

3 Managerial Decision Making: Sherman's Business Course

Barbara E. Walvoord
Loyola College in Maryland

A. Kimbrough Sherman
Loyola College in Maryland

This chapter begins the discussion of the four classes the research team studied. A. Kimbrough Sherman's production management course is a required course which deals with the operational aspects of a business, such as what goods and services it provides, where it locates, and how it organizes resources, people, and processes. The course has two major thrusts: (1) strategic and tactical decision making and (2) standard (mostly quantitative) decision techniques. Writing in Sherman's course was directed at the strategic and tactical areas. We (Walvoord and Sherman) collaborated in gathering the data and writing the chapter with generous help from McCarthy and other team members, who helped to shape the study, check data, and critique chapter drafts.

Like the other classroom chapters that follow, this chapter addresses our research questions (p. 4) through an examination of Sherman's expectations and each of the six areas of difficulty we constructed for all the classrooms, focusing on how Sherman's methods and the students' strategies appeared to have affected the difficulties. (We follow the basic organizational pattern we outlined on p. 15. Our definitions of difficulties and strategies appear on pp. 4-5.) At the end of this chapter, we address two other topics that transcend any single area of difficulty:

1. Students' pre-draft writing (any writing that precedes the first draft that contains two-thirds of what the student intended to be the full paper)
2. Sherman's responses to drafts and students' revisions on the final paper of the course.

The characteristics of Loyola College, of Sherman's class, and of the focus group of students we used for some of our analyses are on p. 18 and in Appendix B. Note particularly the overrepresentation of women among students who submitted data in Sherman's class. Other classes were more balanced.

SHERMAN'S EXPECTATIONS

Our analysis of Sherman's expectations relies on Sherman's in-class instruction as recorded by Walvoord during her classroom observation and by Sherman in his log, his responses on students' papers, his interviews and working sessions with Walvoord as they analyzed data and discussed student papers, and his post-course primary trait analysis (p. 35).

THE BUSINESS DECISION-MAKER ROLE

"In management, people don't merely 'write papers,' they solve problems," said Sherman in an interview conducted by Walvoord during the production management course he taught during fall semester, 1985. His class was composed of 44 junior and senior business majors at Baltimore's Loyola College in Maryland. Sherman's expectations for his students' learning and writing grew from his goal of "teaching students to make decisions, not just teaching them *about* decision making."

The "business decision maker," then, was Sherman's version of the professional-in-training role that all four classroom teachers expected of their students (pp. 8-9). He tried to move his students from the roles of text-processor or layperson into that of decision maker.

A key word Sherman used often was *complexity*. In an interview with Walvoord he explained that he wanted to construct situations where students would have to "wallow in complexity" and work their way out, as managers must. His course was therefore centered not on covering topics but on teaching a process, a methodology. Sherman also believed that writing was his most effective tool for getting students involved in the complexity of decision making. "Writing," he said, "helps students put their thoughts together [and thus] helps me teach and them learn."

Like most assignments made by the other three teachers we studied,

Sherman's three assignments all posed good/better/best questions and asked students to apply textbook knowledge to new situations (p. 7). The salient features of the three assignments appear in Table 3.1. Three differences among them—the names Sherman gave to the papers (“analytical assignment” and “term paper”), the length, and the source of information—all appeared to influence how students responded to the assignments, as the rest of this chapter will show.

DEFINE/ANALYZE/PRESCRIBE: SHERMAN'S EXPECTATIONS FOR GOOD/BETTER/BEST REASONING

One of Sherman's ways of describing good/better/best reasoning to his students was his oft-repeated rubric, “define/analyze/prescribe.” In this process the decision maker (1) *defines* the problem, defines relevant terms, and defines what a “good” solution would be; (2) *analyzes* the parameters of the problem and the qualities of various possible solutions; and (3) *prescribes* the best solution.

A Class Discussion: Lessons About Reasoning and Roles

Sherman's expectations for good/better/best reasoning, as well as the roles he and his students played, were embodied in a classroom

Table 3.1 Salient Features of Sherman's Three Assignments

Sherman's Name for the Paper	Topic	Learning Objective	Source of Information	Source of Methodology
Analytical Assignment 1 (1 page)	What is the best location for the new Baltimore baseball stadium?	Learn how to make decisions about locating a business.	Memory Media	Textbook Lecture/Discussion
Analytical Assignment 2 (1 page)	Evaluate layout and work design of McDonald's and Popeye's.	Learn how to analyze and evaluate production processes.	Observation	Textbook Lecture/Discussion
Term Paper (8 pp. draft; 5 pp. final)	What are the best ways to raise productivity in the United States?	Learn broad problem-solving processes for a national issue	Library	Textbook Lecture/Discussion

discussion Walvoord observed. In this discussion Sherman modeled and structured define/analyze/prescribe, showed students how to manage complexity, and communicated the nature of business problem solving. Throughout, he treated his students as professionals-in-training.

As the class began, the students were gathered in what one of them described as "the typical lecture classroom"—lectern and blackboard facing raked rows of tablet armchairs in a room with the high ceilings and tall windows typical of older classroom buildings. They had just submitted drafts of their productivity term papers to Sherman, who would return them for revision after he commented on them, and now they began to discuss how the United States could enhance its productivity.

Modeling and Structuring "Define/Analyze/Prescribe"

From students' contributions Sherman constructed three blackboard lists: a list of possible definitions of *productivity*, a list of possible causes for lagging U.S. productivity ("analyze"), and finally a list of possible solutions to the problem of lagging U.S. productivity ("prescribe").

Showing Students How to Manage Complexity

In the discussion Sherman insisted on recognizing and managing complexity. He suggested that students use new categories to produce solutions to the problems of lagging productivity: "Try to think of more institutional things, like laws and customs." This category helped students get away from overly simplistic prescriptions that the United States should simply do what Japan does, and helped students to realize the extent of differences in laws and customs between the two countries.

Sherman also warned students against oversimplification: "Don't take the simplistic view that unions that are resisting automation are doing something wrong." He often suggested complexity by adding information students might not possess, such as information about automation in mining, or pushed students to think more deeply: "Do you think you could do that with . . . ?" or "What about . . . ?"

Sherman modeled the use of counterargument, thus adding further complexity to the discussion. For example, in response to students' suggestions that industry should automate, he insistently voiced the objections and needs of the workers who would be replaced. Yet he was careful not to attack the students' positions as "wrong," and he

made his devil's advocate role clear to them. At one point, soliciting a critique from the class to counter a student's contribution, he said in a smiling aside to the student, "I'm trying to make your example look bad." The student grinned back, obviously understanding that he and Sherman were involved in a cooperative endeavor, and that Sherman was modeling the ways of thinking that the class was trying to learn.

Communicating the Nature of Business Problem Solving

Sherman demonstrated that there were no absolute, right answers for the problems. Students were expected to keep an open mind and consider all the evidence, but their values and preferences might also be part of the decision. At one point he said, "We've addressed quality. Is that what everybody decided to do—go for quality? Didn't anybody decide to automate?" The lesson was that there was no one solution he expected. When he offered his own position, he took care to distinguish it as just one of several possible positions. At another point, he said to a student, "I believe more strongly than you do that . . ." and then gave his reasons for that belief: He was emphasizing Task 5 of good/better/best reasoning¹—combining solution-searching with rationale-building.

Treating Students as Professionals-in-Training

Sherman consistently resisted setting himself up as the only authority. Rather, he treated his students as potential businesspersons who already had completed part of their training, who had valuable contributions to make to the discussion, and who could choose and defend their own positions. When a student asked him a question at one point, he turned back to the class with, "Is there an answer to that?" At another point, as he tried to remember a series of events in the mining industry, two students readily supplied the information without first raising their hands, and he, without embarrassment, integrated their expertise into the ongoing discussion. At a third point, when a student raised a logistical problem about the assignment, Sherman listened, then changed a due date. (Walvoord observed one student turning to a neighbor with a smile and whispering, "I like this class.")

Sherman transcribed students' contributions on the blackboard, but he did not appropriate them. In making his blackboard list, whenever he shortened or changed the student's wording, he asked the student's permission: "Will I ruin it if I say 'creativity'? I'm just looking for a single word."

In discussion, Sherman did not repeat students' contributions, but expected the class to listen to one another. When one student spoke softly, he asked her to repeat so that everyone could hear.

SUMMARY OF SHERMAN'S EXPECTATIONS

In a post-course interview with Walvoord, Sherman made a statement about the third paper, the productivity paper, that can serve as a summary of the writing, thinking, and learning he expected from his students and the role he expected them to play:

I want them to reach a perception of the complexity of the problem, and an attempt at a solution, and then see how that solution is good and bad, and communicate the bad parts and brag about the good parts of whatever solution they have.

Sherman admitted that to "see the complexity and yet come out with reasonable solutions—that's tough. But that's what management is all about, and that's what business is all about."

In this chapter, a number of difficulties arose as Sherman tried to use his three writing assignments as vehicles for helping students move into the role of business decision maker. Those difficulties, we emphasize, are not the "fault" of either students or teachers, but result from complex interactions among them.

DIFFICULTIES WITH GATHERING SUFFICIENT SPECIFIC INFORMATION

THE NATURE OF THE DIFFICULTIES

One difficulty students experienced was with gathering sufficient specific information for their papers. By *sufficient* we mean enough information to meet the teacher's expectations for each assignment.

In Sherman's first assignment students were to propose and defend a site for the new Baltimore baseball stadium then being hotly debated in the public forum. To get more specific information about the controversy and about proposed stadium sites, many students, in Sherman's judgment, should have gone to the library to find back issues of either the local newspaper or *Baltimore Magazine*. Yet in our focus group of 14 students, only one student did. Not only Sherman, but also the students—especially after they had handed in their stadium

papers—identified locating sufficient specific information as a difficulty. One student said to her freshman interviewer with a wry laugh, “I didn’t even know the stadium was moving.” Another remarked, “I would have done better if I’d researched it more.”

