9 Learning from Writing in the Secondary School: Accomplishing Our Goals

We began this project with two goals: first, to extend research knowledge about the effects of writing on content learning and, second, to develop models of thoughtful and thought-provoking writing activities that would work in a variety of subject-area classrooms. We achieved these goals, and more.

Learning from Writing

From the series of studies of learning and writing, we gained a more complete understanding of the ways that writing works in support of learning. Across the studies, there is clear evidence that activities involving writing (*any* of the many sorts of writing we studied) lead to better learning than activities involving reading and studying only. Writing assists learning. Beyond that, we learned that writing is not writing is not writing; different kinds of writing activities lead students to focus on different kinds of information, to think about that information in different ways, and in turn to take quantitatively and qualitatively different kinds of knowledge away from their writing experiences.

Short-answer study questions, for example, lead students to focus on particular items of information either located in the text or implied by it. When completing writing tasks of this sort, students often look for the information in the textbook or in class notes and "transcribe" it directly onto the paper — from text to paper, with the student writer as conduit. Little rethinking of the material usually takes place. However, because this kind of activity usually includes questions about many different aspects of the material being studied, it generally leads to short-term recall of a good deal of specific information.

In contrast, analytic writing leads to a more thoughtful focus on a smaller amount of information. While fewer ideas are considered, they are dealt with in more complex ways; ideas are linked and understanding is reconstrued. Although less information is likely to be remembered immediately, over time this information is longer lived.

Why does this happen? Results from our analyses of think-aloud protocols gathered as students completed in-class as well as experimenter-prepared writing tasks indicate that some tasks lead students to more complex manipulations of the material they are writing about, while other tasks lead them to move more rapidly — and more superficially — through larger quantities of material. And when information is manipulated in more complex ways, it tends to be better understood and better remembered. Our studies show further that it is the particular information the writer focuses on that is affected; related material from the same passage is remembered much less well.

Where does that leave us? While writing helps learning, it is important for teachers to be selective about the kinds of writing activities they ask their students to engage in, depending on the kinds of learning they are seeking. Analytic writing leads to a focus on selective parts of the text, to deeper reasoning about less information. Summary writing and note-taking, in contrast, lead to a focus on the whole text in more comprehensive but more superficial ways. Short-answer study questions focus attention on particular information, with little attention to overall relationships. Each type of writing and each kind of learning has its place in schools, particularly when writing is used selectively for particular purposes. The ability to select appropriate writing activities as well as the ability to engage successfully in them will, we think, enhance students' thinking and reasoning.

Writing in the Classroom

We also learned a great deal from our studies of teaching. First, we learned that writing activities can be developed to support the content goals in a variety of high school subject classes. Although each of the teachers we worked with took a somewhat different approach to the curriculum and had somewhat different instructional goals, writing activities in each of the classrooms fit these goals and also provided the students with opportunities to use writing as a means to learn content.

In working with the teachers, we learned that subject-area writing can be used productively in three primary ways: (1) to gain relevant knowledge and experience in preparing for new activities; (2) to review and consolidate what is known or has been learned; and (3) to reformulate and extend ideas and experiences. Our analyses of the students' papers and their self-reports indicated that writing used to reformulate and extend knowledge led to more complex reasoning than did the other types of writing; review writing led to the least.

While all three types of writing activities had a place in each of the content classrooms we studied, review writing predominated. Although review writing works well to help students rethink and clarify new learnings, little review writing was used for this purpose. Instead, it was used to grade the students on newly learned material. This approach, we found, was an outgrowth of the teachers' need to evaluate the effectiveness of their teaching as well as to assess their students' learning. In most cases, review writing provided an easy mechanism for that evaluation. Writing was most effectively used to enhance student learning only when the teachers' criteria for judging that learning changed from the accuracy of students' recitations to the adequacy of their thinking.

Evaluation continued, but its nature changed as the teachers began to judge the effectiveness of student learning on the basis of the quality of their ideas. Then it became possible to introduce a variety of in-process writing activities as well as "think papers" in which there were no clearly right or wrong answers, but in which the students' progress toward a deeper understanding of the material was evident. And it was this progress toward deeper understanding that served as evidence for learning.

While results from the studies of writing and learning reinforced our belief that writing can be a useful aid to learning in high school course work, the classroom studies highlighted the many difficulties that arise when process-oriented writing activities are incorporated into traditional classrooms. Without new models for evaluating student learning, teachers will continue to rely on old indicators and, in doing so, abort the deeper process of instructional change they meant to embrace.

