

2 Research Theory and Methods

Lucille Parkinson McCarthy
University of Maryland Baltimore County

Barbara E. Walvoord
Loyola College in Maryland

In this chapter we (the research team) present the theoretical framework and research methods of this naturalistic study of students' writing in four classrooms. We begin by describing ourselves and our student informants. We then discuss our inquiry paradigm and research assumptions, our assumptions about classrooms, and our methods of data collection and analysis. Finally, we explain our ways of working as a team and our ways of assuring the trustworthiness of our findings.

THE RESEARCHERS AND THE STUDENTS

All four teachers on our team whose classrooms we studied:

- had participated in at least one writing-across-the-curriculum workshop of at least 30 contact hours before the study of their classrooms began
- had subsequently presented or published on writing across the curriculum (Gazzam [Anderson] and Walvoord 1986; Breihan 1986; Mallonee and Breihan 1985; Robison 1983)
- were experienced teachers who received excellent evaluations from their students and colleagues
- held a doctorate and had published in their fields
- were in their 40s
- had been in their positions at least five years
- were tenured
- had been department heads (except Anderson)

Walvoord asked these four teachers to collaborate because she judged them to be interested in their students, open to new ideas, and sufficiently self-confident to feel comfortable with her visits to their classes.

The team and most of the students are white and from middle- or working-class backgrounds (Table 2.1). Most students were between the ages of 18 and 22 and were enrolled full-time in undergraduate day classes. Within that sector of American higher education, however,

Table 2.1 Characteristics of the Classes in the Study

	Sherman	Breihan	Robison	Anderson ^a
Institution		Loyola College	College of Notre Dame	Towson State U.
Type		Catholic liberal arts with strong business	Catholic liberal arts	Public comprehensive
Location		Baltimore City		Baltimore Suburb
Enrollment ^b		3876	691	11,086
Mean verbal/Composite SAT, entering freshmen		516/1064	444/918	437/911
Course	Business 330 Production Management	History 101 Modern Civilization	Psych 165 Human Sexuality	Biology 381 Biological Literature
Year of data collection	1985	1985	1986	1983, 1986
Level	Jr./Sr.	Fr./Soph.	Fr./Soph. ^d	Jr./Sr.
Course enrollment ^c	44	27	30	13
Mean verbal SAT, course takers	460	542	448	n.a.
Female	52%	56%	100%	54%
Minority	7%	4%	23%	15%
ESL	2%	0	17%	8%
Age 24+	7%	0	10%	0

^a Anderson's 1983 and 1986 classes are the same number of people; the same percentage of female, minority, and ESL students, and those students covered the same age range.

^b Full time equivalent, total undergraduate and graduate school.

^c Enrollment figures are for year of data collection.

^d Course was planned for freshmen-sophomores, but due to unusual circumstances, primarily juniors and seniors enrolled.

our discipline-based teachers and our students represent a range: The teachers are two men and two women who teach in three different types of institutions: a large, comprehensive state university; a small, Catholic women's liberal arts college; and a middle-sized, Catholic coeducational college with a large business program. Both teachers and students represent the four major undergraduate discipline areas: business, humanities, social science, and natural science. The classes under study ranged from freshman to senior and included required CORE, elective, and majors courses.

OUR INQUIRY PARADIGM AND RESEARCH ASSUMPTIONS

Our questions, as we began the study, were broad ones about students' thinking and writing. They were the general questions that Geertz says are traditionally asked by ethnographers facing new research scenes: "What's going on here?" and "What the devil do these people think they're up to?" (1976, 224). We chose the naturalistic inquiry paradigm to ask those questions because it is based on the following assumptions regarding:

1. *The nature of reality*: Realities are multiple and are constructed by people as they interact within particular social settings.
2. *The relationship of knower to known*: The inquirer and the "object" of inquiry interact to influence each other. In fact, naturalistic researchers often negotiate research outcomes with the people whose realities they seek to reconstruct; that is, with the people from whom the data have been drawn. Research is thus never value-free.
3. *The possibilities of generalization*: The aim of a naturalistic inquiry is not to develop universal, context-free generalizations, but rather to develop "working hypotheses" that describe the complexities of particular cases or contexts.
4. *Research methods and design*: Naturalistic researchers use both qualitative and quantitative methods in order to help them deal with the multiple realities in a setting. Their research designs therefore emerge as they identify salient features in that setting—features identified for further study. Naturalistic researchers understand themselves as the instruments of inquiry, and acknowledge that tacit as well as explicit knowledge is part of the research process.¹

We assume, then, that research questions, methods, and findings are socially constructed by particular researchers in particular settings for particular ends (Harste, Woodward and Burke 1984). We recognize that our own research practices were shaped by our discipline-based perspectives, by our perspectives as teachers, and by our desire to construct findings that would help the teachers of the four classrooms we studied improve their teaching. Our perspectives shaped, for example, our decision to focus on students' difficulties in meeting teachers' expectations and on those aspects of the classroom context—writing strategies and teaching methods—that were, we felt, most amenable to the teachers' influence.

Because we are aware that our research findings were shaped by our perspectives, we "reflexively" explain wherever possible our own as well as our informants' knowledge-construction processes, our research assumptions, our decisions about data collection and analysis, and the collaborative procedures through which we arrived at our findings (Latour and Woolgar 1979, 273–286).

Because knowledge in this collaborative study was constructed by multiple researchers with varying perspectives and varying relationships to the classrooms under study, we have been careful to define these perspectives and to have all team members tell at least parts of their stories in their own voices. (The relationship among the individual voices and the "we" voice in each coauthored chapter differs somewhat and was worked out separately by each pair.) This type of coauthored, multivoice, reflexive discourse has been called "polyphonic," and we believe it best reflects the intersubjective, "constructive negotiation" involved in producing our research findings (Clifford 1983, 133–140). Thus, we have worked to adequately represent the multiple and evolving realities of our students and ourselves as we constructed our various types of knowledge and texts.

OUR ASSUMPTIONS ABOUT CLASSROOMS

Recently, several scholars have attempted to describe the dominant schools of thought currently represented in composition studies. They have discussed those schools in terms of their theories of writing, their approaches to research and pedagogy, and their social and political implications (Berlin 1988; Faigley 1986; Nystrand 1990). Of the three major perspectives identified by Faigley—the expressive, the cognitive, and the social—our study clearly belongs in the latter category.

Our understanding of students learning to write in academic settings

is underlain by theoretical assumptions concerning language use from sociolinguistics (Gumperz 1971; Heath 1982; Hymes 1972a, 1972b, 1974), literary studies (Fish 1980; Pratt 1977), and philosophy (Rorty 1982). A central assumption is that language processes must be understood in terms of the contexts in which they occur. In this view, writing, like speaking, is a social activity that takes place within speech communities and accomplishes meaningful social functions. In their characteristic “ways of speaking,” community members share accepted intellectual, linguistic, and social conventions which have developed over time and govern spoken and written interaction. Moreover, “communicatively competent” speakers in every community recognize and successfully employ these ways of speaking largely without conscious attention (Hymes 1972a, xxiv–xxxvi; 1974, 51). Newcomers to a community learn the rules for appropriate speaking and writing gradually as they interact orally and in writing with competent members, and as they read and write texts deemed acceptable there. We chose to see the classroom within this theoretical framework.