In the second assignment, students had to visit the local McDonald’s and Popeye’s to gather information about each restaurant’s layout (physical arrangement of work space) and work design (distribution of tasks among workers). Again Sherman thought many of the papers did not contain enough specific information about those aspects. Some students expressed frustration at not being able to identify differences between the restaurants, though there *were* differences that some students found.

Clearly, many complex issues were at stake in these difficulties with gathering sufficient specific information. We focus, however, on the teacher’s methods and students’ strategies that appear to have contributed to them. Throughout, we read the data in terms of students’ success in adopting the business decision-maker role that was Sherman’s central expectation.

TEACHER’S METHODS AND STUDENTS’ STRATEGIES

Sherman’s Language on the Assignment Sheet

For the stadium paper, one factor contributing to difficulties with information gathering seemed to be Sherman’s language on the assignment sheet. To understand the sheet, we need to know something of Sherman’s goals for this first assignment as he articulated them in class and in interviews with Walvoord:

- To introduce students to business decision-making processes—particularly decisions about where to locate one’s business.
- To capture students’ interest.
- To show students how business decision-making processes can be applied in “real world” situations.
- To present students with a business decision that forced them to apply the textbook discussion to a new setting.
- To allow students to draw in part upon their current knowledge so that they would not have to spend large amounts of time reading about an unfamiliar business before they could make decisions about it.

- To give students practice in the conciseness required in business writing.

To meet these goals, Sherman constructed and gave to his students the stadium assignment, which he called "Analytical Assignment 1" (see Figure 3.1).

We will return to this assignment sheet to discuss various difficulties. For now, we only want to point out that though Sherman mentioned the media as a relevant source of information, he restricted the word *read* only to the textbook, and he told students to consider the information they had *heard* mentioned. Sherman assumed, but did not specifically state, his expectation that students would go to the library if memory was not sufficient for their needs and gather information as professionals-in-training.

Students' Strategies for Using the Assignment Sheet

The Assignment Sheet as "Recipe"

We have said that difficulties arise as part of a complex interaction between teacher and students. In this case, Sherman's miscues on the assignment sheet were exacerbated by the way students actually used it. Students in all four classes typically used the assignment sheet as a kind of recipe for completing the assignment. The sheet seemed often to supersede other models or instructions given in class or remembered from other situations. Students usually kept the assign-

Analytical Assignment 1

The newspapers and television bring up the need for a new stadium to replace Memorial Stadium almost every week. Several reasons are given each time the subject is brought up, and each time the story is discussed, a different location is proposed.

Consider the factors you have heard mentioned in the past year or so, read the text chapter on location of facilities, and present, in 250 to 300 words, your choice of location, either as a real site or an ideal imaginary place.

The justification of the site you choose may involve some choice as to the type of stadium you foresee, and it is fair to mention this, but center your presentation on the locational choice.

Your paper is to be typed and double spaced, and is directed to the members of your class, rather than to the decision makers.

Figure 3.1. The stadium paper assignment.

ment sheet beside them as they composed, consulting it frequently, especially when they felt confused. They tended to see themselves as following step-by-step the explicit instructions contained in it, and they often interpreted it very literally. We have no records of students asking themselves what were the teacher's broad intentions or larger goals, or asking, "I wonder whether the teacher really intended this to be read as I'm reading it?"

An example of the way in which the assignment sheet circumscribed the task is provided by a student we call Kurt Larson, who wrote in his log,

[I] experienced frustration [because] my paper is very vague. I don't know enough about possible sites for the stadium to interject that into the paper. At least I'm making a full effort.

A "full effort" seemed to him not to include going to the library to get needed information—that wasn't part of the assignment as Larson saw it. For the final term paper, however, Larson, like every other student in the class, went to the library.

We located within the situation a number of cues that *could* have led students to act like business managers-in-training, going to the library for specific information they needed for an informed decision about the stadium. These other cues were found in:

- The textbook chapter, which, our data indicate, every student read at least in part. It describes a method in which the business manager gathers extensive quantitative and qualitative information about possible sites before making a choice.
- The assignment sheet's reference to "newspapers and TV" as a source of information about the stadium controversy.
- Students' own oft-expressed sense of frustration that they lacked sufficient remembered knowledge about the stadium.

Most students did not use these three cues. They put the assignment sheet's explicit instructions, as they interpreted them, ahead of everything else.

A plausible explanation, we believe, for their reliance on the teacher's explicit instructions rather than on their own felt need for information or on other cues, is that students in a new classroom setting are unsure about which cues to follow and which prior experiences to draw upon. Moreover, in all four classes, teachers warned students not to use certain models they had learned in other settings. Students writing science reports, for example, were told not to use the "transitions" their composition teacher might have emphasized as necessary to

“good” writing. In the business class Sherman emphasized that he wanted tight, condensed, but straightforward writing for a business setting, rather than the more elaborated writing students might have learned elsewhere. We wondered whether teachers’ words helped students to distrust experiences that were not directly related to the assignment at hand.

Differing Approaches to the Textbook

Declarative Knowledge versus Procedural Knowledge

Cognitive psychologists have distinguished between declarative knowledge (knowledge of *what*) and procedural knowledge (knowledge of *how*).² In Sherman’s stadium paper, the relevant declarative knowledge was knowledge about the stadium problem and about various sites. The textbook contained procedural knowledge of how to make a decision about a location problem. The students who adopted a text-processor role, however, treated the textbook’s description of the decision-making process as declarative knowledge simply to be summarized, rather than as procedural knowledge to be used as a guide in making the decisions they should have defended in their papers.

Berkenkotter, Huckin, and Ackerman (1988) have emphasized that both declarative and procedural knowledge were important to the learning process of a doctoral student in rhetoric. Our study of Sherman’s business class indicates, in addition, that undergraduate students may confuse procedural with declarative knowledge. Sherman’s assignment sheet might have helped by instructing students not just to “read” the textbook chapter “and” write the paper, but actually to use the textbook’s methods in making the stadium decision.

Oral or written exercises, too, might have helped students through the decision-making process. One of the successful teaching methods we will see in both Breihan’s history course and Anderson’s biology course is to present procedural knowledge procedurally—that is, by actually leading students through the process and methods they should use, rather than merely relying on written or oral descriptions of that process.

Use of Models from Other Settings

“Term Paper” versus “Reflective Paper”

The genre labels Sherman gave to the papers, and the models for genre that students brought into the class, also appear to have

influenced the students' difficulties with gathering information. The productivity paper was called the *term paper* by students and teacher alike, and all students went to the library—an action consistent with common notions of researching the term paper. For the first two assignments, however, Sherman's syllabus and assignment sheets used the label *Analytical Assignment*. Students did not pick up this term: No student referred to these papers as "analytical assignments." Ron Eton, who was interviewed by one of Walvoord's freshman writing students (pp. 26–27) just a few minutes after he handed in his stadium paper, described the stadium assignment as a "reflection paper" that needed no research:

Interviewer: Tell the story of how you wrote the paper.

Ron Eton: I sat down two days before it was due and wrote a rough copy. I just wrote all kinds of baloney, just everything that popped into my head. And then I came back the next day and rewrote it, um, and just—it wasn't difficult . . . It was a reflection paper. You didn't have to research anything. That's not very hard. You just sit down and write it and the thoughts come easily.

In Sherman's judgment, Eton's final paper had too much "baloney" and not enough specific information.

Sherman had never used the term "reflection paper." Eton therefore appeared to be using a model familiar to him from other settings. Richard Larson (1982) criticizes the practice in composition courses of confining library use only to the so-called "research" or "term" paper, because it gives students little idea of the importance of research to many other types of writing. Certainly Sherman's students associated library research only with the term paper and did not use it on their analytical papers in ways that would have benefitted them.

Streetcorner Debate

Some students who adopted a layperson role for the stadium paper used the streetcorner debate model, in which one draws on memory to argue a current "hot" topic. In the following think-aloud tape selection, Marsha Harrington is planning her stadium paper, and she is picturing herself as a baseball fan engaged in a debate with someone who is "standing there" arguing an opposing position. She muses:

Hardest part is to decide whether to argue as if you're arguing for your point . . . as if someone were standing there arguing for it in the city, or whether to just argue for it in Catonsville and

totally disregard the fact that a lot of the people in Baltimore would be wanting it in the city.

The streetcorner debate model appears to have been evoked for students by Sherman's phrase on the assignment sheet, *you have heard mentioned*; by his designation of peers as audience; and by his use of a hot topic that actually was being debated in dorms and bars and on streetcorners. Sherman wanted students to use the information they had gathered in the public forum but not the roles or the styles of reasoning. Some students, however, adopted the whole package. Our conclusion is that for an assignment using a familiar setting, topic, or genre label, teachers need to clarify the models they expect.

Differing Ways of Assigning Value to the Assignments

Ron Eton, who had called the stadium assignment a "reflection" paper, also commented, "that's not very hard"—a sentiment echoed in several other interviews. He also said he thought the assignment was "not a good one" because it was "too easy." Yet Sherman had intended the analytical paper to be the result of careful information gathering and reasoning, condensed into a tight, one-page argument. But the one-page length, Sherman's advice to students to recall what they had "heard mentioned," and the familiar subject all seem to have conveyed to students that the assignment was not very important.

A related notion also implied in Eton's interview is that there is "research" and then there is "baloney." Students seemed to devalue papers that were not labeled research or term papers.

Students' Strategies for Using Peers' Information

Some students relied on peers to help them gather information for their stadium papers. Usually, their conversations with peers as revealed in the students' logs, tapes, and interviews tended to generate more heat than light, and to follow the model of dorm room or streetcorner debate. However, Kelly Rice acted more like the model of professional-in-training when she sought specific information from a friend she phoned because, as she wrote in her log, the friend "knows more than I do about Memorial Stadium and its planned location." Then she took notes during their phone conversation.