Notions of Instruction

We can better understand the teachers' notions of instruction if we place them in the context of more general views of literacy instruction and literacy learning. Notions of literacy and what it means to be a literate individual have taken on different meanings at many points in our history (Resnick and Resnick, 1977). Throughout the 1900s, however, approaches to literacy instruction have remained relatively stable, as have more general beliefs about teaching and learning. During the first half of the twentieth century, issues in reading and writing instruction were essentially issues of curriculum: what should be taught and how to evaluate the success of that teaching. Early

analyses were concerned with describing the skills students lacked in order to define simultaneously the skills that should be included in the curriculum (see Langer, 1984a).

Implicit in this model was an orientation that treated the purposes guiding the reading or writing activity as essentially irrelevant. That is, the activities themselves and the work that resulted from having engaged in those activities received the focus, while the functional aspects of the activities were largely ignored. This resulted in a variety of practice exercises that tended to become separated from the more complete and purposeful activities to which they initially belonged. Through the years, classroom approaches to the teaching of predetermined content and skills changed. At times the skills were thought to be best taught out of context, at other times within the context of larger, meaningful units of text. At times the focus was on diagnostic testing to individualize each student's program of subskill learning, and at other times all students were thought to benefit from exposure to the entire developmental sequence of skill training.

Although differing in their implementation, these approaches all viewed the teacher as a provider of information. They also relied heavily upon testing to determine what the students needed to know. The teacher's craft was one of knowing the range of skills, diagnosing what the students still needed to learn, providing instruction directed at the missing skills, and testing to see if the instruction had been effective.

This version of curriculum is based on an industrial metaphor (Callahan, 1962) and is often accompanied by a fairly complex management plan that controls the sequence of diagnostic testing and provides appropriate instruction, evaluation, and reteaching. The materials and activities developed to accompany such a program are structured to provide students with myriad opportunities to practice what they cannot already do. With some shifts in emphasis across the years, this version of curriculum dominated instruction throughout the first half of the twentieth century, was at the base of the curriculum reform movement in the 1960s, and, despite the process- and context-oriented research of the past two decades, continues to undergird contemporary approaches to schooling, including the approaches of the teachers we studied.

Though persistent and widespread, this model of teaching militates against many of our goals for writing and learning. It emphasizes the teacher as transmitter of knowledge, rather than the students as active agents who must interpret and reinterpret what they are learning; it emphasizes testing and evaluation, rather than work in progress; and

it emphasizes declarative rather than procedural knowledge (knowing *that* rather than knowing *how*). To summarize bluntly, given traditional notions of instruction, it may be impossible to implement successfully the approaches we have championed.

Toward an Alternative View of Writing Instruction

This interpretation of the results of our studies has led us to develop an alternative view of effective instruction. In this view, rather than providing information and evaluating what students have learned, effective writing instruction provides carefully structured support or *scaffolding* as students undertake new and more difficult tasks. In the process of completing those tasks, students internalize information and strategies relevant to the tasks, learning the concepts and skills they will need in order eventually to undertake similar tasks on their own. In developing this model, we are concerned not so much with psychological models of learning as with the context of the classroom. The model posits a view of instruction that is contextually embedded and that articulates with day-to-day practice as well as with what we have learned about psychology and language learning. It offers a bridge between the worlds of theory and practice.

Studies of Learning

The view that we have adopted grows out of a more general view of language learning, one that has been heavily influenced by the work of both Vygotsky and Bruner. Vygotsky (1962, 1978, 1981) focuses on language as a social and communicative activity. He argues that higher level skills are the result of the child's learning of social-functional relationships; in becoming literate, children internalize the structures of socially meaningful literacy activities. Interactive events are at the heart of literacy learning. They involve the child as an active learner in a setting where an adult guides the child's progress through the learning task. Through successive guided experiences, children come to develop their own self-regulatory abilities. Thus approaches that are initially mediated socially are eventually internalized and become part of the repertoire of the individual.

Similarly, Bruner views the adult-child tutorial relationship as critical to language learning (Wood, Bruner, and Ross, 1976). He uses the term *scaffolding* to describe the tutorial assistance provided by the adult who knows how to control those elements that are beyond the child's capabilities. Bruner views language as providing the basis for concept

formation, as a tool for cognitive growth (Bruner, Oliver, Greenfield, and others, 1966). Further, he sees writing as a powerful tool essential for thinking (1973), and schooling as promoting the growth of reasoning abilities through training in the mastery of written language. Written language, he believes, is particularly important in encouraging cognitive growth because it is abstract — the referent is not present as it is during many forms of oral discourse. The language of school is particularly important in developing abstract literacy skills, requiring students to go beyond concrete facts and to deal with abstractions.

