5 Teachers in Transition: Changing Conceptions of Teaching and Learning

The studies reported so far have emphasized the most obvious changes that were taking place in the classrooms in the study. Together with the seven teachers, we developed a variety of new writing activities and explored in some detail how they fit into the ongoing stream of classroom activity. Some activities worked well while others did not, and these successes and failures became more predictable as we came to understand the concepts of teaching and learning at work in each classroom.

There is another perspective to take on our data, however, and that is to look more closely at the teachers themselves as individual professionals in the midst of changing their approaches to teaching. We began the project with a particular set of concerns and predispositions, which we have sketched in the introductory chapter. We were concerned with writing as a tool for learning, a context within which students could explore new ideas and experiences. In particular, we were concerned with what are often called "process" approaches to learning, where ideas are allowed to develop in the learner's own mind through a series of related, supportive activities; where taking risks and generating hypotheses are encouraged by postponing evaluation; and where new skills are learned in supportive instructional contexts.

In classrooms adopting these approaches, much of the work that students produce reflects this process of instruction, rather than final drafts to be submitted for evaluation. In such contexts, we have argued, students have the best chance to focus on the ideas they are writing about and to develop more complex thinking and reasoning skills as they explain and defend their ideas for themselves. Everyone in the current project — teachers as well as university-based researchers — began the project convinced of the value of such goals in academic learning and committed to exploring what would happen when process-oriented writing activities were embedded within the subject-area curriculum.

When we look at the results of our project from this perspective, they highlight the fact that process-oriented approaches are not simply

an alternative way to achieve subject-area goals. Instead, when these approaches are implemented most effectively, they bring with them a fundamental shift in the nature of teaching and learning. Rather than augmenting traditional approaches to instruction, in a very real sense such approaches undermine them — or are undermined in turn by the goals and procedures of more traditionally oriented approaches to teaching.

Thus the project led to substantial change in patterns of activity in almost all of the classrooms. In some of the classrooms, this change in activities reinforced the patterns of teaching and learning that were already in place at the beginning of the project. In others, it led to a major realignment in the teachers' goals. In the present chapter, we will explore the nature of this realignment in those classrooms where it did occur, as well as the factors that led some teachers and not others to adopt such changes.

To examine these issues, we looked at the data we had gathered — including analyses of interviews, planning sessions, and classroom observations — focusing on the teachers' concepts of teaching and learning and how these changed across the months we worked together. We studied teachers in transition, as they were in the process not only of developing new classroom activities, but also of developing new ways to conceptualize student learning in their subject areas. Using data from analyses of student interviews, think-aloud protocols, writing samples, and observations of behavior in class, we also examined the students' ways of thinking about their course content in response to the writing activities their teachers assigned. Thus we were able to examine the results of teacher change — the ways the teachers changed their conceptions of teaching and their uses of writing and how these changes affected the nature of learning while students were engaged in the academic tasks.

Changes in the Teachers' Approaches

If we look just at the activities the seven teachers used in their classrooms, we find that by the end of the project six of the seven had changed the activities they assigned, incorporating more (and more varied) writing activities than they had used in the past. (Only Bill Royer, with a curriculum constrained by an existing set of highly structured activities, seemed essentially unaffected by his participation.) As we saw in the previous chapter, these new activities fulfilled a variety of classroom functions, serving to motivate or prepare students

for new work, to review material previously studied, and to reformulate and extend students' knowledge and experience. The activities often took forms familiar from the process-oriented teaching literature, including freewriting activities, journals, personal responses to new experiences, and some drafting and revision.

We were aware that such activities may affect learning in two ways: they may provide more effective techniques for achieving specified curriculum goals, and they may also lead to changes in the nature of the learning that is taking place. The design of our project, which included regular interviews with case-study students as well as the analysis of samples of all students' work, allowed us to examine directly the students' patterns of learning in response to their teachers' approaches.

Purposes for Writing

We have already commented on the central role that evaluation played in determining how easily new activities could be assimilated into the classrooms in the project. Evaluation was also important in shaping the nature of students' engagement in classroom activities. In particular, when students assumed that an assignment would be evaluated, they were likely to treat it as a display of what they had already learned: they would present their ideas carefully and fully, but were likely to stay close to the known and the familiar. On the other hand, when they assumed that the writing was part of an ongoing instructional dialogue, they were more likely to use it to explore new ideas — taking more risks and accepting more failures.