Seeing how students used peers to gather information made us realize that, while in some cases peer interaction may be useful for

students, in other cases it can be a weak strategy unless they choose peers who truly do have the specific information they need, and unless they assume the role of formal interviewer—part of the larger role of professional-in-training.

Sherman's and the Students' Specialized Categories for Observation

Assuming a professional-in-training role involves observing with a professional's specialized categories. That was the task set by Sherman's McDonald's/Popeye's assignment (see Figure 3.2). Table 3.2 reveals that less successful students visited the restaurants *before* reading the textbook chapter and relied on their memories of visiting McDonald's rather than revisiting it for the purposes of analysis. They thus acted as though all types of observation were similar. They failed to realize differences between the customer's and the business professional's categories for observation. The less successful students typically observed details in such customer-oriented categories as service, menu, and food quality, but as they did not yet have the textbook's categories, they did not gather detailed information about layout and work design.

The assignment sheet (Figure 3.2) does not clearly specify a sequence of reading *then* observing at both restaurants. Particularly, it

- waits until the last sentence to mention the textbook readings,
- uses “and,” not “then” to link reading and site visits in the last sentence,
- says a visit to both restaurants “may be unavoidable,” thus introducing the possibility of not visiting McDonald's.

Analytical Assignment 2

In 250 to 300 words, compare and contrast the layout and work design of Popeye's and McDonald's restaurants on York Road. Evaluate the two on the effectiveness with which each serves its customers. A careful evaluation of what each restaurant is trying to provide should precede or begin your analysis, and such concepts as line balancing, type of processing, and specialization should be included. This is a short paper, so your writing must be efficient. Chapters 7 and 8 in the Stevenson text can provide guidance, and a visit to each site may be unavoidable.

Figure 3.2. The McDonald's-Popeye's assignment.

A revision of the assignment sheet might include making clear to students the importance of reading the chapter first, of visiting both restaurants, and of using the textbook's categories of observation.

Students' Pre-Draft Writing Strategies

We give the term *pre-draft writing* to any writing (e.g. notes, freewrites, outlines) that takes place prior to the student's first draft of at least two-thirds of what the student considered to be the paper.³ The functions of pre-draft writing and its role in students' success are important themes in our study. Table 3.2 shows that high-success students took notes at the restaurant; low-success students took notes after the visit or not at all. The notes of high-success students served several functions which were common for the pre-draft writing of successful students in other classes:

- to help the student act the role of professional-in-training rather than layperson
- to store specific information for later use in the paper

Table 3.2 Grades and Information-Gathering Strategies (McDonald's-Popeye's Paper)

Student (by verbal SAT)	Read Text, Visit Both	Both	Notes at Rest.	Visit, then Read Text	Visit Pop. Only	Notes After/No Notes
Paper Grade "A"						
570				X	X	X
510	X	X	X			
430	X	X	X			
410	X		X		X	
400	X		X		X	
n.i.*	X	X			X	
Grade "B" or Lower						
520				X	X	X
490				X	X	X
440				X	X	X
410				X	X	X
310				X	X	X

N = 11 students (focus group of 14 students, omitting 3 students about whom we were not sure we had complete data).

* No information.

- to access that information efficiently in writing the paper
- to organize and/or structure the information (many students took notes under categories or in columns)
- to identify different kinds of information or different functions for information in the paper
- to reorganize information easily

The Importance of Topic-Specific Knowledge

Recent research in cognitive psychology has emphasized the importance of domain-specific knowledge in the problem-solving process (Larkin, Heller, and Greeno 1980; Simon 1979), and the role of topic-specific knowledge on the writing of high school students (Langer 1984). In Langer's study, students in two classes were asked to generate information about a topic by free association in response to key words. The knowledge thus generated was compared to the quality of the students' school papers on the same topics. Her study suggests "a strong and consistent relationship between topic-specific background knowledge and the quality of student writing" (146). Further, she found that when students had to present a thesis, analyze it, and defend it, the degree of organization of knowledge (as opposed to simple fluency) influenced the quality of their writing (146). She suggests that when students have only fragmentary knowledge, they may fall back upon simpler writing (summary) that demands less structured knowledge, rather than more complex writing (analysis) (147). Her chapter is aptly entitled "Where Problems Start."

Our naturalistic study in a college setting supports Langer's findings with high school students. Difficulties in information gathering led to many other difficulties throughout the entire writing process, as illustrated by a log entry written by Kelly Rice. Rice was a junior with a 520 verbal SAT score who wrote a low-success McDonald's-Popeye's paper. Her weak information-gathering strategies included:

1. visiting Popeye's but not McDonald's
2. visiting before she read the textbook
3. eating but not taking notes at the restaurant

In shaping her final paper, one of Rice's contributing problems was that she had observed no differences and not very many specifics about the layout and work design of the two restaurants. Yet Sherman had emphasized in class that students should not merely compare and

contrast the two restaurants, but should formulate a "theme" and should "evaluate" which restaurant's procedures were better in meeting that restaurant's goals. Rice's lack of specific information meant that she had no basis for evaluation and therefore no theme.

Kelly Rice's Log for McDonald's-Popeye's Paper

10/15: I visited Popeye's & ate lunch there. I took mental notes about the service & the layout of the restaurant. Tonite, I read part of each of the chapters in the textbook about the areas our paper is supposed to cover.

10/18: I wrote my first draft today. I hadn't really thought about the theme until I started to write the paper. I knew basically what the body of my paper was going to be, though. We were supposed to include certain points in the paper so that is what I based my paragraphs on. I really couldn't think of a good way to end my paper. I don't want to have too much of a conclusion really, because the paper can't be any more than 1 page long. My paper just sort of stops, but I really don't know what to say exactly to make it end smoothly and keep within the 1 page limit.

The Textbook-Items-as-Points Strategy

Kelly Rice's weak information-gathering strategies yielded little specific information about layout and work design in the restaurants. So, in her paper, she strung together a pageful of paraphrases of the textbook's definitions of the various technical terms Sherman's assignment sheet had asked students to cover. Rice called these terms her "points": Rice's textbook-items-as-points strategy was linked to her lack of specific information.

We mentioned that students in all four classes often adopted "text-processor" and "layperson" roles rather than the "professional-in-training" role their teachers wanted. Here Rice's lay role as customer in the restaurants resulted in a lack of appropriate topic-specific knowledge leaving her little choice in the paper except merely to summarize textbook points in a text-processor role.

In sum, then, we have identified a number of teaching methods and student strategies that appeared to affect the difficulties with information gathering, and we have shown how information gathering was linked to difficulties in other areas and to the students' roles as they planned and wrote their papers. Sherman, after our analysis of the data, wrote a piece called "What It All Meant to Me," in which he concluded,

Our research, as it progressed, made me aware of several aspects

of my assignments and grading and of my students' perceptions and writing that had not been apparent to me before. Principal among these are that the length of the assignment and the way I present that assignment to students has a strong influence on the importance that they attach to it, the care they take with it, and the depth of their research.

DIFFICULTIES WITH CONSTRUCTING THE AUDIENCE AND THE SELF

THE NATURE OF THE DIFFICULTIES

Aristotle used the term *ethos* to refer to the writer's creation of self, and others have noted that both the self and the audience are created by the writer through features of the written text.⁴ In our view, the writer's creation of self (or *ethos*) and of audience are linked to the roles students adopt for their work in class and the roles students envision for their teachers and classmates. Students in all four classes experienced difficulties with constructing the audience and the self in their papers, but we limit our discussion to those assignments where students were asked to address a peer audience in addition to their teacher. The largest number of the teachers' assignments were of this type, and students' difficulties with peer audiences reveal some complex and interesting aspects of how they created the audience and the self.

Sherman's stadium paper assignment directed the students to address an audience of classmates. In constructing the audience and the self, students adopted two approaches that did not meet Sherman's expectations: Some wrote as baseball fan to other fans; others wrote as student text processor to teacher checking textbook knowledge.

Baseball Fan to Other Fans

Marsha Harrington, who used the model of streetcorner debate to plan her stadium paper, failed to meet Sherman's expectations because she created her self and her classmates as baseball fans rather than professionals-in-training, as Sherman had wanted. Here is part of her final paper:

Catonsville is the best location because it is a midway point between Baltimore and Washington. Neither the Baltimore or Washington fans would have to drive to another city to watch

the Orioles play ball and neither would be using an outrageous amount of gasoline to get to the game.

Land purchased in Catonsville would come at a cheaper price than land bought in the city. Ticket prices, therefore, would not soar to an absurd amount, and all the fans could see their fair share of games.

Fans would not have to pay a premium to park their cars either. . . .

Notice Harrington's constant references to fans and her use of the language fans might use in conversation. But more than that, her three points are based on the assumption that her audience has only the very narrow interests of fans—gas money, ticket prices, and parking. Sherman wanted her to consider other factors, such as labor supply and wider implications such as economic impact, factors that were covered in the textbook and that were important to a balanced, managerial consideration of stadium location.

Student Text Processor to Teacher Checking Textbook Knowledge

An example of the text processor is the second paragraph of Dawn Shale's stadium paper—virtually a straight paraphrase of the textbook:

There are many factors that are involved when a business is looking at possible locations for facilities. For the typical company, there are three main factors that should be considered. The regional factors, which include location of raw materials and markets and the availability of labor. The community factors, which include development support, attitudes (pro/con), facilities and services, and regulations. Finally, site-related factors which include such issues as the land, transportation, and zoning restrictions. These factors are many of the factors that are involved in finding a location for the new stadium in Baltimore.

