

### 3 The Participating Teachers

Our studies of the teaching of writing began simply enough. They were an attempt to develop a series of detailed case studies that would serve as models for successfully implementing a broader range of writing-to-learn activities in subject-area classrooms. Our own past studies had shown that the major use of writing in secondary school classrooms is to evaluate students' learning (Applebee, 1981; Langer, 1984a). While this traditional role serves a worthwhile purpose, we wished to balance it with another, equally important use of writing — writing to support students' academic learning. As we will demonstrate in later chapters (6, 7, and 8), writing activities can provide varied and effective ways for students to think about and reformulate new learning and to integrate new information with their previous knowledge and experience.

#### **Survey of the Uses of Writing among Content-Area Teachers**

We began our project by examining how writing was used at its best — in the classrooms of science and social studies teachers who were interested in using writing in their classrooms and who had voluntarily and successfully participated in workshops that emphasized a wide range of writing activities. Eighteen teachers were recommended by teacher educators and district administrators for successfully integrating writing into their teaching. Of the eighteen, eight were science teachers and ten were social studies teachers; their teaching experience ranged from eight to thirty-three years. Three of the science teachers and seven of the social studies teachers had earned master's degrees, and all taught junior or senior high school in the San Francisco Bay area.

#### *Procedures*

Each teacher was interviewed for about three-quarters of an hour and observed for one class period. The interview covered several general areas: teacher background, changes in uses of writing activities since beginning to teach, difficulties in using writing activities, and resources

available. In addition, the interview explored at some length the writing activity that each teacher reported using most frequently. Interviewers began by asking general questions and then used probes to investigate issues not discussed by the teachers. All interviews were tape-recorded. Whenever possible, observations were scheduled for days when teachers were working with the type of writing activity that they considered most typical of their teaching. Four research assistants conducted the interviews and observations.

### *Changes in Earlier Patterns of Teaching*

We began our interviews by exploring how the teachers were currently using writing in contrast to how they had used it earlier in their teaching careers. The teachers who reported change seemed to have adopted activities presented to them as part of their inservice training. Fifty-five percent of the teachers reported that they were using writing more frequently. Some 50 percent also reported that they had changed their instructional approaches to include "process" activities such as prewriting, multiple drafts (often with teacher and student response to early drafts), using student writing as a model of good or expected writing, and using more class time for writing tasks.

Twenty-eight percent of the teachers mentioned changes in evaluating student writing, with several noting that they now commented on students' drafts without grading them. Comments on evaluation varied widely, however, and one teacher emphasized that evaluating for her had now become a matter of carefully grading the form in addition to the content.

These changes parallel those found in other studies of writing-project teachers (for example, Freedman, Greenleaf, Sperling, and Parker, 1985), as well as the changes in emphasis reported by students in the NAEP studies of writing (Applebee et al., 1986a).

### *Patterns of Instruction*

While the science and social studies teachers reported taking a variety of approaches to writing in their classrooms, patterns within and between the two disciplines were evident. Operating out of different traditions and within different constraints, teachers in the two areas diverged somewhat in their willingness to use writing as an instructional tool. Science teachers, for example, were less likely than social studies teachers to perceive writing activities as falling within their curricular province. They felt, in general, more tied to a specific curriculum and

spoke of their responsibility to cover a given number of topics during a school year.

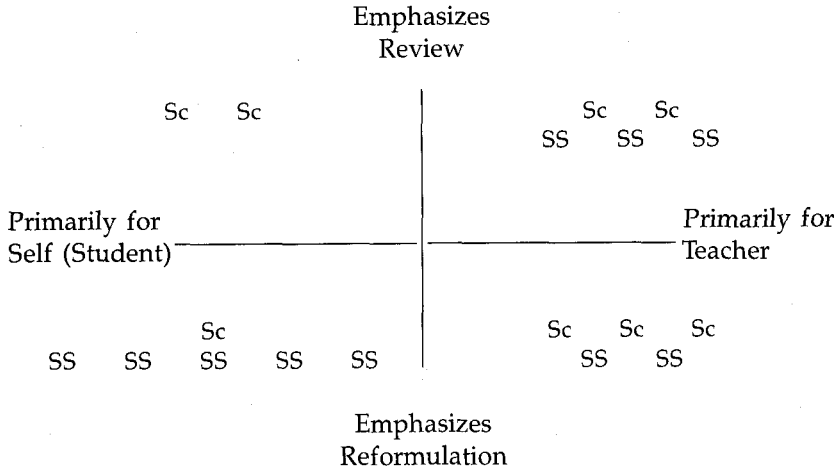
Social studies teachers, on the other hand, were more likely to consider "skills instruction" — including writing skills — an integral part of their teaching agenda. They were more likely to emphasize underlying "concepts" and to separate the teaching of those concepts from "dates and places." Both the science and the social studies teachers felt they had little time or inclination to include many writing activities in their classrooms.