To examine this aspect of student learning more systematically, the writing samples collected in the project classrooms were rated for audience, using a category system developed in earlier projects (see Applebee, Langer, et al., 1984, Appendix 1; Britton et al., 1975). This system distinguishes among four audiences for school writing: self, teacher as part of an instructional dialogue, teacher as examiner, and wider audience. Each writing sample was categorized by two independent raters, with a third rating to reconcile disagreements. There was 88.2 percent exact agreement between pairs of raters in categorizing the audience for the 743 writing samples analyzed.

The results for assignments completed at different points in our work with the teachers are presented in table 6. For teachers who began focusing more on the changes and growth in the ideas their students were writing about rather than solely on the accuracy of the information in a finished paper, we would expect to find a decrease

Table 6

Teacher-as-Examiner in the Eight Classrooms

	Mean Percentage of Student Papers (*n* of assignments)		
		New Assignments	
	Old Assignments	Early	Late
Year one			
Martin	100 (2)	55 (5)	75 (4)
Bardolini	88 (2)	58 (7)	89 (7)
Year two			
Martin	98 (3)	73 (3)	39 (3)
Royer	93 (3)	77 (2)	93 (3)
Graves	73(17)	70 (4)	90 (6)
Watson	65 (5)	72 (4)	56 (4)
Bush	93 (5)	58 (5)	70 (2)
Moss	92 (2)	50 (2)	67 (3)

Note: The table is based on 743 samples of student writing in response to 103 different assignments. Since unequal numbers of papers were collected for each assignment, tabled percentages are weighted so that each assignment counts equally in the average.

in the amount of writing addressed to the teacher-as-examiner. Many of the classrooms showed such a shift away from the teacher-as-examiner during their initial participation in the project. However, four of the teachers reestablished previous patterns of evaluation as they became more comfortable and familiar with the activities they were developing. With time, four of the teachers almost completely incorporated the new activities into their previous instructional routines, and their students' papers continued to be addressed to a teacher-as-examiner. The classrooms of Bush, Moss, and Martin showed a continuing decline in the proportion of the writing addressed to an examining audience. These changes were reflected as well in the student interviews and the observers' interpretations of the activities they were watching. In these classrooms, students began to use writing more as a tool for exploring new learning and less as a demonstration of what they had already learned. In the other four classrooms, the outward form of the activities changed, but the nature of the students' participation remained the same.

The explanation of this outcome has three parts, each of which will be explored in turn. Together, they form not only an explanation of what happened in the present study, but also a definition of the

challenges to any program that seeks to achieve fundamental reform of current classroom practice.

1. When teachers develop new approaches, they interpret them on the basis of their own notions of teaching and learning. As a result, it is relatively easy to introduce new activities.
2. Major reforms in instruction may carry with them new definitions of what it means to teach and learn. If these reforms are adopted fully, they will lead to fundamental changes in teachers' notions of teaching and learning in their subject areas.
3. This will happen, however, only when teachers develop new ways to evaluate student progress that are consonant with the new approaches; otherwise, the teachers' new concepts will be undercut by inappropriate criteria for evaluation.

Assimilation of New Activities

One of the most consistent processes at work throughout the project was one in which approaches and activities that arose in the collaborative planning meetings were elaborated and reinterpreted while the teachers made them their own. In the previous chapter, we argued that this process of reinterpretation was necessary if the teachers were to claim ownership for what they were doing and ultimately to have any chance of success with the new activity. This process was also a primary mechanism for ensuring that the new activities supported and reinforced the teachers' own general goals and specific classroom routines.

We can see this process at work in Julian Bardolini's classroom. His central concern as he planned and carried out his classroom activities was the need to provide his students with a broad base of information about biology, and his role as a teacher was one of providing that information. Because the textbook was difficult and the information complex, he spent his lessons re-presenting the information and testing (in several formats) to see what the students had managed to learn. As we saw in the previous chapter, during the project Bardolini developed a learning log activity as a way for students to consolidate and reformulate what they had learned during a lesson. He was enthusiastic about the learning logs and incorporated them fully into his regular classroom routines. A year after his involvement in the project, he was still using the logs.