Shale has merely paraphrased the list of factors in the textbook, keyed to a manufacturing firm. She has not selected or created the factors that should enter a decision about a stadium. She has also ignored any audience other than the teacher checking textbook knowledge. Shale's many uses of "there are" reflect her presentational stance; her long lists enumerate textbook categories; her sentence fragments probably stem from the fact that the factors were listed in the text as individual items in a chart.

Contrast the baseball-fan and the text-processor-to-teacher papers with the paper by Kelly Rice, a student who successfully creates her classmates as businesspersons-in-training and herself as a thoughtful

decision maker. In the second paragraph of her paper, Rice sets out on the same task as Shale—to indicate which factors should be considered in choosing a stadium site:

An ideal new location should be close enough to the public so as to be accessible but far enough away from the center of the city so that there's not as much congestion in parking and traffic as there is now [at the old stadium site]. A location farther away from residential housing would surely make those homeowners happy as they won't have people parking on their lawns or making a lot of noise late at night. A new site should not take away all of the stadium's revenue from Baltimore City as that has been a loving home for the stadium for many years. [She goes on to cite other factors that are important.]

Absent are the "there are's" and the long, enumerated lists of items. Instead, Rice has chosen the factors she thinks are most relevant for the stadium.

Explicit assumption of the business-manager-in-training role is illustrated by Fritz Earhardt, who recommends a site far from the center of the city, where his emotional allegiance lies. He concludes his paper:

After looking at the proposals and matching factors, I have come to a conclusion I really dislike. . . . Do we give up profit to keep a tradition going? As a businessman I would have to say NO.

Rice and Earhardt avoid merely a lay or a text-processor role, but they do not sound like professional business consultants writing formal recommendations either. The ethos Sherman looked for was a complex amalgam. Sherman's assignment required a complex business-manager-in-training role which skillfully combined elements of other roles to create a self and an audience unique to this school's setting and this classroom's audience. In other classes, too, the assignment of a "peer" audience was a more complex requirement than the teacher had envisioned, as we will see.

Earhardt's reference to himself as a "businessman" highlights gender as a factor in students' adoption of roles and their construction of self and audience. Undoubtedly many other factors were also at work; however, this study focuses on how students' strategies and teachers' methods affected the difficulties that arose in the class as a whole, including both male and female students of various backgrounds.

TEACHER'S METHODS AND STUDENTS' STRATEGIES

The Role of Information in Creating the Self

The surprise is that Kelly Rice, whose stadium paper so clearly communicates a decision-maker ethos, is the same student who adopted weak information-gathering strategies and a text-processor role for the McDonald's-Popeye's paper. Rice's lack of information about McDonald's and Popeye's contrasts with the rich information about the stadium she gathered from memory and from a formal telephone interview with a knowledgeable peer (p. 62). Perhaps guiding students' information-gathering strategies is one way to help them assume the role and create the ethos of a professional-in-training.

The Assignment Sheet: Sherman's Language and Students' Strategies

We mentioned that the assignment sheet affected students' information gathering; it also affected their constructions of audience and self. By designating as audience for the stadium assignment "the members of your class, rather than the decision makers," Sherman wanted students to avoid the one-sided advocacy by which various neighborhoods and economic interests were attempting to influence the mayor and the city council, the actual decision makers in this case. Instead, he wanted students to use the language and decision-making methods that were being taught in the class and that would be respected by classmates who were business decision-makers-in-training. However, an inappropriate baseball fan ethos is directly traceable to the assignment sheet. We have already quoted the section of Harrington's think-aloud planning where she imagines herself "standing there arguing" with her audience in what we have called the "streetcorner debate" model (p. 60). Following that portion of the tape, Harrington's thoughts turn to the arguments she could use to support her position that the stadium should be located in Catonsville.

She opens her textbook. Temporarily, she switches to the classroom model of reasoning: her diction is more academic and she mentions a number of relevant factors from the textbook. Most of those factors should have made it into the final paper, but none of them did, because, in the next section of the think-aloud tape, she looks again at the assignment sheet and shapes her plans by its statement that

the audience is to be “the members of your class rather than . . . the decision makers.”

Now, Dr. Sherman made a note on the paper the assignment’s on that we’re directing this analysis to the class, not to the decision makers themselves, so I’ve got to keep this in mind, that I’m not trying to win over the people who are locating the stadium. I’m trying to win over the class to the stadium’s location. Now the best way to go about this is to think about the thing that affects the class themselves when thinking about the stadium and that would be their pocketbooks. They’re the ones that are paying the ticket prices and all. So I’ve got to try and convince them that moving the stadium to Catonsville won’t drive up the ticket sales—ticket prices, rather—as much as if the stadium were located in the city.

Next, Harrington plans her three fan-centered points—gas, ticket prices, and parking—for the paper reproduced earlier (pp. 66–67).

Considering only ball fans’ needs is one of the most common shortcomings of the stadium papers as a whole, in Sherman’s judgment. This shortcoming is partly due to difficulties with information gathering we discussed earlier: students simply didn’t have enough specific information to address a variety of factors, especially those that business managers would consider. Nonetheless, the narrowness of their considerations seems at least partially attributable to the ways in which students, triggered by the assignment sheet, constructed their readers and themselves.

So should teachers give up assignments that ask students to address peers? Bartholomae (1985) has maintained that assigning a “peer” audience to students is an “act of hostility” because it does not help students learn to assume the “expert” persona needed in academic writing (140). But Sherman’s intention was precisely to give students this kind of practice in writing as an expert. He wanted to construct the class as a business community and to help students practice writing to others within that community. He knew that addressing multiple audiences, each with different levels of expertise, is a common situation writers must face in business.

We believe that what caused difficulties on the assignment sheet was not that Sherman assigned a peer audience but that: (1) Some of his students did not easily see themselves and their peers as professionals-in-training, and (2) Sherman did not communicate effectively to all his students his expectation that they would do so. Our advice would be that teachers specify their expectations and help students adopt the appropriate roles.

Our chosen view of the classroom—as a place where students, under the guidance of their teachers, are learning to be competent communicators—lets us construct Harrington's story as the story of a student trying to learn an appropriate role and ethos acceptable to her teacher, and, in this case, missing the mark in certain ways. In this perspective, Sherman's language on the assignment sheet miscued the student, evoking her view of herself and her classmates as baseball fans. Certainly she and other students seemed eager to learn to be business decision makers and to adopt the roles and strategies that would meet Sherman's expectations.

It would be possible, however, with the use of other perspectives, to explore Harrington's story as a conflict of gender and power or as her struggle to reconcile various roles or selves. Each interpretation, we recognize, would allow a different insight into this very complex difficulty that occurred as Harrington and others tried to construct an audience and a self.

DIFFICULTIES WITH STATING A POSITION

THE NATURE OF THE DIFFICULTIES

All three of Sherman's assignments asked students to state a position—which stadium site or restaurant was best, or what was the best way to improve U.S. productivity. However, a number of students did not do so. In the stadium paper, for example, 16 percent of the students failed to state any position, and another 11 percent tacked on a decision that had a loose relationship at best to the rest of the paper, which was a textbook summary.

In a study by Voss and his colleagues (1983), undergraduates seemed perfectly capable of stating a position on an issue similar to Sherman's papers. The researchers, in a laboratory setting, asked ten undergraduate students ("novices") to solve orally (without recourse to written texts) the problem of how to improve Soviet agricultural productivity—a problem similar to Sherman's productivity term paper. The students' problem-solving processes were then compared to those of "experts." In Voss's laboratory setting, all ten students proposed a solution. But low-success students in Sherman's class showed a novice approach that did not turn up in Voss's laboratory setting—they did not pose any solution at all.

TEACHER'S METHODS AND STUDENTS' STRATEGIES

In light of Voss's success in getting all students to state a position, what encouraged Sherman's students not to state a position, even when they were explicitly asked to do so? Three important differences between Voss's and Sherman's settings may provide clues: (1) In Sherman's class, students functioned as students in a regular classroom, (2) they worked directly from written texts, and (3) they produced texts. Factors that appeared to contribute to students' failure to state a position were related to students' roles in the classroom and to their notions about the use and production of *written* texts.

Sherman's and the Students' Differing Approaches to the Textbook and Source Texts

Stadium and Restaurants as Examples of the Text

The students' view of the texts they used was often different from the one that Sherman wanted. When a freshman interviewer asked one of Sherman's students what had been the most difficult aspect of the stadium paper, he replied, "The hardest part was figuring out how to make the assignment fit the textbook." Many other students said in their interviews, tapes, or logs, that the stadium or the restaurants were "examples" of the textbook. Dawn Shale (p. 67), after summarizing the factors listed in the textbook chapter, wrote, "These factors are many of the factors that are involved in finding a location for the new stadium in Baltimore." After summarizing the textbook, she merely tacked on the stadium as an example.

Note Taking Focused On the Textbook

In the first two papers, students who adopted the text-processor role took notes primarily about the textbook, not about the stadium sites or the restaurants, and as they wrote their papers they continued to work closely from the textbook. They seemed to have difficulty with the notion that "real" information should or could be gathered from sources other than texts. For the productivity term paper, text-processor students focused on gathering information from library sources, using one of two strategies:

The Main-Article Strategy: Some students, rather than focusing on finding a solution to the problem, looked in the library for what one

of them called "my main article." Then they adopted the stance and arguments of that article. Some students skillfully integrated material from other sources into their main article summary, but their focus still remained on processing texts.

The Stretch Thesis Strategy: The second strategy was to combine a number of library sources and then compose a very broad thesis to cover the sources. The thesis might read something like, "Problems in productivity are caused by A, B, C, D, E, and F, and should be addressed by doing G, H, I, J, K, and L." This "stretch" thesis could expand infinitely to incorporate the various sources that students found, and it related the various sources in a loose, additive fashion. This approach was more creative and less anchored to a single text than the main-article strategy, but the student still seemed primarily focused on synthesizing texts and not on deciding what to do about productivity.