Both Vygotsky and Bruner see language learning as growing out of a communicative relationship where the adult helps the child understand as well as complete new tasks. These authors also see literacy as encouraging the kinds of thinking and reasoning that can support higher levels of cognitive development.

Our general approach to the study of literacy is to treat literacy learning as an extension of these language-learning processes and to embed our analyses in more general frameworks of language learning (Langer and Applebee, 1986).

Studies of Instruction

The power of these early language-learning strategies is attested to by the rapid growth of language in the young child, but only recently have we begun to understand these strategies and more recently still to use them as a framework for examining instruction. Cazden (1979), summarizing recent research on discourse learning, proposes Bruner's studies of parent-child interaction as a starting point for a new instructional model. In our own papers, we have been developing the concept of instructional scaffolding as an important component of effective literacy instruction, functioning much as the adult in the adult-child pairs: simplifying the situation, clarifying the structure, helping the student accomplish tasks that would otherwise be too difficult, and providing the framework and rules of procedure that will gradually be internalized until the instructional support is no longer needed (Applebee and Langer, 1983; Langer, 1984a; Langer and Applebee, 1984, 1986).

Instructional Scaffolding

Similar to these patterns, the most successful instruction observed in our project occurred when the students and the teacher had a shared understanding of the specific goals of an instructional activity, as well as a shared sense that the activity required a collaborative interaction

if it was to be completed successfully. These observations have led us to elaborate our notion of instructional scaffolding as an alternative model to traditional approaches to literacy instruction. In its present form, the model falls short of a complete theory of instruction, serving instead as a metaphor that captures the most important dimensions of change that are needed for effective literacy instruction. In our earlier papers, we proposed five components of effective instructional scaffolding. Even though our vocabulary keeps changing, we have labeled these components *ownership, appropriateness, support, collaboration,* and *internalization.* We will summarize each of them briefly, highlighting the ways that they relate to previous studies, as well as the ways that they appeared in the classrooms we studied here.

Ownership

Effective instructional tasks must allow room for students to have something of their own to say in their writing. Students must see the point of the task, beyond simple obedience to the teacher's demands. It is this sense of purposefulness that will integrate the various parts of the task into a coherent whole, providing a sense of direction. The focus must be on what is being accomplished through writing if the student is to learn procedures to carry out those purposes.

In practice, this focus is often neglected. The majority of writing tasks require recitation of previous learning, allowing the student little room to claim ownership for what is being written. Even when process supports such as brainstorming activities or multiple drafts are provided, these supports are often seen by the students as separate activities unrelated to the writing that the process activities were meant to support.

In the present study, we have seen how difficult it is for teachers to allow room for such ownership to develop. In the three science classes, the demands for accuracy and knowledge of the appropriate content kept shifting the teachers' focus toward recitation, so much so that in Julian Bardolini's class even a learning log eventually became a context for recitation rather than interpretation of the day's activities. In Jane Martin's social studies class, her concern with protecting her students from error led her to provide so much structure that there was little room left for the students to claim their own point of view, even though she felt that developing their own opinions was an important and continuing goal. In Jack Graves's English class, ownership was limited to "motivational" tasks, personal writing that was kept separate from literary studies. It was never clear that Graves saw

a place for students' own interpretations in literary study, at least not if there were any possibility that those interpretations might vary from those sanctioned by tradition.

Appropriateness

Effective instructional tasks will build on literacy and thinking skills the students already have, helping them to accomplish tasks that they could not otherwise complete on their own. In Vygotsky's (1962) terms, instruction should be aimed "not so much at the ripe, but at the ripening functions." (More specifically, Vygotsky argues that instruction should be addressed at the zone of proximal development, defined essentially as tasks that a learner can complete with appropriate help but would be unable to complete unaided.) Such approaches work only when the interaction builds on the language resources that students already have, stretching them to new and more complex contexts. When the stretch is too far, the dialogue falls apart and progress is resumed only when the teacher redefines the task in terms closer to the students' understanding of the situation.

Again, our studies of writing instruction suggest that this principle is more violated than observed. When students are asked to undertake new tasks, the tasks are too often not set in the context of skills and knowledge the students already have. This manifests itself in two ways: as the assumption that if students are simply given a topic to write about, they will somehow know how to do it; or in the assumption that every element of a new task must be taught from scratch, as though the students had no resources to draw upon already.