His use of the logs, however, was quite different from the uses usually suggested in the literature on the teaching of writing. In the

literature, and indeed in the initial discussions in the collaborative planning meetings, the logs were discussed as providing students with the opportunity to synthesize and react to what they were learning, an opportunity to focus on their ongoing learning rather than on what they had already learned. Although Bardolini voiced agreement with these goals, they did not fit particularly well with his concern to convey the basic information of biology, and over time he redefined the logs to better fit his own purposes. Gradually, the emphasis shifted toward evaluation of what the students had learned from each lesson; the logs became an effective way to check on what they knew.

The process of assimilation is particularly evident in our analysis of the case-study students' entries in their logs. We collected sample entries at various times and analyzed the audience for whom the students were writing: themselves, their teacher as part of an ongoing instructional dialogue, their teacher in the role of examiner, or a wider audience.

The results were quite dramatic. In January, when Bardolini first introduced the logs, 57 percent of the students used them primarily as a way of exploring new ideas, casting the entries as part of an instructional dialogue. By March, the activity had begun to be assimilated to his usual approaches: 63 percent of the entries were addressed to the teacher-as-examiner. By May, entries addressed to the examiner had risen to 83 percent. The students sometimes reflected this orientation quite directly in their comments during our interviews with them. Connie, one of the case-study students, gave her impression of having been asked to write an entry in her log: "Today we had a pop quiz."

In this way, the science logs became an activity well suited to Bardolini's needs; they gave him a new and systematic way to sustain his focus on accurate learning of the substance of biology. He could do this because it was possible for him to redefine what the logs meant and how they would be used so that they would reinforce rather than subvert his own emphases in his teaching.

We can see a similar principle at work in the case of Kathryn Moss and her eleventh-grade chemistry class. Her view of science teaching emphasized the process of inquiry within the bounds of her course content. To undertake such inquiry, however, the students needed a base of information, and, in chemistry at least, providing that base of information was Moss's primary agenda. As we have seen, she was open-minded but skeptical about the value of writing in chemistry, viewing her subject as "formally structured" and the students "not into the point where they are putting creative writing into the course."

She commented in our initial interview, "I don't see a good way to get more writing from them, even though I think it is important." In the past she had tried journal writing, but had given it up because the students' responses were "superficial."

At the beginning of the project, Moss concentrated on activities that would be simple and useful and that would build on procedures already in place. During the collaborative planning sessions, she developed a series of review activities in which students spent about five minutes writing "everything they knew" on the topic they had been studying. She was excited about this "freewriting" activity because she recognized its usefulness in focusing her review lessons and in gaining individual participation; and this perception was reinforced by spontaneous comments from students about how helpful they, too, found the activity. These tasks also worked well for her because they required no correction or followup.

Once she had developed a notion of review writing, Moss incorporated it into her standard repertoire and began to explore several variations on it. In the earliest versions, the students' freewriting was followed by class discussion, with important points being summarized on an overhead projector. Later, she began to use review-writing tasks to focus students' attention before their quizzes (which came as often as twice a week), as the basis for class discussion, as a prelude to homework assignments, and by the end of the year as "open book" notes that pupils could refer to during the quizzes that followed. Although she checked all of the other work in her class, she read none of these review writings, which formed the basis of many lively discussions.

One of the most interesting aspects of Moss's use of review writing was the extent to which she came to take it as a matter of course. After the first month, she never discussed her plans for such writing with the project team or even mentioned them as part of the writing she was doing: they had become *hers* rather than *ours.* During the remainder of our work with her, one or another variation of review writing took place in over a quarter of the classes we observed, always without her thinking to mention it to us in advance.

Review writing worked well in Moss's classroom because it served a function she valued — preparation for quizzes — and did it better than the activities she had used to accomplish this in the past. As it evolved over time, review writing did not supplant class discussion as a preparatory activity, but it did serve as a way to enrich the discussions that followed and to ensure that everyone was involved. Because it was a preparatory activity, she was willing to postpone evaluation,

allowing the students to use these brief writings as a way to review and consolidate what they knew. Moss quickly claimed review writing as her own rather than as a project activity, in part because it was fulfilling her own goals so well.

The Curriculum as a Set of Particular Activities

There was one exception to the general pattern of easy assimilation of new activities to old patterns of instruction. This occurred in Royer's class, where the curriculum was defined in terms of a particular and long-standing set of activities.