Students' Use of Models from Other Settings

Students who stated no clear position in their productivity term papers appeared to draw on familiar notions of what a term paper or research paper was: notions that did not include independent decision making about a problem. Schwegler and Shamoon (1982) have suggested that students believe the research paper to be primarily informational, not argumentative or analytical. "The paper is viewed as an exercise in information gathering, not an act of discovery" (819). Applebee (1984) found that in most high schools he studied, writing most commonly tested the ability of students to recall or transcribe newly acquired information. When Flower (1990), with deliberate vagueness, instructed students in a freshman reading and writing class to write a "research paper," many students generated plans merely to summarize text or to review and comment on texts—evidently calling on models of the research papers they had used in other settings (44–47). The data from Sherman's class suggests that when a teacher in a discipline-based classroom gives direction for a specific task, students may employ models from other settings if they do not fully understand, or cannot use, or do not consider it advantageous to use, the new models they are being taught.

Sherman's Use of Familiar Topics and Settings for an Assignment

Despite some students' failure to state positions, one teaching method that seemed to help other students adopt the decision-maker role was

selecting a “hot” topic, like the stadium site, that was the subject of debate in the students’ familiar environment outside the class. The student data reveal students getting involved and interested in selecting and defending a stadium site. Though the question “Which stadium site did you choose?” was not on the list of questions the freshman student interviewers were to ask, many interviewers added that question, and with great interest.

In one taped interview, a text processor who had not announced a decision at all in her stadium paper, but had skillfully summarized the textbook, was asked by her freshman interviewer, “Which site did you pick?” Her answer was “hmm.” When asked again, she hem-hawed a bit and finally named a site, hiding from her interviewer the fact that she had written a paper on the stadium and not named a site. Clearly, in the peer environment created during the interview, if you’re going to talk about the stadium, you state your position—which site are you defending? However, if students merely adopted the layperson role of streetcorner arguers defending their chosen positions, problems arose, as we have already seen in our discussion of ethos, and as we will now see further as we examine just *how* students who stated positions went about arriving at them.

TWO INTERRELATED DIFFICULTIES: USING DISCIPLINE-BASED METHODS TO ARRIVE AT (AND SUPPORT) A POSITION; MANAGING COMPLEXITY

THE NATURE OF THE DIFFICULTIES

Sherman’s Expectations

Using discipline-based methods of reasoning and managing complexity were inextricably linked in Sherman’s class because a major function of the methods he taught was to manage the complexity of business decisions. Sherman’s version of the five tasks of good/better/best reasoning (p. 12) appeared in his expectations that students would use the define/analyze/prescribe rubric. He also expected that his students would use “factor rating”; would treat the define/analyze/prescribe process as recursive; and would link the definition, analysis, and prescription. We will explain each of these expectations.

Factor Rating

Factor rating, as explained in the textbook chapter that students read for the stadium paper, helps the decision maker perform the five tasks

of good/better/best reasoning. To conduct factor rating, one first identifies the important factors that will comprise the definition of "good" (Task 1). Individual feelings and values and an element of rationale-building (Tasks 4 and 5) enter the process as the student decides what factors he or she thinks are important for the particular situation. For the stadium site the student might decide to consider taxes, transportation, availability of raw materials, and so forth. The student then assigns to each factor a percentage of the total weight. For the stadium, the student might decide that taxes will weigh 10 percent, transportation 40 percent, raw materials 2 percent, and so on. The sum of all weights must equal 100 percent.

Next, the student analyzes each site (Task 2), assigning a number from 1 to 100 for each factor in that site. Camden Yards might have excellent transportation, so it would get 100 points in that category. Catonsville might have middling transportation so it would get only 50 points in transportation. This procedure offers a way of "seeing" the site and concentrating only on the factors one has chosen, thus controlling the otherwise endless flood of information one might collect about a proposed site. The resulting chart brings the student's definition of "good" and the information about sites into disciplined relationship with one another so that a single judgment can result (Task 3). A factor rating chart for the stadium might resemble Table 3.3.

To make a judgment (Task 3), the student multiplies the number of points given to each factor by the percentage awarded to that factor (listed on the top line) and calculates a final score for each proposed location. To get Catonsville's score on transportation, multiply 50 x .40. Add all the scores together to get a total score for Catonsville. The location with the highest total score is the one that best fits the definition of "good" that was established by choosing factors and their weights.

Sherman did not necessarily expect students to use factor rating formally in their stadium papers, but did expect them to select relevant

Table 3.3 Factor-Rating Chart (Stadium Paper)

	Taxes	Transportation	Etc.
Percentage awarded ^a	10%	40%	Etc.
Catonsville (points) ^b	80	50	Etc.
Camden Yards (points)	40	100	Etc.

^aWeights of all factors must equal 100%.

^bAllocate maximum 100 points for each factor

factors, indicate those they believed to be most important, and then link the factors to their chosen stadium site. These three expectations were the most common topics of Sherman's comments on the stadium papers during the course, as the student strategy sequence (p. 38) revealed.

Define/Analyze/Prescribe as a Recursive Process

Sherman's way of handling Task 5—relating the solution-searching and rationale-building elements—was to see the define/analyze/prescribe process as recursive, not linear. If viewed as a linear, solution-searching process, the define/analyze/prescribe formula seems to lead from definition through analysis to prescription. However, the recursiveness of the process makes it also a rationale-building process because one may also start with a prescription and build the definition and analysis to fit. Sherman embodied this notion in an interview shortly after the course had ended:

Students' definition of productivity should have been dictated by where their paper was going, even though that sounds kind of backwards. Once you find out what you're going to be able to do in your paper, you define productivity narrowly or broadly in that context.

Linking Definition, Analysis, and Prescription

Definition and analysis, in Sherman's class, served as the needed rationale to support the students' prescription. It was not sufficient simply to summarize the textbook or to present a definition or analysis without relating that material to the decision the writer made.

Low-Success Papers

Some students fell short of Sherman's expectations for using discipline-based methods and managing complexity. The three most common types of low-success papers were (1) automatic defense of a previous position, (2) the "find reasons" paper, and (3) comparison/contrast instead of evaluation.

Automatic Defense of a Previous Position: In the stadium papers, many students automatically defended their hometowns rather than judiciously considering various sites. In other words, for Task 5 they adopted a rationale-building strategy that was not integrated with solution-searching. Early in her think-aloud planning, Marsha Har-

rington announced as a foregone conclusion that Catonsville—her own hometown—was the best stadium site. (She had lots of company in defending a hometown site, as our check of students' home addresses revealed.) Sherman had nothing against students defending their hometown because personal values might play a role in decision making, but he wanted them to keep an open mind and be guided by the decision-making methods he was teaching—in other words, to combine solution-searching with rationale-building.

The "Find Reasons" Paper: Some students only listed the reasons or advantages for their particular solutions, without considering alternatives or counterarguments.

Comparison/Contrast Instead of Evaluation: On the McDonald's-Popeye's paper, some students made decisions about what the differences and similarities were between the two restaurants, but did not make the evaluative decisions (Task 3) concerning how the restaurants' layout and work designs met the restaurants' goals.

TEACHER'S METHODS AND STUDENTS' STRATEGIES

Familiar Setting and Topic

Although Sherman's use of a familiar topic and setting for his stadium assignment helped students state a position, it also proved problematic. Marsha Harrington's automatic defense of her hometown may have happened in part because the assignment evoked a familiar issue for which many students already had loyalties. Had he given them a traditional business "case" involving an issue unfamiliar to them, they would have had to consider the wider range of evidence as a basis for their decisions.

Reading Comprehension

The Textbook's Dense Language

The dense language of some of the textbook's description of the decision-making process and students' strategies for handling that difficulty may have hindered their efforts in following the decision-making processes Sherman wanted. For example, the book's explanation of factor rating is couched in the bureaucratic language that Richard Lanham (1979) loves to hate, and that Sherman, in an interview, called "boring." It reads, in part:

A typical location decision involves both qualitative and quantitative inputs, and these tend to vary from situation to situation depending on the needs of each particular organization. *Factor rating* is a general approach which is useful both for evaluating a given alternative and for comparing alternatives. The value of factor rating is that it provides a rational basis for evaluation and it facilitates comparison among alternatives by establishing a *composite* value for each alternative that summarizes all related factors.

The textbook includes a factor rating chart more complex than the one we included for Table 3.3. Only a few students read and understood the textbook's discussion of the factor rating method and used it to reach a decision. No student constructed a quantitative chart as the textbook illustrated.

An earlier part of the chapter, however, has a simpler discussion and a clear, easily readable chart (reproduced here in shortened form) which summarized the factors that generally affect location decisions:

Factors Which Affect Location Decisions:

- Regional Factors
 - Location of Raw Materials
 - Location of Markets
 - [etc.]
- Community Considerations
 - Facilities
 - Services
 - [etc.]
- Site-Related Factors
 - Land
 - Transportation
 - [etc.]

The ease and visibility of this chart compared to the density of the factor rating explanation seems to have shaped some students' decision-making processes in problematic ways. For example, one student reported in her log that she read and highlighted the textbook chapter, reread the highlighted parts, but finally,

I found I did not understand most of what I read. I basically used a chart in the book outlining factors that affect location decisions. I took points from this chart and used them as points in my paper.

Students' Textbook-Items-as-Points Strategy

We have seen this "points" language before—when Kelly Rice lacked information and a theme about the two fast-food restaurants (p. 65). Now, again, a lack of information (the inability to comprehend the

textbook) has led a student to adopt the text-processor role, merely summarizing textbook "points" rather than using the textbook as a resource for decision making about the stadium. This story reinforces our earlier conclusions that a text-processor role is not necessarily a low-investment approach but may be the result of complex factors (p. 11).