When the teachers did use writing, the content often became a vehicle for teaching conceptual skills rather than facts to be mastered by students. For example, a unit on the Great Depression in the United States provided an occasion for the students to discuss and write about poverty, government influence, and economics in general. While information about the Depression was used — and, the teacher hoped, remembered — the primary objective was the practice of broader conceptual skills that could be transferred to other social studies tasks. Students were considered successful if they had not only learned a set amount of information about the Depression, but could argue or write convincingly about it. Such uses of writing were rare, however, even in this highly select sample of teachers.

A closer look at the responses of the eighteen teachers reveals more differences. The teachers were asked to describe in some detail the kind of writing task they most frequently assigned to their students. We categorized these tasks along two dimensions, reflecting audience (self or teacher) and purpose (reviewing content area material or reformulating and extending it).

Assignments placed in the "self" category, although required by the teacher, were not formally graded. The primary purpose of these assignments was to provide students with an opportunity to work through a body of material. Some of the assignments asked students to review or summarize material in their own words; other assignments prompted them to reformulate and extend the material by constructing an argument or applying the information to a slightly different set of circumstances. Often, the assignments called on students to bring their own personal experience to bear on a particular concept.

Assignments placed in the "teacher" category were completed primarily for purposes of evaluation. Many of the same types of writing were called for as in the "self" category, but the teachers were primarily concerned with assessing the quality of the students' review or reformulation and with assigning an appropriate grade. Figure 1 displays the results of this categorization.



Key:

Sc = Science

SS = Social studies

Figure 1. Writing tasks preferred by the science and social studies teachers surveyed.

In general, social studies teachers were more likely than science teachers to report assignments that asked students to write within a nonevaluative framework. Only one science teacher used such assignments to help students reformulate and extend material they were studying, and two others reported assignments that asked students to review material in their own words. More typically, five of the eight science teachers interviewed reported that their most frequent assignments were for evaluating students. In contrast, half of the social studies teachers reported that their most typical writing activities were nonevaluative assignments designed to help students extend and reformulate what they were learning.

### *Problems in Using Writing*

Another section of the interview asked teachers what concerns, if any, they had about using writing in their classrooms. Two-thirds of the teachers worried about the extra time necessary for reading and responding to written material. Those who felt that all student writing should be read and corrected limited their use of writing accordingly. Others compromised, limiting their responses to general comments or simply reading less of what their students wrote.

Another group of teachers was concerned that students lacked sufficient writing skills to write extensively for their science or social

studies classes. These teachers talked about students' poor language, grammar, and mechanics, as well as their lack of ability to write properly for the particular domains under study. This last concern was particularly widespread among the social studies teachers.

These findings prepared us for the kinds of complexity we would encounter in the next phase of our studies of teaching. Although there were some consistencies within subject areas, the teachers reported a wide array of uses of writing, and their interpretations of the uses and benefits of writing were often vastly different from one another's. In our past studies of the teaching of writing, we had focused on instruction in typical rather than exemplary classrooms. This survey made it clear that integrating writing assignments into academic classrooms was difficult, even for these exemplary teachers. Writing was used in somewhat limited and restricted ways and was often perceived as conflicting with the teachers' subject-specific goals. Constraints of curriculum and time were severe. We brought these concerns to our more intensive collaboration with individual teachers as we studied the kinds of writing that worked, as well as the factors that militated against writing in their classrooms.

### **Studies of Individual Classrooms**

To examine the implementation of writing in content classes, we worked at length with individual teachers. During the first year, we worked with two, Jane Martin (social studies) and Julian Bardolini (biology), in different schools. Because these two teachers found it useful to talk to each other as well as to us, they suggested that during the second year we should concentrate on a single school, where such contact would be easier. This arrangement worked well for us, allowing us to study more teachers than we could otherwise have included. For the second year, we concentrated on Jane Martin's school, adding five new teachers: Kathryn Moss (chemistry), Janet Bush (biology), Bill Royer (social studies), Naomi Watson (home economics), and Jack Graves (English). We asked Jane Martin to continue working with us — as school coordinator as well as collaborating teacher.

The study was planned to investigate the ways that writing activities could further subject-area objectives. We wished to develop a clearer understanding of the kinds of learning that writing can foster in specific subject areas and also to develop a deeper understanding of how to carry out activities that could support these learnings. Members of the project team functioned as collaborators in the planning process: the

teachers brought their expertise in teaching and course content, and the university-based staff brought their knowledge of the processes of writing and learning. As a team, we studied how various types of writing activities interacted with the dynamics of different classrooms. The nature of the collaboration was based on the participants' differing strengths: the teachers determined the content and objectives of their courses, and the university-based staff suggested general approaches that might foster the kinds of learning the teachers desired. Together, we developed specific activities to work within individual classrooms.