In his twenty-five years of teaching, he had developed a comfortable pattern for his classes. Early in his career, he had become a firm believer in the use of simulation games to teach history and had developed a detailed curriculum based entirely on a variety of simulation activities. Although he professed to value student opinions and to structure his classes around inquiry approaches, over time the particular activities he used had come to be valued in their own right. Progress in his classes was evaluated primarily on the basis of having completed each activity; neither the complexity of the response nor the degree of engagement seemed to figure highly. Because of this, Royer found it exceedingly difficult to incorporate any new writing activities into his classroom routines. New activities were threatening on two levels: they posed problems for evaluation, and they threatened to displace his well-established routines. As a result, though Royer was always cooperative and congenial in his work with us, he is the one teacher whose teaching seems to have been, in the long run, unaffected by our collaboration. He found it difficult to find space in his curriculum to experiment with new activities, and those he did try were quickly if quietly dropped.

Changing Conceptions of Teaching and Learning

The changes that took place in some of the classrooms were considerably more fundamental than those we have been discussing so far. Rather than simply assimilating new activities to ongoing patterns of teaching and learning, in these classrooms the patterns of teaching and learning themselves began to change.

Emphasizing Students' Thinking

In Bush's class, such changes occurred very quickly. She began the project convinced of the importance of teaching students to think for

themselves as part of the process of scientific inquiry. She was also convinced of the role that writing could play in supporting such thinking, but she was constrained because of the time that the activities would consume. As she developed techniques for blending writing activities more easily into her ongoing work, she placed a gradually increasing emphasis on activities that gave students the opportunity to engage in extension and reformulation of what they were learning. Over time, her role in providing information dwindled away, replaced by her newly strengthened role in eliciting and supporting students' own thinking.

Moss's uses of writing in chemistry led to a slower but more extensive reconceptualization, as she came to recognize that her students were capable of a level of scientific thinking that she had not thought possible. We have already seen that her review-writing activities worked because she could assimilate them to her previous understanding of what mattered in learning chemistry. Broadening her teaching repertoire to include other kinds of writing activities was more difficult, because she saw them as involving "creative" thinking, and there was no place for creative thinking in students' initial learning of chemistry. As a result, she considered her first attempts at introducing writing in other ways to be dismal failures: completion rates were low, and when students did hand their work in, she did not know what to do with it. In most cases she procrastinated, and eventually threw the work away.

Moss's views of science learning did value hypothesis development and prediction, though she was doubtful that her students (in contrast to the biology classes she sometimes taught) knew enough chemistry to undertake such activities. This view provided her with a context for introducing the first successful longer writing assignment in her chemistry class, asking students to invent a new element and predict its behavior given its hypothetical structure. She was excited about the idea, but also feared that it would be too difficult for the students. Rather than abandoning it, she used the collaborative planning sessions to develop some ways to give the assignment more flexibility. She decided to set it as a homework assignment, where there would be "less pressure around the writing." (Homework assignments were usually given full credit for an honest attempt at the assignment, rather than being graded.)

Her initial hesitation changed to enthusiasm as she worked out the details of the assignment. By the time she presented it to the class, she told them she would love to make it a test, but did not want it to take on "ominous dimensions." Instead, she assigned it as homework,

adding, "The best part is that you cannot open up a book and look any of this up." The assignment was going to require the students' own ideas.

To prepare the students, Moss spent fifteen minutes in class explaining what was required and reminding them of specific scientific information they would need to consider. ("If the atomic number were 118, it would look like an inert gas.") With this preparation, students responded well to the assignment, though they were aware of the difference between it and most of their other writing in chemistry. As Gina, a case-study student, explained in commenting on the assignment later, "It wasn't that hard; but it was hard because it wasn't like a definite yes or no answer. It wasn't yes, it's right; no, it's not right."

Moss's first comment to us after she had read the papers was, "This writing stuff is kinda fun." Though it had taken two months of daily collaborative planning to get this far, the assignment marked a major turning point in her ability to use writing as part of her science class. She had many failures as well as successes in the remaining months of the project, but she was not deterred by the failures. She had come to believe that even in chemistry it was possible to teach the students to think for themselves, to develop "thought processes such as hypothesis development, conclusions, and designing experiments." These processes were a central part of her understanding of the scientific process, but she had not thought she could help her chemistry students learn to do them. This perception did not replace her original concerns with providing a solid base of information from which her students could work, but it represented a significant extension and redefinition of what would count as "knowing" in her classrooms. And this redefinition was a direct result of her experience with a writing activity that she did not assimilate to her previous routines, but instead used as a catalyst for rethinking what she had been doing.