Students' Use of Procedural Information from the Textbook

Carla Stokes's difficulty involved a complex form of reading comprehension in which she tried to *use* the decision-making process she read in her textbook. The process was explained in what to us seems clear and simple language near the beginning of the chapter, and the steps of decision making were set up in list-like form to make reading easier. In the following excerpt from one of her tapes Stokes begins to read aloud the steps of the decision-making process from the textbook (notice that the steps are a version of define/analyze/prescribe):

The procedures for making location decisions are [begins writing, working closely from the textbook in front of her] one, you determine the criteria used to evaluate the alternatives, identify the important factors, develop uh location alternatives—general, region, or community site alternatives—and lastly evaluate and make a selection [stops writing]. Um, different locations that I've heard of are. . . .

Stokes, who was well acquainted with the stadium controversy, immediately went through five possible stadium locations, jotting characteristics of each. She had stated the steps in order, beginning with definition, but her actual decision making began with the third step—developing and comparing location alternatives.

Omitting definition was disastrous for her: Since she had not first articulated the factors to consider nor weighed their relative importance (factor rating), she had no definition of a "good" stadium site, and hence no way to control the flood of things she knew about the five locations. Her discussion of the sites implied and assumed a number of factors, but the factors were not prioritized or consistently applied. Though the textbook description told Stokes how to do the good/better/best reasoning tasks, and though she attended to that information as she began to make her decision, she did not translate that description into an appropriate procedure.

Distinguishing the Decision-Making Sequence from the Organizational Sequence of the Paper

In writing her draft, Stokes tried to follow the same organization as her planning—taking each of the five sites in turn and discussing its pros and cons. Understandably, her draft got out of control. It's "too long," she said, and so she abandoned it. She seemed unable to see that her list of five sites could be viewed as a planning document which, though long, might help her in making a decision, and that her decision could be stated and defended in a paper that had a different organization and length.

No students in this class, as far as our evidence shows, produced any planning document for the stadium paper that was deliberately different from the final paper in its organization, or that was longer than what the student estimated would be the length of the final, one-page, typed paper. Flower and Hayes (1981a) have found some students whose "plans for producing a paper take precedence over any plans for exploring the topic" (54) and who "stop productive idea generation because it doesn't look like a finished paper" (56). Flower and Hayes suggest, rightly we think, that the problem lies partly in students' failure to realize that at times expert writers maintain a distinction between generating ideas and constructing a paper (56).

Text Processing as a Fallback Position

After abandoning her draft, Stokes turned to the textbook and produced a low-success, text-processor paper: a close summary of the textbook followed by a decision stuck on the end, seemingly as an afterthought unrelated to the factors she had discussed throughout most of the paper. We have earlier seen the text-processor role linked to insufficient information and a sense of not understanding the textbook. Now we see another possible factor in students' choice of that role: their inability, even in a good-faith effort like Stokes's, to make the new approach work, or to make it consonant with the other constraints (such as length) they perceived for the task.

Students' Find-Reasons Strategy for Idea Generation

A number of students began the stadium assignment with an automatic decision and then used the textbook's factor chart to help them think of reasons (advantages) for their chosen site. One student even called

the factors “reasons,” then crossed out “reasons” and substituted “factors” in her final draft. The factors that should have been used to help *determine the decision* served solely to suggest a list of advantages to *support an automatic decision* based on previous loyalties. In Voss's terms, rationale-building was not combined with solution-searching. In an interview, Sherman explained his disappointment when students automatically chose a position and then defended it merely by listing reasons or positive advantages:

If they start with a solution and reasons—the stadium should be here for these reasons—students don't have the perspective of what they're *sacrificing* in choosing that particular stadium site.

Students' Use of the “Thesis” Concept

Thirty-six percent of our focus group of students used the word *thesis* at least once in their data, though Sherman never specifically mentioned the term (he did use the term *theme* in reference to the McDonald's-Popeye's paper, however). The “thesis” term had been heavily emphasized in the freshman composition course that most of Sherman's students had taken. Three problems were sometimes linked to students' notions of thesis. Marsha Harrington, who relied heavily on her concept of “thesis” and “subs” for all her papers, reflects two of the problems—the premature automatic decision and the find-reasons strategy.

Harrington, the student who interpreted her stadium paper audience merely as baseball fans, and who automatically assumed she would defend her hometown of Catonsville, announced early her “thesis” that Catonsville was the best stadium site and immediately said on the think-aloud tape, “Then just go through and list my reasons.” She identified these reasons as “subs” or “subtheses,” a common term in freshman composition. She exhibited traits that Walvoord, as a composition teacher at Loyola, knows that teachers face in the composition classes—students' notions that generating the thesis is the first act of the writer, and that subtheses are merely reasons why the proposed thesis would be advantageous.

Student Kurt Larson illustrates a third problem—he gave the term “thesis” to the definition of productivity that opened his term paper, not seeming to realize that the thesis is not necessarily whatever comes first in the paper, but the main idea—in this case, his solutions to the productivity problem.⁵

Use of "Thesis" and Students' Success

Despite problems with "thesis" in Sherman's class, we were surprised to find that 60 percent of the focus group who received course grades of "A" or "B" used the word *thesis* at some point in their data, while none of the focus group who received "C" or below used it. That suggests several possibilities: (1) Although students have some difficulties using the concept of "thesis," it may be a useful tool for those who employ it, or (2) those who employ it may have other qualities that help them achieve success—perhaps an appreciation for organizational structures. It is also possible that (3) the frequency of the word "thesis" in the 14-student focus group has no significance, since our sample is so small.

In any case, we were reminded again that students brought with them models which they had learned in other settings—models of which Sherman, during the course, was not aware, and which might influence how students thought and wrote. The writing-across-the-curriculum program at Loyola College, partly on the basis of these findings, has tried to make all instructors aware of the thesis and subthesis terminology used widely in freshman composition classes, and to encourage both composition teachers and teachers across the disciplines to counter students' premature closure on thesis, their find-reasons strategy, and their confusion of thesis with whatever comes first in a paper, and to explain to their students how the thesis concept may or may not be useful in other classes.

Sherman's Emphasis on Defining "Good"

Sherman's emphasis on defining "good" as part of good/better/best reasoning had a strong impact, helping students to meet his expectations. His assignment sheets emphasized the importance of beginning with a definition of "good," and his definition/analysis/prescription formula made "definition" highly visible as the first necessary element. Virtually every day between the time he gave the assignment and the time it was due, he spent at least some minutes in class discussing the assignment and answering students' questions about it. The student-observers' notes and Sherman's daily class log reveal that these discussions often focused on helping students with defining "good." The textbook, too, as we have seen, described a decision-making process that began with defining what a "good" location would be. The in-class discussion on the productivity paper, as we have seen, was actually divided into definition, analysis, and prescription. All

these methods seemed influential in the fact that most students at least began their papers with a definition, as Sherman requested. In the good/better/best assignments in other classes, where the definition of "good" was much less visible, this was not at all the case.

The Assignment Sheet

Though most students included a definition of "good," problems arose as they integrated the definition into the decision-making process. Sherman expected, as we have said, the three activities of definition/analysis/prescription to be recursive, and the decision-making process to combine solution-searching with rationale-building. But in Sherman's communications to students, the recursiveness of the decision-making and the composing processes was not always explicitly separated from a linear plan for organizing the paper, in which the definition appeared first, then the analysis, then the prescription. For example, Sherman's assignment sheet for the productivity paper states:

Define "productivity" in a useful way, present a sense of why conditions exist that restrict the growth of the quantity and quality of our output, and present a strong case for an appropriate way to redirect our nation toward higher productivity.

Many students interpreted this as a chronological sequence for decision making and composing. They began by looking for a definition of productivity—any definition. Once that was "out of the way," as one student put it, they fashioned their analysis and prescription, but never came back to reshape the original definition to fit.

Structure of the In-Class Discussions

The structure of in-class discussions may inadvertently have contributed to the problem of students treating the process as linear. In the in-class discussion on the productivity paper, for example, Sherman had first asked students to generate definitions of "productivity," then to suggest causes of the problem, then to name the various prescriptions that they had defended in their papers. Sherman's blackboard list was a brainstormed list of components from various students' positions and therefore did not show the recursiveness of the process, where the writer would return to reshape the definition to fit his or her particular prescriptions.

Sherman's Emphasis on Evaluation

In the McDonald's-Popeye's paper students were to "evaluate" (a word Sherman used twice on the assignment sheet) the two local fast-food restaurants. In class, during the days when students were working on the papers, Sherman recorded in his log that he emphasized his expectations that mere comparison/contrast was not enough. He told students that they needed a theme that would evaluate the layout and work design in terms of the restaurants' goals. That language and those concepts got through to the students, at least in the sense that their class notes and logs often contain the words "evaluate" and "theme." A paragraph from a successful paper illustrates the qualities that Sherman wanted.

Brian Smith's opening paragraph states that both restaurants have the same basic goals—promptness and efficiency in serving large numbers of customers. A later paragraph discusses how well each restaurant achieves promptness and efficiency in line balancing (distributing work efficiently so that each worker is busy all the time and the product moves at maximum speed):

Line balancing at [fast-food restaurants] is very important. At McDonald's there seems to be a lot of time wasted. There are too many counter people. When they are not busy, they just stand around. . . . At Popeye's, line balancing is *more efficient*. When it is slow . . . the counter people clean the restaurant. [Italics ours]

In his paragraph, Smith does not merely compare the restaurants, he evaluates them against their goal of efficiency. Sherman's ways of emphasizing evaluation worked for Smith and others.

Students' Use of Models from Other Settings

Treating the McDonald's Paper as Comparison/Contrast

Instead of the *evaluation* that Smith conducted, however, many students on the McDonald's-Popeye's papers wrote mere comparison/contrast: The assignment sheet's opening instructions to "compare and contrast" the two restaurants may have evoked for students this familiar mode. The day after Sherman's in-class discussion of the need for finding a theme rather than merely comparing and contrasting, one of our paid student observers, who was also a student in the class, referred to the assignment in her written class record as "Comparison on McDonalds and Popeyes."