We gathered case-study data to understand how the teachers' objectives were translated into instructional plans, how these plans were implemented in the teachers' classrooms, and how these activities were then interpreted by the teachers and by their pupils. We used a variety of methods:

*Interviews* were conducted with the teachers to learn about their training and experience, their previous use of writing assignments, their perceptions of the uses of writing in their classes, the construction of their assignments, and the forms of evaluation each of them used. In addition, we documented the nature and amount of writing taking place in each classroom at the outset. Similar interviews were held at the end of the project, further documenting the teachers' reactions to the activities they had developed.

*Case-study* students were selected in each classroom to provide more detailed information about students' reactions; equal numbers of more successful and less successful students in each class were nominated by the teachers. Weekly interviews were held with these students throughout the study. They were interviewed about the amount and kind of writing done in their other subject classes and their reactions to the writing they were asked to do in the target class. Four students participated in the case studies in each of the two classes during the first year. With six classes to study in the second year, we reduced the number of case-study students to two in each class. For selected assignments, the case-study students engaged in think-aloud self-report activities while their classmates were completing the same assignments in their classrooms. This permitted us to study the cognitive processes the students invoked and the knowledge sources they relied on when engaged in the assigned activities. (Appendix 1 describes the system we used to analyze these protocols.)

*Planning meetings* were held regularly, focusing on the goals for upcoming lessons and on the ways that writing activities might be used to further those goals. In these meetings, the university-based team members served as a resource that the teachers could collaborate

with as they brainstormed new approaches and how to put them into practice.

*Classroom observations* were scheduled regularly in each classroom, focusing on lessons when writing activities were planned.

*Writing samples* were collected at regular intervals. These included all writing completed by the case-study students, as well as sample assignments from each class as a whole.

*Wrap-up* sessions were held at the end of each year, during which the participating teachers discussed the project with one another as well as with the project team.

Student writing was photocopied, interviews and meeting sessions were tape-recorded, and field notes were taken throughout our work with each classroom.

### *The Setting*

We conducted the study in two suburban high schools, using ninth-grade through twelfth-grade students in science, social studies, home economics, and English classes. Although both schools had a heterogeneous student body, Julian Bardolini's school was the more affluent and higher achieving of the two. Most of the school's approximately 1,700 students graduate from high school and about 85 percent go on to college. It has a relatively low minority population, about 5 percent.

Jane Martin's school served about 2,100 students. It was composed of 25 percent minority (primarily Hispanic, South Pacific, and black) and 75 percent white students. Generally 90 percent of those students entering their senior year graduate, and 50 to 60 percent of the graduates go on to college. When our project began, this school had just absorbed the teaching staff and student body of a nearby high school that had been closed the previous year. Four of the six project teachers at this school were part of this shift: Martin participated in the project during her first and second years at the new school, and Kathryn Moss, Janet Bush, and Naomi Watson joined the project during their second year at this school.

Four criteria guided our selection of the collaborating teachers: they (1) were experienced teachers highly respected by their colleagues; (2) showed sympathy with and interest in the project's goals; (3) expressed a willingness to experiment with new approaches; and (4) taught in departments, schools, and districts that provided a supportive environment for change. The teachers received modest honoraria for their participation on the project team.

*Procedures*

During the first year, initial meetings with the teachers began in January, and the project continued until the end of the school year. During the second year, initial meetings were held in November, and the project continued until April (the end of the third marking period). After agreeing to participate, each teacher selected one class to be the focus of our work.

To provide multiple perspectives, each university-based staff member worked in two classrooms, and each classroom had two university-based staff members regularly assigned to it. Although responsibilities were divided between studying the teacher and studying the case-study students in each class, the second staff member provided an ongoing backup in the case of scheduling problems or illness — as well as a helpful additional perspective when our understandings of each classroom began to emerge.

The collaborative nature of the project required the development of close working relationships between the participating teachers and the university-based staff. In the formal structure of the project, the primary collaboration took place during regularly scheduled planning sessions. These sessions centered on the teacher's plans for the coming days and weeks: the content that needed to be covered, the teacher's objectives for student learning, and the activities and materials that the teacher would generally use. Together, the teacher and the university-based staff would discuss ways that writing activities might be used to further the teacher's objectives for the unit, including discussion of how well previously introduced activities had functioned and how such activities might be recast to make them work better. Suggestions could come from anyone in the group; there was no "project" curriculum or set of "project" activities that the teachers were being asked to use. Instead, each planning team drew on the previous knowledge and experience of all of the team members to shape activities that seemed to make sense. The teacher would take the ideas that emerged from the planning sessions and draw on them as he or she developed specific daily lessons — modifying them as needed in the light of further reflection or the progress of the class for which they were intended. Usually, the planning sessions involved a single teacher and one or both of the university-based staff working in the same classroom. When problems developed, however, or if ideas seemed to be running short, other teachers and university-based staff were asked for new ideas.