A Contrast: Preserving Traditional Interpretations

There was a clear relationship between the teachers' emphasis on students' own thinking and the ways that they used the writing activities they developed during the project. Bush's and Moss's increasing emphasis on student thinking developed in concert with their new kinds of writing activities. Graves, on the other hand, resisted placing more emphasis on students' own ideas, and as a result the new writing activities did not play a very important role in his teaching. In his approach to writing about literature in ninth-grade English, he was using activities similar to those often promoted in the literature

on writing instruction because of their value in helping students think through new ideas or experiences. In his class, however, the activities were redefined to fit more comfortably with his own teaching agenda. As Graves began to incorporate various process-oriented writing activities, he used them to reinforce rather than to change his conception of what counts as learning in English.

We can take as an example his lead-up to the final paper on *Romeo and Juliet.* In the formal paper, discussed in the previous chapter, he wanted his pupils to write about the alternatives Juliet has at the end of the play and her motivation for choosing to die. In the collaborative planning sessions, he decided that pupils might benefit from a series of short, unstructured writings in preparation for the final paper. The episode is an interesting illustration of the collaborative process at work, as he reinterpreted and assimilated new activities into his teaching.

During the planning session, Graves discussed several writing topics he had been considering as part of the unit, finally settling on character motivation. A three-part sequence of activities emerged from this session, as the research assistant working with him summarized the plan:

> *Writing #1:* Freewriting in which students describe a conflict, picking a difficult choice they had to make between several options and answering the following questions: "Why did you do what you did, and do you think it had anything to do with your training, your character, etc.?"
>
> *Writing #2:* A second freewriting encouraging students to begin to think about motivation — the hidden forces that affect characters' responses to conflict. In this piece, students could be asked to provide a brief description of some action of a character in the play and discuss what they think his or her motive for it was. (This was intended to address Graves's concern for the students' need to be able to decode the language of the play.)
>
> *Writing #3:* A final paper in which students are to discuss the motives that figure into Romeo's or Juliet's response to their conflicts — Romeo has to choose among his love, his family, and his honor; Juliet has to choose between marrying Paris and being faithful to Romeo.

From one point of view, this series of writings represented a natural extension of the process of writing a formal paper. The three papers would build upon one another and would help the students think through the issue of character motivation before dealing with it in a more formal way. Graves's initial rationale for this series of writings seemed to be: "I think a failure of my teaching, my writing assignments

anyway, is that they tend to be sort of one-shot things, and the kids aren't normally primed — so [these are] good."

Personal experience and literary text, however, were two different things in his teaching, and by the time he introduced these assignments, they had been transformed to fit better into his classroom. The first freewriting exercise was introduced five days after the planning session. ("Freewriting" here was his term for any impromptu writing in which organization and content were not specified in advance.) The class followed the typical pattern, with three different activities during the period. The first twenty-six minutes were devoted to diagramming sentences, followed by seven minutes during which Graves read aloud from the play (part of his ongoing attempt to help students deal with the difficult language and give them a "feel" for the play). Thirty-three minutes into the class, he began the last activity for the day. He told the students to take out blank sheets of paper and reminded them to put their names at the top. He then said, "Now you're going to do some personal writing." He let them know that he would be collecting it at the end of the period and that he would read the papers but not grade them as he normally did.

He began the directions by saying,

> All right, what I want you to do is to think of a situation in which you had to make a decision that was difficult. Perhaps you were pulled in two different directions. Something you wanted, wanted to do, wanted to say that was difficult for you. I want you to write about that. I want you to say what you finally decided to do and why you decided, why you made the decision you did. What entered into your decision. It may take you a minute or two or three or four to think what to say, to write about. Think of some personal decision that you had to make where perhaps there were alternatives. [unclear] I'll write this on the board. You can be thinking while I'm writing.

Some students immediately began to write; others watched while he put the directions on the board. He wrote: "Write about making a decision, perhaps a difficult decision in the circumstances. What did you finally decide to do? What factors influenced your decision?" To this point the directions had taken three minutes.

Once the directions were on the board, most students went quietly to work. Six minutes into the freewriting, Lynn had filled roughly one-third of a page. Sandy had filled two-thirds of a page. One minute later, Suzanne turned her paper over and began filling the back side. Throughout this entire time, the classroom was very quiet.