Once again, models from other settings—the “reflection” paper, the “term” paper, or the comparison/contrast paper—may be powerful influences on students’ writing and thinking strategies, overriding other instructions from the teacher.

Students’ Ways of Interrelating Different Types of Information

Moving from Comparison/Contrast to Evaluation

In addition to using models from other settings, another possible reason for students to treat the McDonald’s-Popeye’s paper as mere comparison/contrast is that they did not make a crucial distinction between a restaurant’s goals and its layout and work design. For example, Kurt Larson’s pre-draft writing on the McDonald’s-Popeye’s paper (Figure 3.3) combines in a two-columned list his observations about the restaurants’ goals and their layout and work design (line balancing and processing)—but he could not transcend mere comparison/contrast until he used the restaurants’ goals as a standard to evaluate other differences.

Thirty percent of the students also used a two-columned comparison/contrast chart like Larson’s. Though such charts helped them to line up the similarities and differences between the restaurants, again the charts did not help them evaluate the layout and work design on the basis of how well those factors met the restaurants’ goals.

Students’ Types of Pre-Draft Writing

Students’ pre-draft writing did not help them to evaluate or to use the decision-making processes Sherman wanted. Instead, as Table 3.4 for the stadium paper shows, students focused on pre-draft writing

	Popeye's	McDonald's
line-balancing	More balanced often a large backup	More balanced. the flow out frequently meets the flow in.
Specialization	more specialized	less specialized
Processing	continuous	continuous

Figure 3.3. Kurt Larson’s notes on McDonald’s and Popeye’s.

Table 3.4 Pre-Draft Writing (Stadium Paper)

Type of Writing	Number of Pre-Draft Writings
Notes on text	7
Information about sites	3
Decision-making procedures	
Factor rating	0
Freewriting*	4
Plans for final paper	
Thesis statement	1
Introductory paragraph	3
Outline	3

* Freewriting: Any list or full prose not directly based on reading/observation, and not related to an organizational plan for the paper. For a discussion of how the term freewrite has been used by other researchers, see Hillocks 1986, 176.

N = 21 pieces of pre-draft writing produced by 16 students on whom we were reasonably sure we had full pre-draft writing data. Four students produced no pre-draft writing; others produced more than one specimen.

that summarized the textbook, compared/contrasted, and organized the final paper.

What is missing are forms of writing that would facilitate evaluation and factor rating. No student used the kind of factor rating chart modeled in their textbook. For the stadium paper, such a chart might have resembled Table 3.3 (p. 75). The factors, each with its weighted importance, together form a definition of a "good" stadium site. The chart shows a visible and quantitative way to measure the characteristics of the various sites against the student's definition of "good."

Table 3.5 shows a factor rating chart for the McDonald's-Popeye's paper.

The chart distinguishes between differences in the restaurants' goals and differences in their layouts and work designs. It visibly places the layouts and work designs in an evaluative relationship to the goals.

We have seen two students who desperately needed a decision-making structure that factor rating charts could have provided. Carla Stokes made a long list of five stadium sites but had no definition of a "good" stadium to control that list, and no way of bringing what she knew about the alternative sites into disciplined relationship with a definition of "good" site. Kurt Larson merely listed similarities and differences among the goals and the other characteristics of the restaurants with no way to evaluate the differences in layout and work design in relation to the goals.

Table 3.5 Sample Factor Rating Chart (McDonald's-Popeye's Paper)

	Restaurant Goal 1	Restaurant Goal 2	Etc.
Percentage awarded ^a	%	%	%
McDonald's			
Layout:			
Line Balancing ^b			
Etc.			
Work Design			
Specialization			
Etc.			
Popeye's			
Layout:			
Line Balancing			
Etc.			
Work Design			
Specialization			
Etc.			

^aWeights of all factors must equal 100%.

^bAllocate maximum 100 points per each factor.

In sum, complex difficulties arose as students tried to use discipline-based methods and to manage complexity. The familiar stadium topic encouraged them to state positions. Sherman's emphasis on evaluation and on the role of definition appeared to help many students. However, the familiar topics and settings also suggested models of decision making Sherman did not want. Understanding and using the textbook's description of decision-making procedures proved difficult. Students confused the sequence of decision making with the organizational sequence of the paper and, accordingly, they did not produce pre-draft writing that specifically helped them with the decision-making process as distinct from composing the paper—pre-draft writing that would help them bring different types of material into disciplined relationship to one another so that a single decision could be made. Searching for a way to structure their work, some students used the notion of "thesis" from their freshman composition classes, but did not always know how to apply it. We concluded that Sherman might:

1. clarify in the assignment sheet the importance of following appropriate decision-making procedures
2. teach the decision-making process procedurally, actually guiding students through it, rather than relying on the textbook's description

3. clarify the relevance of “thesis” within his own decision-making and composing structures
4. teach modes of pre-draft writing that would facilitate decision making and that would help students:
 - distinguish between the decision-making process and the organization of the paper
 - distinguish among various types of material
 - bring various types of material into disciplined relationship to one another so a single decision could be made.

DIFFICULTIES WITH ORGANIZING THE PAPERS

THE NATURE OF THE DIFFICULTIES

Students’ choices of organizational patterns were linked to their roles and their other strategies. We have seen the text processors take textbook items as points of their papers, and the layperson baseball fans merely list advantages of their chosen sites. This section focuses on a particular difficulty not yet discussed: students who chose define/analyze/prescribe as an organizational plan often did not create the tight “fit” that Sherman wanted among these three elements.

TEACHER’S METHODS AND STUDENTS’ STRATEGIES

Sherman’s and the Students’ Differing Approaches to Definition

Sherman’s instructions on the assignment sheet to begin with a definition of productivity, and his emphasis of that point during in-class discussions, ensured that virtually all students included such a definition. Sherman specifically warned them against using a dictionary definition, and none did. However, some students treated a definition they found in a library source or their textbook like a dictionary definition, not understanding that Sherman was inveighing against using external definitions with which to shape the paper instead of deriving definitions from the context of the students’ own work.

Instead of dictionary definitions, Sherman’s assignment sheet told students to formulate a “useful” definition. He explained in class and in interviews that a useful definition was one that was “dictated by

where the paper was going." This instruction appeared to help a number of students, but many others still found it difficult to grasp this new way of deriving a definition.

After reading library sources, Kurt Larson, for example, decided that he wanted to defend the notion that raising productivity involved meeting the needs of workers rather than establishing a system that ignores their needs and morale. His definition of productivity, in Sherman's view, should likewise have focused on workers as the key. In his notes, Larson included several definitions of productivity copied or adapted from his reading; for example,

productivity is the measure of how an employee perceives the quality of the product he/she is producing and how hard he/she is willing to work to achieve that quality.

According to Sherman, "result" would be a better word than "measure," but the definition is nicely worker-centered. Unfortunately, however, Larson did not use it. Instead, he used a definition that focused on "efficiency":

Productivity is a measure of the efficiency with which a product has been produced and the extent to which that efficiency leads to the quality of the output.

Larson's analysis and prescriptions, which focused on meeting workers' needs as the key to productivity, did not therefore follow from the definition with which he had begun his paper.

After his paper had been handed in, Larson's final log entry shows his realization that he had not achieved a good fit, and that his choice of definition was one of his primary problems:

Upon reflection of the paper I don't think I ever fully grasped the right definition of productivity.

Students' Attempts to Use Transitions

Larson's paper used transitions that promised more "fit" than the paper actually delivered. He began the prescription section of his paper by stating that a close fit should exist between analysis and prescription, and also by trying to weave his efficiency-centered definition into his concern for workers:

Since the main problem lies in the efficiency of the workers, it is only natural to say that, to correct the problem it must be addressed on the same level.

After this promising transition sentence, however, Larson said on the think-aloud tape, “I can lead into how the Japanese do it versus how we do it”—and he lost his focus on the “efficiency of the workers.”

Sherman’s and the Students’ Differing Approaches to Source Texts

Sherman expected students to use source texts within their own define/analyze/prescribe framework; however, one reason Larson was so eager to “lead into how the Japanese do it versus how we do it” is that he had good notes from his source texts on the Japan–U.S. comparisons. Larson yielded to the temptation to elevate the source text’s contrast/compare mode so that it obscured the fit between his analysis and his solutions. Larson appeared to be on the verge of a better understanding of the fit that Sherman wanted, as his transitions show, but his failure to shape an integrated definition and his over-reliance on the organizational plans of his source texts prevented a full achievement.

PRE-DRAFT WRITING

Having completed our discussion of the six areas of student difficulty, we take up two topics that transcend any particular area of difficulty: students’ pre-draft writing and the effectiveness of Sherman’s draft response on the productivity papers.

We have seen that pre-draft writing served many functions in students’ writing and thinking (pp. 63–64). We have also noted that students’ organization of pre-draft writing was similar to the organization of their final papers, and thus did not help them achieve Task 3—relating information about the alternatives to the definition of “good” in a disciplined way so a single judgment could be made (pp. 85–86).

What remains to be said is that students who received high course grades did *more* pre-draft writing (Table 3.6), and they did *different kinds* of pre-draft writing from those who received low course grades (Table 3.7).

Table 3.7 shows that 80 percent of focus group students who received “A” in Sherman’s course made notes *on separate pages* about their readings or observations, as opposed to 50 percent of students who

Table 3.6 Amount of Pre-Draft Writing and Grade Success
(All Three Assignments)

Course Grade	Mean Number of Pre-Draft Writings per Assignment
"A"	3.5
"C"	1.9

Note: A pre-draft writing is one continuous piece of one type of writing, such as a set of notes from reading, an outline (together with any revisions marked on it), a new outline.