Contacts between the participating teachers and the university-based staff quickly expanded beyond the formally scheduled sessions



Table 1

## Types of Data Related to Students' Assignments

Source of Data	Focus of Analysis
Planning sessions (field notes, recordings)	Project goals Instructional goals
Observation of related lessons (field notes, teacher's log)	Implementation of goals Social context of classroom
Student interviews (field notes, recordings)	Student perception of activity Problems, approaches
Think-alouds (recordings)	Approaches to writing
Drafts, final products (photocopies)	Audience, purpose, content, quality

to include informal discussions in the staff room, at lunch, and on the telephone to review recent activities and plans for the next day. One of the teachers captured the spirit of these conversations when she commented at the end of the project: "We used the class as a laboratory. That was the way I saw it. It was wonderful to have people at my level as teachers to work with — having two other people's points of view."

The classroom observations, interviews with students and teachers, and writing samples yielded information about many different aspects of the classrooms and assignments we were studying. The various data sets and the focus of our analysis of them are summarized in table 1.

During the two years of this study, data were collected and analyzed from 89 planning sessions, 162 classroom observations, 160 student interviews, 47 think-aloud protocols, and 1,131 writing samples. The data collected from each teacher, as well as the general characteristics of each classroom, are summarized in table 2.

### *Analysis of Data*

The study generated large quantities of information about the teachers and their classrooms. We organized these various sets of information around tasks-within-teachers. In other words, the various data sets were keyed to the individual task or assignment, providing multiple views of each task and allowing us to show the evolution of tasks from many perspectives for each teacher over time. These perspectives are illustrated in figure 2.

Table 2  
Summary of Data: Case-Study Teachers

Teacher	Subject	Grade	Student Ability	n	n	Classroom Observations, Months	Planning Sessions	Student Interviews		Writing Samples
								General	Protocol	
Year One										
Bardolini	Biology	10-11	Average	28	32	5	14	64	0	180
Martin	World culture	9	Mixed	33	28	6	12	55	0	220
Year Two										
Martin	World culture	9	Mixed	30	15	5	10	6	8	139
Royer	U.S. history	11	Mixed	36	15	5	8	6	9	139
Graves	English	9	Honors	16	18	5	9	8	11	84
Watson	Survival skills	12	Lower	30	18	5	6	9	10	191
Bush	Biology	10-12	Average	33	16	5	15	6	6	138
Moss	Chemistry	10-12	Average	22	20	5	15	6	3	40

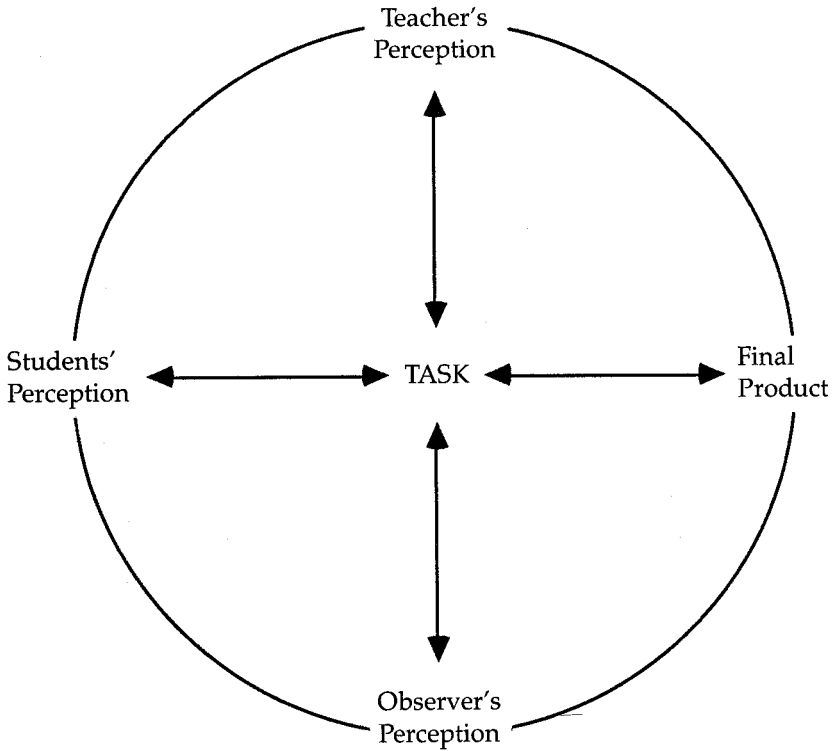


Figure 2. Organization of data from several perspectives.

With two university-based staff members and one teacher in each classroom (and with each staff member studying two different classrooms), we also had various perspectives on each classroom. For the qualitative data, analysis followed a systematic pattern of weekly write-ups of observations, synthesis of what had been observed, tentative interpretations, and a continuing testing of those interpretations through further observation. Initial syntheses were organized on the level of the individual teacher; final analyses involved identifying cross-classroom patterns of ways that particular types of writing assignments were used, revised, or rejected. At this point the qualitative analyses were also coordinated with the quantitative data from analyses of writing assignments and student think-aloud protocols.

