized around the purpose for writing, rather than the writer's process.

Teaching writers to recognize their own Writer-Based writing and transform it has a number of advantages. It places a strong positive value on writing that represents an effort and achievement for the writer even though it fails to communicate to the reader. This legitimate recognition of the uncommunicated content of Writer-Based prose can give anyone, but especially inexperienced writers, the confidence and motivation to go on. By defining writing as a multistage process (instead of a holistic act of "expression") we provide a rationale for editing and alert many writers to a problem they could handle once it is set apart from other problems and they deliberately set out to tackle it. By recognizing transformation as a special skill and task, we give writers a greater degree of self-conscious control over the abilities they already have and a more precise introduction to some skills they may yet develop.

[18]For a study of heuristics and teaching techniques for this transformation process see L. Flower and J. Hayes, "Problem-Solving Strategies and the Writing Process," *College English*, 39 (1977), 449-461.

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