N = All "A" and "C" students from the focus group, except for one student for whom we were not sure we had full data: 5 "A" students (15 papers); 4 "C" students (12 papers).

received course grade "C." Moreover, 53 percent of "A" students created notes that had somewhere within them two or more levels of hierarchy, as opposed to 17 percent of "C" students.⁶ Sherman's "A" students also made drafts of less than two-thirds of the paper more frequently than "C" students did. Usually these were drafts of the introduction, serving to set up the rest of the paper.

The students who earned course grades of "C," on the other hand, created more of what we classified as *freewriting*—that is, lists or full prose not directly based on reading or observation and not reflecting a plan for the organization of the paper.

Hillocks's (1986) summary of research on freewriting indicates the term has been used primarily in research on teaching strategies, and is thus linked to a *teacher's* instructions to write whatever the student thinks, or to write anything the student wishes about topic X (sometimes called the "focused" freewrite). In our definition, the term freewrite refers to a *student-generated* piece of writing; nevertheless, Hillocks's findings are relevant to ours. Summarizing empirical research, Hillocks contrasts the mixed results of teaching freewriting with the more uniformly positive results of teaching "inquiry strategies"—that is, more focused exercises designed to guide students through a specific type of inquiry process. He speculates that the studies "point to a hitherto largely unrecognized aspect of the composing process—the ability to process data using strategies required by particular kinds of discourse" (186). Our study appears to support that hypothesis. Sherman's high-success students used more structured forms of pre-draft writing. Freewriting did not help Sherman's students do the five tasks necessary to good/better/best reasoning, particularly Task 3—bringing ideas and facts about a problem and its alternative solutions into a disciplined relationship to one another and to the decision maker's

Table 3.7 Types of Pre-Draft Writing and Grade Success (All Three Assignments)

Course Grade	Underline Reading	Notes on Reading and Observation ^a	Freewrite ^b	Outline	Draft of Less Than Two-Thirds of Paper
Percentage of Papers That Used Each Type of Writing					
"A"	33	80 (53) ^c	13	33	33
"C"	33	50 (17) ^c	50	33	08

^aAny note directly based on the text or scene observed and written on separate pages (not margins of the reading selections).

^bList or full prose not directly based on reading/observation and not reflecting a plan for the organization of the paper.

^cA note that, somewhere within it, delineates two or three levels of hierarchy by, for example, indenting or numbering subordinate points.

N = All "A" and "C" students from focus group, except for one student for whom we were not sure we had full data: 5 "A" students (15 papers), 4 "C" students (12 papers).

definition of "good." For that task, students needed more disciplined forms.

Further, we have suggested that neither outlines nor drafts of the paper help with Task 3 in complex situations as effectively as would forms like the factor rating chart we discussed earlier, forms which no students in Sherman's class produced. In the next chapter, we will see how high-success students in Breihan's class produced such forms of pre-draft writing.

SHERMAN'S RESPONSE TO DRAFTS

After having attended a workshop in writing across the curriculum the previous summer, Sherman initiated in this class his own written response to each student's draft of the productivity paper. He wrote marginal comments primarily concerning content and organization, occasionally circled grammar and punctuation errors he noticed, and wrote an end comment of, typically, a few phrases or sentences. Students then revised the papers to receive their final grades. With 44 students each producing an eight- to ten-page draft, Sherman's responses involved a significant time investment for both himself and his students. One of Sherman's questions as we began our research was, "Was draft response worth my and my students' time?"

One conclusion we drew from our study of Sherman's class was that giving draft response on the earlier stadium and restaurant papers rather than on the last paper might have better served Sherman's goal of getting his students involved in the complexity of business decision making. One reason is that students could then benefit in later papers from Sherman's draft response and his encouragement of revision. Second, working from observation and from media accounts in the earlier analytical assignments was more difficult, more challenging, and also more akin to actual business problem solving than using library sources, as for the productivity term paper, where many students paraphrased heavily from print sources.

We also learned that students did pay close attention to Sherman's responses on their drafts: In a sample of twenty papers, 96 percent of Sherman's meaning-changing suggestions resulted in some sort of revision by the student.⁷

Table 3.8 shows that in our sample, 82 percent of Sherman's meaning-changing comments resulted in a student revision that improved the paper.⁸ In their improvement of their papers there was no meaningful difference between students who earned course grades of "A" and course grades of "C."

Our way of measuring the improvement of the draft as a result of Sherman's comments puts teacher response and student revision into an admittedly narrow frame that Herrington (1988) has called "stimulus-response." That students could improve a draft in response to

Table 3.8 Sherman's Meaning-Changing Comments and Student Improvement (Productivity Paper)

	Percent of Total Comments
Improvement	
Revised as asked	38
Revised at a lower level than asked	27
Deleted	17
Total	82%
No Improvement	
Revised at a lower level than asked	10
Deleted	04
No change	04
Total	100%

N = 20 papers (10 from focus group; 10 representing a range of course grades).

Sherman's comments does not therefore indicate what they learned from the experience. In a previous study of a business class taught by another teacher at Loyola, Singer and Walvoord (1984) found that when business students revised case analyses after teacher response, they improved their ability to write case analyses on their own. Even more broadly, Herrington (1988) has noted that in the classroom she studied, peer review changed the power relationships in the class, giving greater authority to students. In sum, then, our report on the improvement of the papers presents only one aspect of the multiple effects that draft response may have in the classroom.

SHERMAN'S AND WALVOORD'S CONCLUSIONS

In this chapter, we have discussed how Sherman tried to help his students learn to adopt the role of professional-in-training, to "get involved in the complexity of business decision making," rather than merely play the role of text processor or layperson. We have discussed the six areas of difficulty that we constructed from our data. We have explored how difficulties were influenced by the teacher's methods and students' strategies. We have examined students' pre-draft writing and their responses to Sherman's comments on their productivity paper drafts.

Our studies showed us that the writing-across-the-curriculum workshop had been only a beginning, and that effective teaching for Sherman had to be based on his knowledge about his own students and his own classroom. Our collaborative study was a powerful impetus for change for both of us—Sherman in teaching business and Walvoord in teaching composition. We were strongly impressed by the usefulness of considering the roles that we expected from our students, that we modeled for them, that we helped them assume. We concluded that Sherman's ways of treating students as decision-makers-in-training during his in-class discussions, and his choice of familiar "hot topics" such as the stadium helped his students act as decision makers. Also, there were positive gains from Sherman's modeling of the define/analyze/prescribe rubric, and his emphasis on definition and evaluation. Sherman's draft response we judged well worth the time he and his students spent.

Further, we learned how students used his assignment sheet, how they approached textbooks and source texts, how they assigned value to his assignments, how they used peers, how they arrived at and

used categories for their observations, and how they defined themselves and others. We were surprised at the extent to which they used models from other settings, including the "thesis" concept. Particularly, we wanted to help them avoid some strategies that were not helpful—their textbook-items-as-points strategy, their equation of the sequence of decision making with the organizational sequence of the paper, their "find reasons" strategy, their reliance on a textbook chart to find reasons, their linear decision-making process. We wanted to help them create a "fit" between the various parts of their papers and expand their strategies for pre-draft writing. After our analysis of the data, we believed that the most important thing Sherman might do to help his students was to expand and clarify his assignment sheet, to institute better guidance for students at the beginning of the writing and thinking processes, and to help them use procedural knowledge.

In her composition classes, Walvoord has tried, since our study, to suggest to students what features to look for, what questions to ask, and what common pitfalls to avoid, as they enter classes in other disciplines. Walvoord has tried to address some of the uses and limitations of the thesis concept in other settings and to show students that definitions may in some instances be shaped to fit the demands of a particular argument or problem.

In a class of students that represented different genders, backgrounds, test scores, learning styles, and interests, our study led us to believe in the power of teaching to help students become competent communicators in the community of the classroom, the discipline, and the academy. Our investigation of the "difficulties," we believe, has helped us and our students to bridge the distances that separate us and to form a community of scholars.

Notes

1. The five tasks for good/better/best reasoning are:
Define "good" so as to accommodate a number of variously weighted factors and address the issue of "good for whom?"
Observe and analyze causes of the problem, aspects of the situation, and/or alternative solutions to the problem.
Bring the information into disciplined relationship with the definition of "good" so a single judgment can be made.
Integrate values/feelings with reasoning so as to reach a defensible position.
During the process, conduct simultaneously the processes we term "solution-searching" and "rationale-building" (see pp. 12–13).

2. Bransford et al. 1986; Perfetto, Bransford, and Franks 1983; Simon 1979; Greeno 1980; Larkin, Heller, and Greeno 1980.

3. Our term encompasses what Rohman (1965) terms "pre-writing"; however, we want to avoid the confusion of giving that term to the actual writing of notes and plans.

4. Aristotle 1954, pp. 1377-1378; Ede and Lunsford 1984; Ong 1975; Park 1982.

5. McCarthy's 1987 study, which follows a single Loyola College student through freshman composition and successive courses into his sophomore year, also illustrates some difficulties one student faced in trying to transfer to later courses what he had learned about thesis and subs in freshman composition.

6. Kennedy's 1985 study is similar: three college students who were "fluent readers" took more notes on their reading in preparation for writing a paper than three "not-so-fluent readers."

7. The sample, which included the ten focus-group students who revised their productivity papers plus ten other students with a range of course grades and paper grades, was analyzed as described on pp. 40-41.

8. Using the same 20-student sample described in Note 7, we analyzed whether Sherman's meaning-changing comments had resulted in student revisions that improved the paper. We used the analytic technique described on p. 41. Sherman's comments on the revised paper usually indicated whether he thought the student had improved the paper. When Sherman did not comment, Walvoord made a judgment based on her knowledge of Sherman's expectations and his comments on the other papers.