The classroom data provided pictures not only of the classrooms as systematic and logical places of learning, but also of the central concerns that governed each teacher's decisions. Initial write-ups of our work with each teacher were prepared by the university-based project staff

members most directly involved in each classroom: James Marshall prepared the write-ups for Jane Martin and Bill Royer; Deborah Swanson-Owens prepared those for Naomi Watson and Jack Graves; William Sweigart prepared those for Julian Bardolini, Janet Bush, and Kathryn Moss. Other staff members working in the same classrooms were John Shefelbine (Julian Bardolini), William Sweigart (Jane Martin during the first year), Russel Durst (Jane Martin and Bill Royer during the second year), Brian Gong (Janet Bush and Kathryn Moss), and David White (Naomi Watson and Jack Graves).

### **The Seven Teachers and Their Central Concerns**

During our collaboration with the seven teachers, we gained an increasing understanding of them as experts in their subject areas, as educators with their own views of teaching and learning, and as individuals operating within the institutional constraints of their schools and districts. The brief sketches that follow provide an initial indication of each teacher's unique qualities and concerns, as well as of the commonalities among them.

#### *Jane Martin*

Martin was an enthusiastic collaborator during the entire two years. She took a leadership role in the second year of the project, enlisting, supporting, and encouraging the five other teachers in her school.

She had earned a bachelor's degree in history and sociology and a master's degree in history. When she began working with us, she had twenty-three years of teaching experience in grades seven through twelve. For the previous sixteen years she had worked in the same district, and she planned to remain there. She was extremely well regarded by her district's faculty and administration as a master teacher and dedicated professional; in June of her first year in the project she was appointed chair of her fourteen-member social studies department.

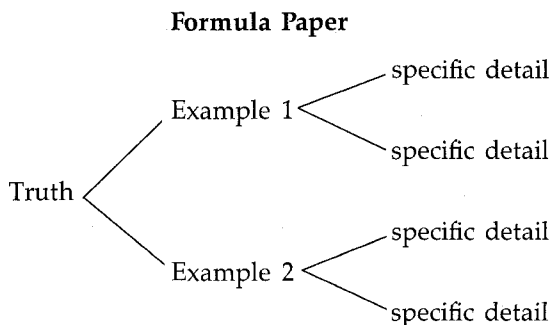
Martin's strengths as a teacher were easy to observe. She had a dynamic classroom presence, with a strong command of her subject matter and a warm, almost familial, rapport with her students. Throughout her teaching experience, she had remained open to new teaching ideas, including those sponsored by this project; she used our presence in her classes as an occasion to reexamine strategies and habits long in place. During the two years of the project, we studied one of her ninth-grade world culture classes.

During the two years we spent in Martin's classes, we came to characterize the central concern governing her classroom decisions as a desire to protect her students from error. She saw her job as teaching her students the requisite social studies material — they needed to learn a body of knowledge that was prescribed by the social studies curriculum. However, her instructional activities, plans, and interactions revolved around ways to teach that knowledge *without letting any students fail at any task*. Her role as teacher was to impart knowledge, to structure discourse and experiences in an orderly way, and to assess the students' mastery of the knowledge imparted. To protect her students from failing, Martin structured each activity around segments requiring only information the students already had. She provided the content and structure; the students needed to select the right information to insert into the outlines and exercises provided.

This desire to provide enough structure to protect her students is reflected in an assignment she developed to go with an animated video of *Animal Farm* — an assignment that emerged as Martin began to move her writing assignments away from simple review of new material toward more complex writing tasks. While they were watching the film, she asked her students to jot down examples to support three assertions:

1. Communism is based on the belief that people working together will accomplish more than people working individually.
2. No revolution achieves all of the goals it hoped it would.
3. The names given the animals tell the viewer a lot about the author's biases.

After collecting the students' worksheets, Martin selected the assertion for which each seemed to have the best examples. The following day she used the board to structure the paper they were to write:



She explained, "Today you're going to write a really good two-paragraph paper for me. Instead of being free, it's going to be a formula. I'm going to tell you exactly where to put things." She then proceeded to do exactly that, demonstrating how the formula could be fleshed out by using the truth that "Good triumphs over evil" and examples drawn from the story of "Snow White." Fifteen minutes into the period, she turned from "Snow White" to the worksheets on *Animal Farm*:

Now, I gave you three broad truths on your worksheet and I asked you to write examples that would prove any of those truths. I took those home and [next to one truth] I have written "go ahead," which means you have given me two good solid examples and details. I want you to write two paragraphs, one about each of the examples, proving the truths.