In our view, when students enter a classroom, they are entering a discourse community in which they must master the ways of thinking and writing considered appropriate in that setting and by their teacher. We also understand their writing to be at the heart of their initiation into new academic communities: it is both the means of discipline-based socialization and the eventual mark of competence—the mark, that is, of membership in the community.

As students write, they must integrate the new ways of thinking and writing they are being asked to learn with the already-familiar discourses that they bring with them from other communities. As Bruffee puts it, students “belong to many overlapping, mutually inclusive knowledge communities” (1987, 715). We believe that students may experience conflict among these ways of knowing, as old and new discourses vie for their attention.

Further, we understand reading, as we do writing, to be an interactive language process that is at once individual and social. Readers, like writers, construct meanings as they interact with written texts and with other aspects of the social situation, such as their explicit purposes for reading and the implicit values of the community (Pratt 1977; Rosenblatt 1978).

Teachers, then, construct meanings as they read students’ writing, and the success of a student’s work reflects such aspects of the reading context as the teacher’s current relationship with the class and that student, the meanings and values (tacit and explicit) that the teacher assigns to the text, and the expectations (tacit and explicit) that the

teacher has for text content and structures. The success of students' work also depends on the teacher's expectations about the role the student writer should assume in the piece. Sullivan (1987), studying the "social interaction" between placement test evaluators and the student writers they infer from those essay tests, observes that "readers construct writers as well as texts" (11).

Similarly, we view the student's writing development as a social process best understood not only as occurring within an individual student, but also in response to particular situations. We are typical of naturalistic researchers in that often we are "less concerned with what people actually are capable of doing at some developmental stage than with how groups specify appropriate behavior for various developmental stages" (LeCompte and Goetz 1982).

These theoretical assumptions about the classroom have shaped our choices of research questions and methods, and thus, ultimately, they have shaped the construction of our findings and interpretations.

DATA COLLECTION METHODS

Because we understand writing to be a complex sociocognitive process, we worked to view it through multiple windows. We assumed that data collected from a variety of sources would give us such multiple windows and would help us construct as full a view as possible of students completing their assignments in each of the four classrooms. Our aim was to investigate the entire classroom community, but within that community to focus on a single "salient event"—the writing assignment—the outcome of which was crucial to the life of the community (Spindler 1982, 137). Because our initial research questions were broad, we collected a wide range of data about students' thinking and writing and about the classroom context. This, we reasoned, would be the basis for the subsequent narrowing of our research questions and foci at later stages of the project.

CHOOSING THE "FOCUS" ASSIGNMENTS

In the history and business classes, we tracked students' progress across the entire semester, and thus we asked them for process data on *all* their written assignments. In the biology and psychology classes, we asked students to collect data about their writing processes only

for a single assignment that their teachers judged central to achieving their course goals. In all four classes we collected data about the classroom setting for the entire semester.

EXPLAINING DATA PRODUCTION TO STUDENTS

We wanted to separate students' data production from their concerns about their grades and to minimize the possibility that they might try to produce data that they thought would please the teacher. Thus, Walvoord, rather than the classroom teacher, initially explained the research project to students and collected all data from them, except drafts or final papers normally given to the teacher. Both Walvoord and the teacher assured students that the teacher would not see any student data until their final grades for the semester had been turned in.

Before the teacher explained to students the writing assignment that the research would focus on, Walvoord visited the class and did the following:

1. Described the research in very general terms and told students, "We are interested in everything you do and think about as you work on the assignment."
2. Distributed a list of all the kinds of data we wanted from them, explaining each type and answering their questions.
3. Conducted a training session for those students who would be making think-aloud tapes.
4. Walvoord then recruited two student volunteers who were enrolled in class. These students, for a stipend of \$25.00, agreed to act as observers for each class session of the semester. After class she instructed these observers and gave them sheets to fill out about all subsequent class sessions during the semester. These students also submitted the same data as their peers.
5. Walvoord reemphasized to students that they should record in their data what they actually thought and did, and that they should work in their customary ways and places.

When Walvoord had finished her initial presentation to each class, the teacher explained that he or she supported the research and had slightly revised the course syllabus to allow for the extra time students would spend collecting data.

The revision varied from course to course. In the psychology and

business classes, a short, end-of-semester paper had been omitted to compensate for time spent generating data. In the history class, no papers were omitted, but students received extra points for handing in data. In the biology class, no compensation was made or announced; students were simply asked for their help. (Because that biology class was identified as "writing intensive," the students expected to focus on their writing.)

After her initial visit, Walvoord attended each class several times to observe and to collect data. When she was not present, the teacher answered students' questions about data collection. At the next session after Walvoord's explanation, some students in each class expressed fears or reluctance about the data collection, especially about the think-aloud taping. In each case, the teacher reiterated his or her support for the project and urged students to give it a fair trial. In the business class three students came privately to the teacher or to Walvoord after they had tried think-aloud taping and asked to be excused because they found it too disruptive. We granted their requests.

In the description of our data sources which follows, we have divided the data into two categories: data generated by students and data generated by teachers.

DATA GENERATED BY STUDENTS

Data generated by students is summarized in Table 2.2. In the business, history, and psychology classes, 100 percent of students submitted some usable data. In the biology class 85 percent of the students did so.

Students' Logs

From all students, we requested a writing log in which they would record their activities and their thinking as they worked on the assignment. Activities included planning, gathering information, reading, note making, consulting with other people, drafting, and revising. Sherman's business students and Breihan's history students were asked to keep logs for the entire semester because we were tracking student development in their classes. Robison's psychology students and Anderson's biology students were asked to keep logs only during the weeks in which they worked on the focus assignments.

When Walvoord initially explained the logs, she asked students to date each entry and address the following questions:

Table 2.2 Data Generated by Students

Data	BUS	HIST	PSYCH	BIO
Logs	36	74	67	82
Plans/drafts	73	70	100	100
Final paper with teacher comment	100	100	100	100
Interviews by Walvoord	5	7	3	0
Peer response/peer interviews	68	89	97	100
Taped interaction with others outside of class	0	11	10	9
Paragraph describing self as writer	n.a.	n.a.	90	n.a.
Think-aloud tapes	46*	67*	77	91
Students' class evaluations	n.a.	4	100	n.a.

* Percentage of stratified sample asked to tape (about half the class: business: 24 students; history: 14 students)

N = Students who submitted usable data: 44 (business), 27 (history), 30 (psychology), 11 (biology)

- What did you do today on your project?
- What difficulties did you face?
- How did you try to overcome the difficulties?
- How do you feel about your work at this point?