After eight minutes, some of the students finished and some chatter began in the room. Others were still writing when Graves told them

to turn in their freewritings along with the other work due that day. The last few minutes of class were filled with students' chatter and the teacher's individual conferences about tardies and past homework. After the class, Graves admitted that he had wondered whether the students would be able to write when given an immediate prompt like the one he had given in class. Having watched their efforts, he was amazed and pleased that students seemed to write quickly and at length.

During a prep period, he read through the students' responses and on several occasions responded aloud to what a student had written (for example, one student had had to put his dog to sleep). Graves said he was moved by their honesty and the emotion they could express on paper.

From what he reported as he read through these papers, the students did not elaborate on what influenced their choices. Graves, however, was concerned about the amount of time he would be able to spend with freewriting in the class. Rather than continuing work on this assignment or even picking up with the sequence discussed in the original planning session, he returned the papers the next day and moved along with discussion of the play. From his point of view, the assignment had served the purpose of motivating student interest.

At the end of the study of *Romeo and Juliet,* Graves introduced the formal essay on character motivation without referring to the earlier freewriting. (The discussion on Juliet's decision, used to introduce the formal essay, is described in detail in chapter 4.) Following his lead, the students approached the formal essay without reference to the earlier work. Sandy, who had been very involved in the freewriting, noticed a connection with the essay only afterwards under the influence of our prompting:

> Well, yeah, it . . . the first freewrite did seem like it was related to the play 'cause I wrote about my family. Oh God, I never thought that but yeah, it does relate really well except it's not a quarrel between two different families; it's a quarrel in a family.

When we asked Stan, the second case-study student, a similar question, he did not even remember writing about a personal decision.

In discussing this and similar sequences that took place during our work with Graves, he said he liked the idea of having pupils do a series of preliminary writings rather than typical one-shot writing assignments. He also said he found that the pupils were engaged in the writing process, as indicated by the "genuine voice" that came through the writing. The writing itself reflected this difference in

engagement: 66 percent of the essays in response to the impromptu, personal writing assignment assumed a teacher-learner dialogue; 100 percent of the final papers were addressed to the teacher-as-examiner. Despite these observations, however, he admitted that he did not see the series of writings as a continuum, a position reflected in his teaching in a lack of explicitly articulated connections between the freewriting and the final assignment.

Graves's definition of student success was conditioned by his belief that meaning resides in the text. The path to knowledge, in his view, begins in the text, not in the knowledge his students bring to it. For him, their prior knowledge contributes to interest in, but not understanding of, the texts. Given these beliefs, he found the freewriting a useful way to stimulate student interest, but not a way to develop the meaning of the text. Because their writing did not lead the students into the text, it was unnecessary for him to make explicit the connection between the text and the freewriting, since he was not interested in having the students build a coherent theory out of personal experience. Finally, if time became a problem, the freewriting could be dropped from the curriculum altogether without risking the students' potential understanding of the text.

In the course of our work with Graves, he never altered these fundamental constructs of what counts as learning. And, in turn, he never altered the nature of students' engagement with learning in his classes.

The Link between Changes in Evaluation and Changes in Teaching

Teachers' systems of evaluation were tightly tied to the kinds of changes they made as a result of their collaboration with us. In each of the classrooms where the project led to changes in the nature of learning, the teachers also changed the kinds of performance they valued and rewarded. In each case, these changes involved developing ways to examine students' own interpretations and their ability to muster relevant and coherent evidence for their beliefs. At the same time, the classrooms in which the teachers found ways to assimilate the new activities most fully to their previous methods of evaluation were those showing the greatest change in classroom activities without a change in the nature of learning.

Jane Martin is a good example that shows how new ways of evaluating student progress were closely linked with other changes in teaching and learning. As we have seen in chapter 3, during her first year on the project, her central concern was to protect her students

from failure. To do this, she determined the important content to be learned, structured her lessons around that content, and expected students' responses to follow the pattern she had prepared. Even in discussion activities, her focus was on what she wanted to hear, rather than on what her students knew or were thinking.