During the remainder of the period, the students used the examples and details Martin had approved to complete their essays with the formulaic structure she had provided. The result was a set of reasonably coherent expository paragraphs from virtually everyone in the class.

Most of the discourse that took place in the class represented a cooperative enterprise: Martin supplied the purpose and the structure, and the students supplied the information necessary to fill in that frame. She believed that the students did not know enough about what they were studying to be asked to develop new concepts on their own. Her approach to teaching was to transmit academic knowledge to her students gradually through a structured approximation to the kinds of tasks she hoped they might someday be able to accomplish on their own.

During the project, Martin developed activities that would help her students explore concepts and materials in a written language of their own. The increased chance that students might sometimes fail at a task conflicted with some of the basic tenets of her classroom discourse. She struggled with this issue of structure and control throughout her two years with us. At the end of two years, she put it this way:

I think assignments have to be open-ended. I think the more structure you build into the assignments, the more you control them, and I do too much of that. They should have less structure in them. . . . But there's a good reason for structure in the teaching of "how." There's not a good reason in the teaching of "what." In the teaching of how that's OK. A kid has to know that a paragraph has to lay out where it's taking the reader, and if you make a point you have to have some reasons — more than one reason — to support it.

Part of Martin's struggle, however, was learning to separate the "how" from the "what." It was also difficult for her to find a workable balance between providing enough support and taking too much control.

### *Julian Bardolini*

Bardolini was a teacher of biology and life sciences. He held a bachelor's degree in biology and had been teaching for twenty-two years. For the last fourteen years he had taught in his present school, where he was part of a twelve-member science department. During the year we worked with him, he taught two classes in advanced placement biology, two in general biology, and one in life sciences. The project focused on one of his general biology classes, which was made up of twenty-eight students.

During our year with him, it became clear that his central concern in planning his teaching was to provide his students with the basic factual information necessary to understand the biological sciences. He felt that his students had no knowledge of what they needed to learn and that the information itself was difficult for them to understand. Because Bardolini considered the assigned textbook too difficult, he relied on himself as the primary source of information; in each of the class sessions we observed, he used a lecture format, stressing the information he felt was most important for his students to learn. He thought some topics such as sexual reproduction were inherently more interesting to his students, and he spent more time on those topics than on others.

Before working with us, Bardolini had used a variety of writing activities, including essay tests, responses to chapter questions, lab reports, and required note-taking. His treatment of this work reflected his overall focus on basic factual information: "I just grade for the information — for the content of the material." He used the essay exam to test "for knowledge at the end of a unit; it's not normally just for writing something for the learning without getting evaluated on it." These essays were graded by teachers' aides who used correction guides that he had prepared as templates to check for correct words and phrases. His comments on work in progress pointed students toward content that needed to be added or, in the case of lab reports, tried to help them "understand the correct procedure."

Bardolini gave students points for everything they did in his classes. As he explained, "I don't think I have to evaluate all the things they do when they write. But students are so used to having things collected and graded, unless you give them a point on it they won't do it."

When the study began, his students were less than enthusiastic about written work in his classes. As one of the case-study students described it, "It's kind of a waste of time [to write in class], and it brings your grades down. No one can usually fit it together, what they want to say. They know what they're writing about, but can't write it down the way he [Bardolini] wants it to be written."

As Bardolini himself intended, the "way he wanted it to be" was the main source of authority in his classroom; when we questioned students about the source of their knowledge of biology, the teacher emerged as much more central than their books or their lab experiments.

During the project, Bardolini sought to broaden his repertoire to include writing activities that would engage the students in thinking about the material they were studying, as well as activities that would help them organize and remember the information he was presenting.

### *Kathryn Moss*

Moss held a bachelor's degree in chemistry and two master's degrees, one in biochemistry and one in education. In twelve years of teaching high school, she had taught a range of science courses including chemistry, physics, biology, advanced biology, life science, general science, and physical science. She had written some of the syllabi for her district and had worked with the entire range of students. She was one of the teachers who had been transferred to her present school the year before we met her. The project focused on one of her chemistry classes.

When we met Moss, her classes were a mix of lecture, discussion, and lab work. Her view of her subject emphasized the process of inquiry, although she felt that this process was constrained by (and constrained to) the students' understanding of the formal body of knowledge of chemistry. Students worked in pairs in lab experiments, although each kept a separate lab book. She told us that she used writing more often when she taught biology than when she taught chemistry: "Part of my written and unwritten objectives for those biology classes is that [the students] become more literate in terms of specifically expressing ideas and in terms of analyzing articles they read." But in chemistry, she was unsure how to approach such goals — and was not convinced they were even relevant.