The logs helped establish a chronological scaffolding within which other data, more detailed and specific about certain parts of the writing process, could be placed. We recognized, with Tomlinson (1984), that retrospective accounts in the logs are limited by students' memories, their interpretive strategies for telling the "story" of their writing, and their consciousness that these writing logs are for the researcher. Thus, as Tomlinson suggests, we included specific questions designed to keep students close to recall of the assignment they were reporting, and we urged them to write in their logs immediately after each work session. Changes in handwriting, pen color, and students' responses to those questions gave us some indication that many of them had complied with our request. Tomlinson notes that retrospective accounts provide valuable information about students' conceptions of writing. We found this to be true. The students' retrospective descriptions and reflections about each work session as recorded in their logs usually contained information about their processes at a higher level of abstraction than did their think-aloud tapes.²

Students' Pre-Draft Writing and Drafts and Teachers' Comments

From each student, for each focus assignment, we requested all final papers (including any teacher comments) as well as all pre-draft writing (including freewriting, reading and lecture notes, charts, and outlines) and drafts. We asked students to number pages, to date each piece of writing, to label their drafts ("draft 1," "draft 2"), and, in their logs and think-aloud tapes, to identify the pieces of writing they were working on. If they revised a manuscript in more than one sitting, we asked them to use different colored pens or pencils for each separate session. Most students complied sufficiently to allow the researchers to agree on the chronology of their writing activities as they wrote a paper and to match think-aloud tapes to written drafts.

Walvoord's Interviews with Students

Between three months and four years after the course was finished, Walvoord conducted open-ended or discourse-based interviews with a few students in the history, psychology, and business classes (Doheny-Farina 1986; Odell, Goswami, and Herrington 1983; Spradley 1979). She interviewed students whose data had been, or promised to be, particularly useful. Information from these interviews added to, refined, and cross-checked information from our other data sources.

Peer Interviews and Peer Responses to Drafts

In each class, for each student, we arranged at least one tape-recorded, student-to-student interview or one peer response to a draft, either during the writing of the focus assignment or on the day it was handed in. Biologist Anderson followed her usual practice of having her students interview each other in class about the experimental and composing processes they were using as they worked on their papers. She gave students a question sheet she had designed to guide these interviews. Psychologist Robison followed her usual practice of using a checklist to structure in-class peer response to the drafts. For Sherman's business and Breihan's history classes, where neither peer interviews nor peer response to drafts were normally used, we arranged for each student to be interviewed about one of their assignments, on tape, by a student from one of Walvoord's freshman composition classes.

In training her freshmen to interview the business and history students, Walvoord explained that the purposes of the interviews were to help with this project and to get information about the kinds of writing they, the freshmen, might themselves someday be assigned. She gave her students a series of interview questions to which they were to add at least three questions of their own. Then she modeled an interview for them, had them interview each other about one of their freshman composition essays, and arranged times for them to meet with Sherman's and Breihan's students.

Although we were aware that the usefulness of interview data produced by unskilled interviewers would be limited, we did get frank responses from the history and the business students and a valuable sample of student-to-student language. Further, comparisons among students were possible because in three of the four classes, virtually every student was asked on the same day, "What part of the assignment was most difficult for you?" (These difficulties, as we have said, increasingly became our focus as the study progressed.) Information from this data source, then, served to augment and cross-check information from our other data sources.

Students' Taped, Outside-Class Interactions

In their logs or think-aloud tapes, many students described out-of-class interactions with classmates, parents, or others. A few of them actually recorded these interactions. In Breihan's history class, for example, five students made tapes of their student-organized study sessions in the dorm. In Robison's psychology class, three students gave us tapes of their conversations with peer helpers (in one case a roommate, in two cases a classmate). One of Anderson's biology students made a tape of his friend, a graduate student in biology, responding to his draft. These tapes provided particularly useful information about how students gave and sought help from others and how that help served them.

Students Describing Themselves as Writers

In Robison's class, where all students were asked to make think-aloud tapes, part of their training involved their thinking aloud as they wrote a paragraph in which we asked them to tell us "something about yourself as a writer." These paragraphs were then used as data.

Think-Aloud Tapes

We asked all the students in two classes (psychology and biology) and a stratified sample of about half the students in two of the larger classes (history and business) to record think-aloud tapes whenever they were “working on” the assignment. We wanted to get think-aloud information about their entire writing process, extending as it often did over days or even weeks.

At the beginning of the semester, in each of the four classrooms, Walvoord trained students who would be making think-aloud tapes. Her instructions to the students were modeled on those suggested by Swarts, Flower, and Hayes (1984, 54). She asked them to “say aloud whatever you are thinking, no matter how trivial it might seem to you, whenever you are working on” a focus assignment. That is, they were to think aloud during their entire writing process, from their earliest exploration and planning, during reading and note taking, through drafting, revising, and editing. Walvoord asked them to tape whenever and wherever they could, and gave those students who needed them tape recorders to take with them. She told them to work as they usually did and to forget the tape recorder as much as possible.

Next, Walvoord demonstrated thinking aloud as she composed a letter at the blackboard. Finally, she asked students to practice thinking aloud as they composed, at their desks, a short piece about an aspect of the course or a paragraph about “yourself as writer.”

In order to minimize the disruptiveness of the thinking-aloud process, our instructions to the students about taping were purposely general, and did not specify particular aspects of their writing that we wanted them to talk about. We were aware of Ericsson and Simon’s (1980, 1984) conclusion that though thinking aloud may slow the thought process, it does not change its nature or sequence unless subjects are asked to attend to aspects they would not usually attend to.

Although we were aware of questions regarding the extent to which writers’ subjective testimony can be trusted (Cooper and Holzman 1983, 1985; Ericsson and Simon 1980; Flower and Hayes 1985; Hayes and Flower 1983; Nisbett and Wilson 1977), we reasoned that these tapes would afford us information about students’ thinking and writing processes that we could get in no other way. Berkenkotter (1983), who also studied think-aloud tapes made by her writer-informant in naturalistic settings when she was not present, notes that “the value of thinking-aloud protocols is that they allow the researcher to eavesdrop at the workplace of the writer, catching the flow of thought that would remain otherwise unarticulated” (167). Throughout the project we

understood that our request for tapes was, in essence, like asking our students to let us "eavesdrop" at their workplaces. More often than not, we were amazed at their generosity and hospitality.

Characteristics of the Think-Aloud Tapes

The information we got from the students' think-aloud tapes was rich and varied. Because students recorded them in various settings over extended periods of time with no researcher present, the tapes contained more types of information than do the composing-aloud protocols made in laboratory settings in a limited time period, often with a researcher present. These latter protocols generally record writers' concurrent thoughts—that is, thoughts verbalized while the writer is composing (Berkenkotter 1983; Flower and Hayes 1980, 1981a, 1981b; Perl 1979). Similarly, our think-aloud tapes contained students' concurrent thoughts as they composed their drafts, but in addition, the tapes provided us with several other sorts of information.

The first type of information was students' retrospective comments about what they had just done on the assignment and how they felt about it, what had been particularly hard for them and what they might have done differently. They also talked about their plans for further work on the assignment. At times students seemed to use this sort of monitoring of their writing processes to help them proceed.

At other times students appeared to be speaking directly to the researchers, informing us about their past or future processes, and how they felt about them. This latter situation often occurred when students had worked in settings where they could not think aloud—for example, in the library while gathering information, or in the college pool planning a paper while swimming laps. Such retrospective descriptions and analyses of their writing processes were also necessary when students found thinking aloud too distracting and had turned the recorder off.