In our early meetings with Martin, she had begun to talk about using writing to help her students explore in their own words the concepts they were studying, leading to a richer understanding of the information they were writing about. Despite this openness, her rules of classroom life were clear: it was the teacher's duty to impart knowledge, to structure the form and content of the lesson, and to evaluate student learning based upon the knowledge imparted. Given this framework, only during the middle of the second year of her participation in the project did Martin begin to find the words even to talk about the differences between her assumptions about teaching and her goals for student learning. Her ambivalence was evident. She admitted having an uncomfortable time reading her students' logs without correcting errors because, she said, "I thought, gee, I wonder if they know what's wrong here." She explained,

> What happens is we teachers start an assignment with a form in our mind and we know exactly what we want and we adapt things according to that form. Pushing the kids into it. You'll even find kids using words that you consider inappropriate and you have to pull back, you have to let them get the point for themselves. It's a very tough thing to let the kids go. I think the reason I do it [control so much of the student thinking] is I know where I want to go, and it's very hard for me to give that up. The kids want you to structure it because the kids are grade conscious and they know if I have some idea of what an "A" is that I'd better let them know so they can meet it. And the school system is structured. The textbook, the district competency test, the district objectives, all force me in a certain line of "This is where I have to be going." . . . Having the right answer makes teaching easier 'cause I know what I'm looking for. Not having the right answers makes it more chancy.

Martin struggled with this issue of evaluation and control throughout the two years she collaborated with us. Underlying it was her continued sense that not only did a certain body of knowledge have to be learned during each of her social studies units, but also that students needed to be able to recite their understanding in particular ways. These responses were her evidence that the students had learned the necessary information and that she had been a successful teacher. Support (or control) was her way of assuring the kind of successful recitation she considered so important.

Martin's approaches began to change only as she found new ways to handle the problem of evaluation. One of her successes during the second year came in a unit on Africa. In the unit she began to focus on more complex social studies skills, such as students' ability to draw inferences about the countries from the information they had collected: "If I say something like 'These people farm,' then how can I draw an inference like 'I would not expect most people to drive a car' or 'I wouldn't expect many people to live in big cities'?" She found it more difficult to ensure that her students would be successful at activities stressing such goals; her response was to provide even more structure for their work, confining her evaluation within that structure. Thus a letter-writing assignment about Africa told the students where to look for information and specifically warned them to "make inferences about what one will see":

> You have just looked at a variety of information about Africa. Pretend you learned all these things not from maps, but on a trip there. Now write a letter to a friend describing what he or she can expect to see in Africa. Include as much information as you can. See if you can take the information from the charts and make inferences about what one will see. For example, the low literacy rate might mean that signs are probably pictures rather than written. See how informative you can be.

Students wrote rough drafts in class, and Martin responded to the drafts with suggestions for improvement before the final drafts were completed in class. In talking about the assignment, she commented on the structure she expected and how she would evaluate papers within that structure:

> I want [the papers] to be limited to [discussions of] two or three categories. One category in a paragraph. For example, literacy is a category; health is a category. Say what they expect to find based on a category. . . . I'm going to evaluate these, probably, since I'm trying to teach [making] inferences and being logical, probably on the basis of how logical they are. Do they make sense or are they off the wall kind of thing.

Martin's criteria for evaluation, which she did not share with the class, suggested that she had a good idea of the content and form she was looking for.

Keith, one of the case-study students, had difficulty with the assignment until he got help from the teacher:

> At first what I thought she was looking for was just what you would write to somebody. Like I started out writing like that and she told me that I had to put a lot more there, like more facts,

> so I had to change the way I was doing it. . . . So I just put a bunch more facts. She explained to me how to relate them to what I was writing about.

Martin was pleased with the results: "They did a lovely job. Their problem is not in making the inferences, it's in connecting the specific data. They talk too generally." Her sense of what would demonstrate learning influenced the assignment she gave, the instructional supports she provided along the way, and the evaluation criteria she used.

As her evaluation criteria changed, Martin began a transition to a different kind of teaching — a transition not completed until the second year of her participation in the project. When we first met Martin, her writing assignments were generally fill-in-the-blank exercises. This assignment on Africa, like many of her writing assignments during the second year, asked instead for a lengthy response and offered the students more room to add their own ideas. As she became more enthusiastic about such writing, she began to accept student interpretations of their new learning as evidence of student success rather than grade solely on the basis of accuracy in replicating what had been presented in the textbook or in class. She was aware of the changes in her approach and wanted them to become a more routine part of her instructional style. Yet the lesson on Africa reminds us how difficult a change this can be, even for a teacher as committed to change as Jane Martin.