The primary difficulty, Moss felt, was that her students had no relevant knowledge about the subject upon which to draw. Chemistry was formally structured, and those structures had to be learned before the process of inquiry could become meaningful. Given the subject



matter structure, the labs, and her perceptions of the students' lack of knowledge, writing seemed irrelevant to her purposes. The previous year she had tried using learning journals and had found them unsuccessful because the students did not focus on the critical issues, nor did they give her feedback to help her make constructive change in the curriculum:

What I got back from them were strokes for me, which is what they thought the learning journal was supposed to be, and that's not what my idea was. I thought it was an exchange of ideas that was not only about their feelings regarding nuclear power and nuclear power plants and environmental issues, but . . . some dialogue about the constructive changes in the curriculum because I didn't particularly like the way the unit was done. I wanted some suggestions from them about how I could rearrange the unit a bit.

Moss had also tried research reports. They did not work either, because "It was the usual — to the library and copy down the encyclopedia — which offends me a great deal." After these negative experiences, she had never used these writing activities again. However, she did value the scientific approach in learning, wanted to foster student inquiry, and was curious to see if writing could help her do this. She was a willing if somewhat skeptical participant in the project.

### *Janet Bush*

Bush held bachelor's and master's degrees in science with a minor in education. Early in her career, she had received a Ford Foundation fellowship and worked as a researcher for four years. Since beginning to teach, eight years before, she had taught life science, physical science, biology, advanced biochemistry, and physics at the high school level. She had taught the full range of ability levels. When she joined the project, she was beginning her second year in her new school; the project focused on her general biology class.

Like Kathryn Moss, Bush valued student inquiry but, unlike Moss, she felt she could begin this in the class she was teaching. She took her classes on field trips, emphasized lab and project work, and had experimented in the past with a variety of types of writing. In the initial interview, Bush said that essay exams used to be her primary form of extended writing in her classroom, but that she had stopped using them when her student enrollment exceeded thirty-five.

Even before we met her, she had used writing in many of her classes. She was enthusiastic about what writing could do in terms of her own subject-matter goals, and she had a number of ideas she was

anxious to try out. Bush said she wanted to begin with “cognitive writing drills” before a lesson on an assigned topic to see what the students already knew, or after a lesson to help them think about what they had learned and then to reorganize it. She described what she meant:

One other thing that I want to start doing . . . there are these things called cognitive writing drills, five-minute freewriting. The student has to take a pencil and write on the topic for five minutes without lifting the pencil. I want to incorporate that into some units, say start the unit with it — see what the kid already knows about the subject — and then see when they get done if they reread it and say “Oh, yeah that was right” or “That was wrong” or “I knew all this stuff already.” Or to use it as part of the review of the unit, to see if they can write down everything they know and then go back and put it in a logical form and see if it helps them any. I’m curious about that.

Throughout the year, Bush was enthusiastic and creative about ways in which writing could extend her students’ learning.

#### *Bill Royer*

Royer had earned a bachelor’s degree in history and had done additional graduate work at several universities. He had taught social science for twenty-five years, with experience in grades nine through twelve. He had worked in his present school for seventeen years, combining his duties as a teacher and head football coach. Although he had taught a wide range of social studies courses in the past, for the last several years he had taught U.S. history and ninth-grade world culture. The project focused on his eleventh-grade U.S. history class.

In his initial interview, Royer indicated that his students generally did some writing each week. He used a textbook that took an inquiry approach, and his writing assignments required the students to pull together evidence from various sources and form opinions of their own. In all our discussions, he seemed aware of various instructional purposes that writing might serve, arguing that writing “requires the students to do some thinking” about issues in his course.

After twenty-five years in the classroom, Royer had fallen into a set of routines with which he was comfortable, which he saw as inquiry-based, and which he saw few good reasons to change. Finding time in his units for additional activities was difficult. Most of his units were very tightly planned, and completion of the planned activities played an important role in his judgment of whether he had had a successful school year. During the project, he worked to develop

additional writing assignments that would strengthen rather than supplant the activities that he had already planned.

### *Naomi Watson*

Watson had taught home economics courses for twenty-three years, moving to her present school during the first year of the study. She joined the project team the next year, when we studied her survival skills class. This course focused on the practical knowledge students need when they look for work and move away from home. Much class time was devoted to such enterprises as job hunting, banking, making consumer decisions, seeking legal council, and paying taxes.

I try to gear the class to what I and my students think are some essential living skills, things the students really need to know — very practical things that will give them confidence in going out or looking for a place to live or choosing a roommate, and being able to communicate with somebody else.

Watson saw her professional life as her own means of survival: confronted with the picture of a newly widowed sister, she had decided twenty-three years before that she must always be prepared to take care of herself and so took courses in interior design and education in Oklahoma, Oregon, and Iowa. She hoped to teach her students the lesson she had learned twenty-three years before.