Students were, however, able to turn on the tape recorders in many settings, giving us a third type of information: information about the physical conditions in which they worked. They turned on their tape recorders as they conducted scientific experiments, as they planned a paper while driving to school or when at work, and as they composed at home or in the dorm. Furthermore, these tapes reveal much about the affective conditions under which students work. They were, for example, distracted by personal problems, interrupted frequently by the phone or by roommates, worried about exams in other courses, or anxious about their writing ability. In addition they wrote when they were hungry, fascinated, tired, bored, or enthusiastic.

The tapes, although generally informative and useful, were not without their deficiencies. This is to be expected, since our students were trained only briefly and worked with no researcher present. From some students, we got only glimpses of their processes when we wished we could have had a steady gaze; for example, some were thinking aloud on tape when, just as things were getting interesting, they turned the recorder off. We then got from many of those students a summary of what we had missed, which they recorded later. Moreover, there were some students who never produced concurrent thoughts or useful introspection, but rather said aloud on tape only the words they were writing on the page. Nevertheless, these tapes still gave us some sense of the pace and tone of the composing session, and we used whatever they contained, along with our other data, as we worked to reconstruct our students' thinking and writing processes.

Classes differed in the number of students who complied with our request to submit think-aloud tapes. In Anderson's biology, Robison's psychology, and Breihan's history class, 67 percent to 91 percent of those who were asked submitted tapes of at least parts of their process. In Sherman's business class only 46 percent of those students we asked complied with our request. This was due, we think, to several factors:

- Sherman offered his class a short paper as an alternative to taping. By contrast, students in the other three classes had to make individual arrangements with the teacher or with Walvoord if they wanted to be excused from taping.
- Sherman's students were junior and senior business majors and thus perhaps more confident about not complying than were students in Breihan's freshman-level history class. That Anderson's junior and senior biology majors knew that their course was designated "writing intensive" may account for their high level of compliance with our request for think-aloud tapes.

In Robison's psychology class, which also enrolled juniors and seniors, the teacher habitually asked students to sign a contract stating their responsibilities within the class. In the semester of our study, she added to the contract their submission of data. We believe that the contract, together with the general ethos of the class, taught as it was within a small Catholic women's college with an honor code, contributed to the fact that 77 percent submitted tapes.

Awareness of the taping process appeared to vary widely among our students. Most students seemed, after the first few minutes, largely to forget the tape recorder's presence. One student so completely

forgot it that when his roommate entered the room, he began a conversation on personal matters and had to be reminded by his roommate to turn off the recorder. Other students seemed more aware of the tape, at times saying “excuse me” after they sneezed, or explaining directly to us that “I’m going to turn the tape off now.” In a study session in the dorm that a group of three students taped for us, one of them let out a few four-letter words, and a study mate shushed her because of the recorder. She replied with a laugh, “This is a high quality tape; it can take it,” and the study session continued.

In two of the largest classes—business and history—we asked only a stratified sample of about half the students to tape. At the end of the semester we compared the course grades of those who made tapes and those who did not, in order to see if the taping procedures had been disruptive enough to change students’ ability to write their papers at the expected grade level. We found that the final course grades of those who made recordings did not differ significantly from the final course grades of the others.

In sum, our students, as they thought aloud on tape, were self-conscious in varying degrees. But they also revealed much of what seems to be natural behavior, and they provided us with rich information about their thinking and writing processes. We concluded about our think-aloud data as Philips (1982) does about hers in her naturalistic study of law students: “Although some people assume recorders cause those recorded to alter their behavior, in fact those observed can’t do what they are there for if they change much” (202). Our students did succeed in completing their assignments for their classes as they recorded their processes for us and—at least in the history and business classes—at the expected levels of competence.

DATA GENERATED BY THE RESEARCH TEAM

Teachers’ Logs

After Walvoord and Anderson had teamed to study Anderson’s biology class in 1983, Walvoord decided to ask each of the succeeding teachers with whom she paired to keep a log during the semester of data collection so that the researchers would have a more comprehensive record of each teacher’s perspective. These logs, in which the teachers recorded their ongoing plans and reflections about class, were then compared with the student observers’ records and with Walvoord’s classroom observations.

Walvoord and McCarthy's Interviews with the Teachers

Walvoord conducted at least three hours of tape-recorded, open-ended interviews with each of the four teachers at various times before, during, and after the semester of data collection (Spradley 1979). The interviews focused on teachers' expectations for students' learning and writing, their teaching methods, the ways of knowing of their discipline, the history of the development of that particular course, and their own evaluations of the course. At times, during the many hours Walvoord spent with each teacher analyzing data and writing research reports, she tape-recorded or took notes on what they said about their students' thinking and writing, their teaching methods, or their teaching philosophy. McCarthy also observed and questioned the pairs during several of these interviews and work sessions, and at two points she independently interviewed the teachers. Her interview transcripts and notes record the teachers' continuing clarification and articulation of their expectations for their students' learning and writing, and they augment and cross-check our other sources of data about the classroom.

Teachers' Presentations to Faculty Workshops

All of the four teachers were involved at least once during the course of this project in a writing-across-the-curriculum workshop presentation to faculty members at their own or a neighboring institution. Walvoord's tapes or notes of these presentations augmented information from other data sources as we worked to establish the teachers' expectations and teaching methods.

Classroom Observations by Walvoord

In each classroom, Walvoord observed between two and five sessions spaced across the semester. From these observations she gained a sense of the classroom ambiance, the teacher's style, and the language the teacher used to talk about writing. Often these classroom observations suggested questions that Walvoord pursued in future interviews with the teachers.

Classroom Observations by Paid Student Volunteers

After our initial study of Anderson's class, we asked, in the other three classes, for two students enrolled in the class to record, on a

sheet we provided, what was done in class each day, what was said about student papers, and what difficulties students were facing in working on their current assignment. The latter was to be based on any conversations the student-recorder might have had with classmates about their work. These student-recorders also submitted the same student data as their peers.

LIMITATIONS OF OUR DATA

We used a variety of data sources, aware that the strengths of one source or method could compensate for the limitations of another. Using this triangulated approach (Denzin 1978), we viewed through a variety of windows the salient event of students fulfilling their writing assignments in these classes.

A type of information that we did not collect is information about students' lives outside the classroom. Though we did learn a good deal about the physical and affective conditions under which our students wrote, we never questioned them directly about their family lives or their families' educational history, their socioeconomic situation, their ethnic background, or their prior reading/writing/schooling experiences. We were aware that these factors have been shown to be important influences on students' writing and thinking processes—and achievements—in school (Gilmore and Glatthorn 1982; Heath 1983; Whiteman 1981). We recognized, too, that students have different learning styles, but we chose not to collect data that would allow us to identify those for individual students. Rather, we chose to focus on the writing and thinking processes of all the students in a class, assuming that the class as a whole would represent the range of learning styles and the range of students' backgrounds that usually occurs within the primarily white, middle- and working-class population who attends the institutions in which we worked.