Conclusions

Our look at teachers and classrooms in the process of assimilating a variety of writing activities leads us to several conclusions about the role of writing in academic classrooms. Across time, all of the teachers moved toward a new conceptualization of writing as a tool for learning *some* of the time — none of them incorporated new approaches to writing and learning *all* of the time. The extent to which they made such changes was governed by several factors, all related to their ideas of their roles as teachers and the students' roles as learners: what it means to teach, what it means to learn, and what should count as evidence of successful teaching and learning.

An overview of the seven teachers in the study and the changes that occurred during the course of their participation is provided in table 7. The central concerns that governed the classrooms (elaborated in chapter 3) remained constant throughout the study for all of the teachers, reflecting their deep-seated beliefs about how their classrooms

Table 7

The Teachers' Constructs of Teaching and Learning

	Central Concern	Role of Teacher	Evidence of Learning	Change in Activities	Change in Learning
Martin					
Initial	Protect students from error	Provide information	Accuracy		
Final		Provide information, elicit thinking	Accuracy, interpretation	Yes	Yes
Bardolini					
Initial	Provide information	Provide information	Accuracy		
Final		Provide information	Accuracy	Yes	No
Moss					
Initial	Foster content inquiry	Provide information	Accuracy		
Final		Elicit thinking	Accuracy, interpretation	Yes	Yes
Bush					
Initial	Foster content inquiry	Provide information, elicit thinking	Accuracy		
Final		Elicit thinking	Accuracy, interpretation	Yes	Yes
Royer					
Initial	Complete established routines	Provide activities	Participation		
Final		Provide activities	Participation	No	No
Watson					
Initial	Help students organize	Provide activities	Complete activities		
Final		Provide activities	Complete activities	Yes	No
Graves					
Initial	Understand traditional forms	Provide information, activities	Accuracy		
Final		Provide information, activities	Accuracy	Yes	No

should function. These beliefs were clarified and articulated in the course of the project but did not change.

At the same time, many of the activities that the teachers developed in the course of the project represented at least implicitly a change in the teachers' understanding of their own roles. In addition to worksheets with right answers, they developed essay tasks that allowed a variety of responses; in addition to quizzes to be graded, they introduced freewriting activities that were not always read by the teacher. For three of the seven teachers (Martin, Moss, and Bush), the cumulative effect of such changes was to alter their own characterizations of their roles as teachers. All three had begun the study convinced that a major part of their roles as teachers was to provide information. At the end, all three had redefined their roles to place more emphasis on the need for students to interpret and reinterpret what they were learning for themselves, with the teacher serving as helper and guide. In redefining their roles, they also developed a new perception of what could count as learning in their classrooms, placing more emphasis on students' interpretations (and the evidence for such interpretations) instead of responding solely to the accuracy of the evidence itself.

We have also seen that it is relatively easy to introduce new writing activities into most classrooms, as long as these activities fulfill important pedagogical functions. Teachers will reinterpret such activities in the process of assimilating them, to ensure that they function smoothly within the constraints and expectations governing their teaching. At the same time, however, process-oriented approaches to writing may contain the seeds of a more fundamental transformation in the nature of teaching and learning. In some classrooms, at least, the introduction of these activities changed the role of the teacher and the role of the student, leading to more emphasis on students' own interpretations and on their engagement in the process of learning.

For those who wish to reform education through the introduction of new curricula, the results suggest a different message. We are unlikely to make fundamental changes in instruction simply by changing curricula and activities without attention to the purposes the activities serve for the teacher as well as for the student. It may be much more important to give teachers new frameworks for understanding what to count as learning than it is to give them new activities or curricula. Experienced teachers in particular already have a large repertoire of activities that they can reorchestrate effectively as their own instructional goals change. For them, it is the criteria for judging students' learning that will shape how they implement new approaches. Learning activities are driven by their purposes in the classroom

environment, and how activities are evaluated is one of the clearest expressions of those purposes.

Our examination of teachers in transition was particularly important in our evolving theory of instruction. Thus far, however, we have focused primarily on the teachers, the nature and uses of the activities they introduced, and their students' responses to those activities. To round out our understanding of the uses of writing in academic learning it is also necessary for us to understand writing as it is experienced by the students — how particular writing activities affect their thinking and learning. Our studies of learning addressed these issues and will be discussed in chapters 6 through 8.