The central concern governing Watson's teaching was to help her students organize the material they were studying so that they could locate and retrieve it when needed. Absorbing information was of less importance: "I don't think everything has to be in your head. Of more value is knowing that you have a lot of different ways to tackle a problem." In her mind, knowing how to survive depended less on the facts one possessed than on the potential one had for accomplishing necessary tasks. She wanted her students to recognize "how and where to get information." With this as her goal, she concentrated on getting her students to organize their notebooks so that they would be valuable reference tools.

Watson's class was activity-based, using practical artifacts and activities wherever possible. She had been using a variety of writing activities in her classes well before we met her. She generally had a guest speaker once a week, and the students took notes on each presentation. They also wrote answers to study-sheet questions and sometimes wrote three- to five-sentence responses to homework questions. Some sort of writing occurred in class each day, and this writing became part of the students' growing reference notebooks. She collected

these notebooks periodically to be sure that students were attempting the assignments.

Like Jane Martin, Watson took a personal interest in her students. She cared about them and their future — she worried about what they did not know and tried to provide structure to help them learn. However, unlike Martin, who was interested in helping her students acquire social studies concepts, Watson focused much more on organizational and interpersonal skills. For her, new knowledge develops from new experiences generated and monitored by the teacher. Like Martin, she felt it necessary to provide much of the content and to control much of the structure in classroom tasks, including writing.

During the project, Watson worked to develop writing tasks that would provide more opportunity for the students to present their own ideas — a shift in focus that she found difficult. At one point, for example, she discussed ways she might use writing in a unit on consumerism. She decided that the students would become more sensitive to the content being studied if they first did a freewriting on the topic. She spent thirty-three minutes on the freewriting, but devoted the major portion of the time to giving directions.

### *Jack Graves*

When we met Graves, he had been teaching English for eighteen years. After graduating from Princeton with a bachelor's degree in literature, he had begun teaching in a special program for delinquent boys in Los Angeles. Later, he obtained teaching credentials from Stanford and began to teach at his present school, where he had taught a variety of remedial and advanced classes. The project focused on one of his freshman English classes.

Graves saw himself as primarily a teacher of literature, and his class was structured around traditional literary forms. He believed that there are correct interpretations of texts that need to be understood by the students in order to move them beyond "the mundane" and that it was his job to introduce his students to these traditional interpretations.

Writing in his class usually revolved around topics related to the texts being studied. These assignments were supplemented by writing about topics that drew on personal opinions or experiences, but these remained apart from the main agenda of the class. For their formal writing, the students worked on rough drafts in pairs that functioned as editing groups. The purpose of these groups was to "polish" the students' drafts — though Graves complained that he still found too

Table 3

## The Teachers' Central Concerns

Teacher	Subject	Central Concerns
Martin	World culture	Protect students from error
Bardolini	Biology	Provide information
Moss	Chemistry	Foster content inquiry
Bush	Biology	Foster content inquiry
Royer	U.S. history	Complete established instructional routines
Watson	Survival skills	Help students organize
Graves	Freshman English	Develop understanding of traditional forms

many mistakes when he examined the work the students then handed in. Essays were given separate grades for mechanics and content, the latter focusing on the extent to which students understood accepted interpretations and followed the organizational guidelines that Graves provided as part of each assignment. One of his concerns was that his assignments were often "one-shots," with little connection from one to another. Thus one of his goals in the project was to develop sequences of activities that would help students develop ideas for their major papers.

### Discussion

From the initial survey of eighteen teachers, we began to see two patterns emerging. First, there appeared to be differences between science and social studies classes both in the kinds of writing and in the ways that writing was used. Second, the uses of various kinds of writing tasks were teacher-specific: the tasks the teachers used and the ways they used them varied within as well as across disciplines.

The findings from the initial survey were reinforced by our case studies of individual teachers. As we can see in the brief portraits already presented, each of the teachers brought to the teaching day a somewhat different set of central concerns and a somewhat different conceptualization of his or her role as a teacher and the students' roles as learners; these differing views are summarized in table 3. How the teachers went about their teaching differed — and these differences

were a sensible outgrowth of what they considered important for their students to learn.

For example, Martin and Royer were both social studies teachers, and both wanted their students to learn important social studies concepts through inquiry-based activities. However, Martin's central concern to protect her students from making errors and Royer's reliance on his previously planned activities led to instructional environments in which writing took on different meanings — what was assigned, how it was assigned, and how it was interpreted and evaluated were shaped by the central concerns of each teacher.

We can also see this in the science classrooms. All three science teachers (Bardolini, Moss, and Bush) wanted their students to learn the basic information of their sciences; they felt such knowledge provided the base for more independent inquiry. However, while Bardolini's desire to provide information precluded activities that required the students to go beyond those facts, both Moss and Bush considered such activities central to science learning.

Across classrooms, the most important determinants of the uses of writing were the teachers' underlying notions of teaching and learning. Our understanding of the teachers' central concerns provided important insights that helped us interpret the results of our studies of writing in their classrooms. Reports of these analyses are presented in chapters 4 and 5.