DATA ANALYSIS PROCEDURES

When the semester of data collection in each of the four classes was over, Walvoord and the teacher together analyzed the data from that teacher's class. Data analysis took place in three stages, each stage employing different methods; some qualitative, some quantitative. We viewed each stage as part of a cumulative process during which we

further refined our questions and our research foci, each analytic method helping us understand in some further way the complex phenomena we were attempting to describe. The results of the analyses of the three stages worked together, augmenting, refining, and cross-checking one other. Our data analysis was guided generally by the work of Guba (1981), LeCompte and Goetz (1982), Lincoln and Guba (1985), Mathison (1988), Miles and Huberman (1984), and Spradley (1979, 1980).

ORGANIZING THE DATA

We placed all the data we had collected from the individual students in their own 11" × 15" envelopes, and we kept all the envelopes from a single class in a large box, along with other data about that classroom. We wanted our work with any part of a student's data to be rooted in our understanding of other aspects of that student's learning and writing and of the classroom setting.

In each student's envelope were between 10 and 549 pages of data of the types we have described above—logs, notes on lectures and readings, paper plans, drafts, tapes and transcripts of students thinking aloud and of student interviews, and students' papers with the teacher's responses—as well as any pages of notes that the researchers had made during earlier reviews and analyses of this material.

Stage 1: Interpreting Students' Writing-Process Stories

Recreating the Stories

We began our analysis by examining the data in each student's envelope in order to recreate the chronological story of how the student had produced his or her writing for the focus assignment(s) in that class. As we recreated each student's story, we drew upon all the data sources in his or her envelope, taking notes on these data and making charts or other visual representations (Kantor 1984).

The writing process stories of the students in each class on whom we had the most complete data were recreated by both members of the research pair—Walvoord and the teacher. At least half of each class was analyzed in this way. At times Walvoord and the teacher worked together; at other times they worked independently and then compared interpretations. Every student's story in all four classes, no matter how sketchy his or her data, was recreated at least once by

Walvoord, so that subsequent data analysis was always informed by our awareness of all students in that class—including the “negative cases” that called into question our analytic categories or our tentative findings about the sample (Lincoln and Guba 1985). Walvoord and her collaborators returned again and again to the envelopes of those students in which the quality of the data was particularly rich or the issues raised were particularly interesting.

Identifying Patterns and Themes

As we recreated the stories of students’ writing processes, we read and reread all of the data in their envelopes as well as data about the classroom setting, looking for patterns and themes that would help us to organize the data and to focus subsequent inquiry. It was during this stage that the students’ difficulties became a central focus for us. We also began to create categories of teachers’ methods and students’ strategies. We were guided in our theme and pattern analysis by the work of Gilmore and Glatthorn (1982), and Spradley (1979, 1980). These Stage 1 processes—reconstructing students’ writing stories and identifying patterns and themes in the data—continued throughout the study.

Stage 2: Constructing Primary Trait Scales for Students’ Papers

Although primary trait analysis was originally developed to score student papers for the National Assessment of Educational Progress (Lloyd-Jones 1977), we created primary trait scales not only to score students’ papers, but also to help the teachers articulate their expectations for successful writing on various assignments. This process also helped us to understand students’ difficulties from the teachers’ perspectives.

To construct the primary trait scale, the teachers, after the courses were finished, examined a sample of their students’ papers and identified the traits that a paper had to have in order for it to meet their expectations. They then constructed a scale for each trait, describing four or five levels of increasingly successful ways in which students’ papers exhibited these traits. This process was powerful for all the teachers, helping them explicitly to articulate expectations that had been tacit.

After the four teachers had drafted primary trait scales, Walvoord checked the scales and independently rated a sample of student papers, looking especially for traits that had remained unarticulated. If necessary, the scale was then revised.

We found that the conversations between Walvoord and her collaborators regarding the primary trait analysis often led them to insights about the teachers' tacit expectations and about students' difficulties in meeting them. Those insights were a powerful impetus for change. In subsequent semesters, the four teachers used the primary trait scales as bases for more clearly explaining their expectations to students. A sample primary trait scale is included in Appendix A.

Defining "Successful" Writing

Our definition of successful writing relies on no absolute or standard criteria, but, rather, upon teachers' judgments. Reflecting our view of reading as a context-specific act in which the reader constructs the meaning of the text, our definition of *high success* and *low success* in each class is based upon the tacit and explicit values and assumptions of the teacher for whom the student wrote the paper. A high-success or low-success paper in this study is a paper that received a high or low grade during the course and *also* a corresponding score on the post-course primary trait analysis. We expected that the two judgments would reflect similar (but not identical) values since a reading act is never exactly the same on two different occasions.

Purposes of the Scale

We used the post-course primary trait scoring of papers for three purposes:

1. To construct a judgment about the paper that took into account the students' process data—information that had been unavailable to the teacher during the course. Process data were especially helpful in evaluating whether students' uses of sources and methods of inquiry had met the teacher's expectations.
2. To allow the teacher to give the paper a more leisurely consideration than had been possible during the course.
3. To help the teacher make explicit those expectations that might have been tacit during the course.

Stage 3: Conducting Detailed Analyses of Specific Aspects of Students' Writing

During the first two stages of data analysis we worked, as we have said, to get an overview of students' writing production stories; to

identify, refine, and shape themes and patterns in the data; and to begin to analyze, through primary trait analysis, teachers' expectations, students' success, and students' difficulties. The work during Stage 3 was designed to give us further information about these phenomena and their interrelations, and included the following:

- Constructing the sequences of students' writing strategies for particular assignments
- Analyzing students' revision practices
- Analyzing organizational structures in students' texts
- Other analytic procedures

Constructing the Sequences of Students' Writing Strategies

To answer our questions about the writing strategies that were associated with students' difficulties, we further analyzed their writing-process stories by constructing chronologically ordered sequences that were, in essence, codified versions of the stories we had constructed in Stage 1. These coded sequences represented all of the student's strategies over the entire period during which he or she worked on the assignment. They also included codes for teachers' and peers' responses to drafts, which we entered into the sequence at the points in the process where they had occurred. Although the sequences of strategies are chronological, they do not indicate how many minutes or hours students actually spent on each strategy nor how much time elapsed between one strategy and the next.

We then divided the sequences of strategies into what might be called the "turns in the conversation" for that assignment. A typical set of turns might be: (1) student strategies up to the first time the paper was handed in to the teacher, (2) the teacher's draft comments and the student's textual revision, (3) further student strategies to the final submission, and (4) the teacher's final comments and grade.

The codified sequences of each student's thinking and writing processes were very valuable because they could be scanned quickly. Also they enabled us to count strategies, to compare sequences, and to relate strategies to other elements, such as a student's difficulties and levels of success. The findings from this analytic procedure often spurred further inquiry, sending us back to the data or to further interviews in order to find out more about particular strategies or relationships.

To capture each student's writing process for an assignment from

beginning to end, we coded on the basis of *all* the data in his or her envelope—not just the think-aloud transcripts as has been done most commonly in previous studies. Twenty-eight percent of our strategy codes are based on more than one piece of data in a student's envelope. For example, a student might say in her log, "I revised my draft this afternoon," and the revised draft was in her envelope as well as a transcript of her thinking aloud as she revised. Based upon these three data sources, then, we would add an "R" (for "Revises") to her sequence code, and probably follow that by other letters and numbers indicating the nature and extent of her revisions.

Categories we used as we constructed students' sequences emerged from our data. In naming our strategy categories, we listened very carefully to the language our students used to refer to their activities; however, we did not completely follow their language because it varied so widely. For example, two students might say, as they produced very similar-looking pieces of writing, "I'm writing an outline," and "I'm making notes." In those situations we imposed a consistent term, often one from a previous study.³

A Student-Strategy Sequence

An example of part of a student's strategy sequence for an assignment appears below. In order to illustrate the various kinds of strategy codes, we have collapsed the sequence, omitting some codes that would normally appear. The numbers in brackets indicate the page numbers we assigned to the data on which the record of the strategy begins. Where there are two or more numbers, there were two or more data sources for that code.

STRATEGIES TO FIRST HAND-IN: CT (6,19), TP (7), RLN2 (7,36), 01 (8,20), R-01-MA (20,36), 02-MA (44), DAO-MA (44), DAO-C-MI. INSTRUCTOR RESPONSE AND STUDENT'S REVISION: MEVI (61), RL-N, EPORG (61). STRATEGIES TO SECOND HAND-IN: R-DAO-MI (7,61), DAO-C-N (69). INSTRUCTOR'S COMMENT: EEVI. STUDENT'S DIFFICULTIES: INF (245,249), OPI (19).

The codes indicate that this student considered the paper's topic (CT), and that the two sources of evidence for this begin on pages 6 and 19 in her data envelope. The evidence might have been, for example, a log entry and a portion of the think-aloud tape.

Next, the student talked with a peer (TP), then read a library source (RL) and made notes that had two levels of hierarchy (N2).

The student then wrote an outline of one level (01) and then revised

that outline by writing revisions on those same page(s) (R-01). The revisions affected the outline at the macro-level (MA).

The student then produced another outline, of two levels, which differed from the earlier revised outline at the macro-level (02-MA).

Next, the student drafted all of the paper (DAO) making macro-changes from the two-level outline.

Finally, she made another draft, this time on the computer, with micro-changes from the previous handwritten draft (DAO-C- MI). Then the student handed in the paper.

In the margin (M) of her paper the teacher called for more evidence (EVI), and the student revised at a lower level than the teacher had intended, with no improvement to the paper (RL-N). For example, the student may merely have added an irrelevant quotation to the paper.

The teacher's comment at the end (E) of the student's paper praised her (P) for her organization (ORG). The student's strategies after she got the draft back included marking revisions on her draft at the micro-level (R-DAO-MI) and then making a new draft on the computer with no change from the previous marked draft (DAO-C-N). Her teacher's end comment again suggested that she should have included more evidence (EEVI). The difficulties this student talked about in her log for this assignment, her think-aloud tapes, interviews, or peer response session, were that she was not able to find enough information, evidence, or counterarguments (INF) and that she struggled to arrive at her own opinion or position in the paper (OPI).

A Collaborative Process

This inductive process of constructing strategy categories and sequences of students' strategies was collaborative. Walvoord first drafted the coding system and constructed sequences for two or three students from each class. With McCarthy observing, the teachers then checked Walvoord's coding of their students and suggested changes in the coding system. Using these suggestions, Walvoord revised the coding scheme, and then constructed sequences for certain groups of students in each class. The codings that became most essential to our findings in each class were further checked by members of the research team in various ways which we explain in subsequent chapters.

When we finished constructing the sequences of strategies, we counted the frequency of certain strategies, compared students' strategies with one another, and examined the relationships between strategies and other elements, such as difficulties and levels of success. The findings from this procedure gave us another window into what

students' difficulties were, what may have contributed to them, and how students went about overcoming them.

Purposive Sampling

We did not construct a sequence of strategy codes for every student and every assignment. Instead, we coded the strategies of two groups of students in each class whom we chose through "purposive sampling"; that is, students who helped us "increase the range of data exposed . . . and the likelihood of uncovering the full array of realities" in each setting (Lincoln and Guba 1985, 40). The first sample, which we call the *focus group*, consisted of between 32 percent and 70 percent of the students in each class. We chose students who had given us particularly rich and/or extensive data and who represented a range within the class of age, race, gender, success level, class level, verbal SAT score, and first language (ESL students were included). Characteristics of the focus groups appear in Appendix B.

Sometimes, we used a sample of high-success and low-success students, especially to compare and contrast strategies of the two. The precise nature of each high-low sample is explained in the relevant chapters.

Analyzing Students' Revision Practices

Our second major data analysis procedure in Stage 3 was revision analysis. As we constructed a coding scheme to answer our questions about how, when, and with what outcomes students revised, we drew upon Faigley and Witte's system (1981, 1984), which classifies revisions on the basis of their impact on the text. We were particularly interested in what Faigley and Witte call *meaning-changing revisions*—revisions that alter the meaning of a text, rather than merely fixing the spelling or substituting one word for another of similar meaning. We distinguished, as Faigley and Witte do, between *macro-structure revisions*—revisions which "alter the summary of a text" and "affect the reading of other parts of the text" (1981, 404–405; 1984, 100) and *micro-structure revisions*—revisions which alter meaning, but to a lesser degree than macro-revisions. Our coding system differed somewhat from Faigley and Witte's, however, because of the ways in which revision was entangled with text production in our actual classroom settings, and because of our research goals.

We defined *revision* as a change that (1) is written on the current draft or (2) occurs either between one draft or outline and the next,

or (3) between an outline and a draft. We did not count as revision any false starts, where the student wrote a word or passage and immediately scratched it out before continuing to compose. Because so much of this activity took place orally rather than on paper, we decided to eliminate all false starts, whether written or oral, in order to concentrate on those revisions where a student *returned* to the text to make changes. Unlike Faigley and Witte (1984), who counted each sentence of a macro-structure addition as separate revision (102), we counted each macro-structure addition only once, no matter how many sentences it contained. We also coded only the highest level of revision the student made on a particular outline or draft, rather than counting the total number of revisions in each paper as Faigley and Witte had done. This was because we were interested in *whether* the student was revising at the macro- or micro-level on a particular outline or draft, not in *how many* macro- or micro-revisions the student made or how many sentences those revisions contained.

The research team's coding of students' revisions was collaborative, using the same procedures as for coding the strategies. Following Faigley and Witte's observations that "the reliability of the taxonomy depends upon the shared expectations of those applying it" (102), we did not use outside raters to confirm our analyses, but rather relied upon research team members for inter-rater confirmation.

Were the Revisions Successful?

In addition to our interest in the highest level of revision the student employed at various times, we were also interested in whether, in the teacher's judgment, the text was improved as a result of the revisions that responded to teacher comments. For this analysis, we adapted a system used by Sperling and Freedman (1987), based on "response rounds" analogous to the oral turn-taking identified by Garvey (1977). (A *response round* consists of the student's text, the teacher's or peer's response, and the student's subsequent revision. This method allows us to study revision not as an isolated act but as part of the ongoing "conversation" of the classroom.)

We coded each teacher's and peer's response according to its topic (e.g., organization, evidence) and its purpose (praise or suggestion). Thus a comment might be coded "praises organization" or "suggests more evidence."

Next, we coded the student's revision by how it addressed the teacher's or the peer's response (revised as suggested, revised at a lower level than suggested, deleted the passage, deleted and substituted

new material, made no revision, or the comment became irrelevant because of other, unrelated revisions).

Finally, we coded the student's revision by whether, in the teacher's judgment, it improved the paper or not. Again, as in defining "success," we relied on the judgment of the teacher in order to stay as close as possible to the context-specific set of tacit and explicit expectations for "good" writing that underlay the students' and teacher's interactions across the semester.

Analyzing Organizational Structures in Students' Texts

In Stage 3, in addition to analyzing students' writing-process strategies and revisions, we analyzed the organizational structures of selected students' drafts and final papers.

Meyer's Tree Diagram

The four classroom teachers were concerned primarily with content at high levels of generality in their students' papers and with the content relationships among large units of text. We thus drew upon a system for analyzing "top-level text structures" developed by Bonnie J. F. Meyer (1975, 1985). Top-level structures refer to the ideas at the three or four highest levels of abstraction in the paper. These are the levels of organization that a composition teacher might call "thesis and major subpoints," or that would be represented in an outline at the levels of Roman numerals, capital letters, Arabic numerals, and lowercase letters. Meyer's system of structural analysis, however, is not like an outline, linear and sequential; rather, it uses a tree diagram to display the relationships among the main ideas in the paper. Meyer's system contains more information than an outline because it not only displays the level of abstraction, it also names the types of relationship between ideas; that is, each new idea (or branch of the tree diagram) is categorized and labeled according to its relation to the one above it in the diagram. For example, an idea may be a *comparison* with a preceding idea, or it may be a *description* of the idea. From the diagram, the investigator can calculate the number of branches, the levels of the branches, and the types of relations among ideas.⁴

Figure 2.1 shows two levels of abstraction in the tree diagram of one of John Breihan's history student's papers. The student has been asked to use evidence from seventeenth and eighteenth century British and French history to recommend a government for a hypothetical country called "Loyoliana," which faces many of the same problems

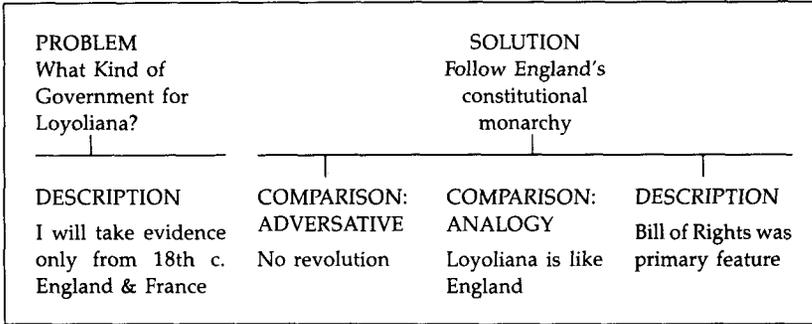


Figure 2.1. Using Meyer's tree diagram to display relationships between main ideas in a history paper.

that France and England did in that period. The entire paper is divided into two main sections, as the top level of the diagram shows: Loyoliana's problem, and the student's solution. The solution is developed by three main sections. A continuation of the diagram would show that each of those sections is further developed.

The tree diagram indicates the type of relationship between each idea and the one above it. The diagram also gives a short summary of each idea. This student's paper, one that Breihan deemed "successful," reflects Breihan's concern with high-level text-unit relationships of description (inserting specific evidence and explanation) and comparison (inserting historical analogies and addressing counterarguments).

In addition to the fact that the four classroom teachers focused on high-level text structures, we chose Meyer's analytic tool because, like primary trait analysis, it assumes that the textual structures deemed appropriate will vary from one setting to the next.

Our construction of these organizational diagrams was, like our other analytic procedures, collaborative. As Walvoord analyzed students' top-level text structures, she first constructed tree diagrams for a representative group of final drafts in each class. These were then checked by the classroom teacher, who suggested modifications in Walvoord's interpretations. Walvoord also at times diagrammed the structure of an earlier draft of a paper in order to help elucidate changes made during revision.

Other Analytic Procedures

In addition to analyzing students' writing strategies, revisions, and organizational structures, we also conducted several other types of

analysis in Stage 3. These included counting the number of pages of students' pre-draft writing and calculating the percent of "specific historical material" in their history essays. We also counted such things as students' use of the word "thesis" and the frequency of certain errors and mechanical problems. We examined relationships among gender, grades, SAT scores, and certain features of students' texts. Finally, we analyzed differences in what Klemm (1982a, 1982b) calls "competencies" between high- and low-success students in these classes. Although we do not report findings from all of these procedures, they all contributed in various ways to our understanding of students' writing in these four classrooms.

OUR TEAM'S SHARED ASSUMPTIONS AND WAYS OF WORKING

THE NEGOTIATED WE

Underlying our research team's seven-year-long research project was an assumption the team members all shared: to answer our questions, several heads were better than one. That is, we assumed our purpose was to arrive at a multiply constructed reality by working from a point of view that we called the *negotiated we*. From the beginning of our work together we valued knowledge and discourse that reflected the combined perspectives of researchers whose relations to the classrooms under study were very different. In making explicit, by collaborating and coauthoring, our assumption that several heads were better than one, we were perhaps only recognizing the unacknowledged co-researcher role that Clifford (1983) argues is actually played by all informants. (Informants, Clifford points out, ultimately control what researchers can know and thus the shape of their research findings.) By collaborating and coauthoring, we also challenge the discourse of educational research which often casts the classroom teacher as object. By contrast, in our study, teachers were in the subject position and were agents of research events.

Several ways of working made possible our team's collaborative construction of knowledge. These ways of working—establishing trust, using multiple coauthored drafts to mutually construct findings, and working to maintain a balance of authority among researchers—facilitated our team's research conversation and the achievement of a negotiated-we point of view.

Establishing Trust

We moved to create a climate of trust in which team members could—and did—say that their feelings had been hurt or that another team member’s interpretation was inadequate or mistaken. For example, at one point in drafting their coauthored chapter, Breihan told Walvoord that her draft misrepresented a certain quality in his lectures. Walvoord, after hearing him out, agreed, and they reworked the passage. Because our purpose was to arrive at a multiply constructed reality by working from the negotiated-we point of view, we understood this sort of response to each other as a positive contribution to the process.

Using Multiple Coauthored Drafts

In addition to establishing a climate of trust, we used coauthored drafts to achieve the aims of our research conversation. We began drafting early in our data analysis because we believed drafting would facilitate the process through which mutually constructed findings and discourse structures would emerge. In the chapter on the biology classroom, for example, Walvoord and Anderson together conducted data analysis and agreed on the basic outline of their chapter. Anderson then wrote the first draft, with Walvoord questioning, changing, or rejecting parts of it, and then passing the revised draft back to Anderson. Walvoord and Anderson then worked together to complete the final draft.

Underlying our drafting process was the assumption that successive drafts would progressively refine our construction of findings and interpretations. Coauthoring helped us see our drafts not as personal interpretations to be defended but as vehicles for moving the team closer to what it wanted to say.

Sharing Authority

A third way of operating grew out of our concern about cooptation, or what anthropologists call “going native.” In our project the danger existed that the outside investigator, Walvoord, might be so drawn into the worldviews of the discipline-based teachers that their interpretations would too much shape her own—or, on the other hand, that the classroom teachers would be overly influenced by Walvoord’s expertise in writing. She was, after all, the writing specialist who had led the first writing-across-the-curriculum workshops that Anderson,

Breihan, and Robison had attended (later, Sherman and Walvoord both attended a workshop led by Breihan).

In order to prevent cooptation, we worked to maintain a balance of authority among team members by discussing and clarifying our roles and our viewpoints and by making our ways of interacting as explicit as possible. Sharing authority was facilitated because each of four classroom teachers, after the workshop with Walvoord, had become a leader or presenter for other writing-across-the-curriculum workshops—an expert in his or her own right. Also, to achieve trustworthy findings, we relied on techniques commonly used by naturalistic researchers, such as using multiple sources of data and methods of analysis, which we discuss later in this chapter.

Negotiating Discipline-Based Differences

In achieving the negotiated-we point of view, the team faced particular challenges in two areas: negotiating our discipline-based differences and negotiating classroom critiques. The six members of our team represented five disciplines. While we did share a common educational discourse, we differed among ourselves in our tacit notions about the nature of knowledge and appropriate forms of language, as well as in our working practices, our processes of inquiry, and our conceptions of the audience for whom we were writing our research reports. In his study of variations in discipline-based discourse, Becher (1987a; 1987b) suggests that even the terms that members of various disciplines use to praise or criticize research reports vary because these terms reflect tacit notions about knowledge in that field. And Bazerman (1983) warns that “communication between participants in separate disciplinary matrices is rife with misunderstanding and unresolvable conflict—unresolvable because there is no neutral terminology that will allow for making mutually acceptable judgments” (161).

Actually, however, some of our most interesting and productive moments occurred when our tacit, discipline-based notions about knowledge and texts and students’ writing were called into question by other team members and, in the process, became more fully articulated. This happened, for example, when the four classroom teachers read and responded to a draft of this chapter. At times, McCarthy’s and Walvoord’s tacit ways of knowing in composition puzzled team members from history, biology, psychology, and business. For example, psychologist Robison asked, “Why all this theoretical self-justification?” and “Can’t you cut this methods chapter in half?”

Questioning a sentence that used the word “speculate,” Robison asked, “Do you use the word ‘speculate’ in composition studies?” This was the beginning of a productive team exchange about the role of “speculation” in each of our disciplines, the language used in each discipline to frame such speculations, and the ways we might handle speculation in this research report. This kind of clarification and articulation of tacit assumptions about discipline-based ways of knowing—and also about teaching, learning, and students’ writing in each discipline—often accompanied our most interesting and productive work together.

Negotiating Classroom Critiques

In addition to the challenge of negotiating discipline-based differences, the team’s second challenge was to negotiate our critique of classroom activities. Particularly since the classroom teachers were members of the research team publishing under their own names, readers might wonder whether Walvoord and McCarthy conspired to make them look good and to gloss over their weaknesses and mistakes.

The classroom chapters will quickly make clear, however, that the teachers do not always look good in this study and that we often explore how their methods appeared to contribute to students’ difficulties. This kind of critique was possible in our study for two reasons: First, each teacher’s original purpose in entering the collaboration was to see how his or her teaching methods were working and how those could be improved. Walvoord invited them onto the team precisely because she judged them to be secure, student-oriented teachers who were open to change.

The second reason why we could honestly examine how teaching methods sometimes contributed to students’ difficulties is that in a collaborative, coauthored study, teachers do not need to look good as people who never make mistakes; rather, they can look good as researchers participating in a useful investigation. Because the classroom teachers were not afraid to critique their own teaching methods, their insights are part of our study. For example, biologist Anderson pointed out that her methods of guiding student peer groups had been useful in helping students with “specific operational definitions” but not with “comprehensive operational definitions.” Walvoord and McCarthy did not have the training in science to make the distinction or, hence, the critique. Because our findings incorporate their responses, the teachers are shown to be thoughtful professionals working hard

to understand their students and to learn how to help them more effectively.

Our study and this report, then, are the products of our negotiated-we point of view. Though we on the team did represent differing perspectives and different relationships to the classrooms under study, we also shared common concerns as teachers and a common educational discourse. It is this discourse that has provided our common language as we have constructed knowledge and texts. Though our book's chapters vary somewhat according to the discipline of the teacher-coauthor, in all chapters we focus on the teacher's expectations for students' writing, on students' difficulties in meeting those expectations, and on students' strategies and teachers' methods that were associated with these difficulties. Our shared educational discourse shaped our inquiry, and it also inevitably shaped our research report.

ENSURING THE TRUSTWORTHINESS OF OUR TEAM'S FINDINGS AND INTERPRETATIONS

Our aim as naturalistic researchers has been to adequately construct and present the multiple realities of the students and teachers we have studied. We used a number of techniques to ensure that the findings and interpretations we produced would be trustworthy and could thus be used by our readers with confidence.⁵ The techniques we used to ensure trustworthy findings included:

1. Triangulation by investigator, data source, and analytic method.
2. A search for "negative cases"; that is, cases that lie outside our tentative categories and findings.
3. Extended periods of engagement with our informants during which salient factors were identified for more detailed inquiry.
4. Credibility checks ("member checks") in which we checked our findings with informants.
5. Internal checks of various analyses by other team members.
6. External checks on the inquiry process, our methods and our biases, by established researchers who knew nothing about the classrooms under investigation.

Throughout this report we have described in detail the classroom contexts we studied so that readers may judge the transferability of

our findings to their own settings. Further, we have, wherever possible, compared our findings about students' writing to findings reported by other studies.

In conclusion, our study of students' writing is a local one because we believe, with Brodkey (1987), that "writing is best understood as a set of observable human practices . . . and any attempt to study writing, even writing as literature, must entail situating writers and writing practices within a social, psychological, historical, and political context" (80). Thus, our study is, as Geertz says, "another country heard from . . . nothing more or less." Yet, "small facts may speak to large issues" (1973, 23). Studies like the present one of actual student writers at work in local settings can help inform theories and generalizations about writing in academia and about how students learn to think and write there.

Notes

1. See Guba, 1981, and Lincoln and Guba, 1985, for further discussion of the naturalistic inquiry paradigm and how it contrasts to the scientific or rationalistic paradigm.

2. See Sternglass and Pugh 1986, for another study using students' writing logs.

3. Studies from which we drew in various ways as we constructed categories and sequences of students' thinking and writing strategies for particular assignments include Berkenkotter 1983; Flower and Hayes 1980; Perl 1978; Selfe 1981; Swarts, Flower and Hayes 1984.

4. For a discussion of how a system like Meyer's, which displays high-level organizational structures and names the relationships among them, differs from the prose analysis schemes which focus on paragraph or sentence level structures and roles, see Colomb and Williams 1985, and Cooper 1983.

5. See LeCompte and Goetz 1982, and Lincoln and Guba 1985, for a discussion of trustworthiness, validity, reliability, and objectivity in naturalistic research.