The teachers in the present study were continually amazed by what their students were able to do when challenged with new tasks. Graves's impromptu themes, Bush's and Moss's "What If . . ." assignments, and Martin's inference papers all represented tasks their students were ready for and to which they responded well. On the other hand, the teachers in their enthusiasm for new approaches to writing sometimes stepped beyond what the students could manage even with guidance, and the assignments collapsed in frustration and occasional anger.

Support

To be an effective vehicle for learning, instructional tasks must make the structure of the activity clear and must guide the student through it in a way that will provide effective strategies for use in other contexts. Put another way, the task must support a natural sequence of thought

and language, providing effective routines for the students to internalize.

Support of this sort is one of the most consistent features in studies of effective instruction — the student learns to do new language tasks by being led through them in the context of a supportive dialogue. This ensures that skill learning includes a sense of the appropriate contexts for use; new procedures and routines are embedded in the contexts they serve, rather than being presented as isolated components that may or may not be seen as relevant. Embedded in this way, their use may be highlighted by the teacher's commentary, but this is very different from teaching the procedures as skills out of context.

In practice, writing instruction is usually organized around skills to be learned rather than purposes to be accomplished. Models of curriculum lay stress on hierarchies of skills to be learned, often in elaborate scope and sequence charts, and teaching and testing emphasize those skills — the parts rather than the whole. Although recent attention to process models of instruction seems to be moving toward teaching that is responsive to "natural" stages in the writing task, very little of the process approach has made its way into classrooms. Most students write little, and when they do write, the writing usually involves a first-and-final draft of a page or less, produced in one class period in response to an assignment that specifies an appropriate length, topic, due date — and little more.

Again, the present study contains many examples of how appropriate support can extend students' capabilities and enrich their learning. When Janet Bush asked her students to create a new animal, she provided the structure and guidance that made it possible for them to do so successfully. Julian Bardolini's guide questions for his daily journals, Jack Graves's detailed preliminary discussions of the formal essays he required, and Jane Martin's "formula paper" all offered similar structure, helping the students complete a task while they were learning the skills that would eventually allow them to complete similar tasks on their own. The last two examples illustrate a natural tension, however, between support and ownership: the craft of teaching is in part a process of finding the proper balance between providing enough support and taking too much control.

Collaboration

At the heart of the teacher-student relationship is a bond of collaboration. The teacher's role is one of helping students toward new learning, rather than of testing the adequacy of new learning. This

role is obvious in the interaction between parent and child, where the adult assumes that the child has something that she or he wants to say or do and works with the child to carry this through to completion. The adult's repertoire of devices includes modeling, extension, re-phrasing, questioning, praise, and correction, but they are employed in the service of the task (book reading, peek-a-boo, puzzle building), rather than to judge the child's performance.

Teachers' roles in writing instruction are rarely collaborative, how-ever. Much more frequently, the role is one of evaluation, which is usually tied to previous learning, not to learning in progress. We speak of cheating rather than of help, and grades rather than ways to solve a writing problem. Our studies show that the role of teacher-as-evaluator permeates almost all classroom exchanges, written and oral alike.

Adopting a collaborative rather than an evaluative stance was one of the most difficult things for the teachers in our study to achieve. Their concerns with evaluation were deeply ingrained in the structure of their classrooms as well as in the schools and districts within which they taught. Some of the teachers never managed to shift their focus; others did so by establishing specific contexts separate from the ongoing stream of classroom activity. Thus some of Kathryn Moss's most successful activities were her "practice conclusions," which were op-tional and not graded because they were work in progress.

Internalization

As new learnings mature, they become internalized as part of the student's own repertoire. They move from the interpersonal setting of instruction to the inner world of knowing and remembering. Cazden (1979) and Griffin and Cole (1984) have pointed out that the term *scaffolding* appears more static than the concept is meant to imply. It is a peculiar kind of scaffold we mean — one that self-destructs as the child internalizes its features, allowing the student to complete similar tasks without further help. (However, the teacher-student relationship leaves open the opportunity for new interactions to occur with whatever new scaffolding is needed.)

In our instructional practices, we too often forget to let the scaffolding self-destruct. In one part of our study of writing instruction, we analyzed popular textbooks in seven subject areas and found few differences in the writing activities suggested between the ninth and the eleventh grades and no differences in the kinds of activities suggested over the course of a year in individual texts (Applebee,

Langer, et al., 1984). There was no transfer of control from teacher (or textbook) to student in response to the learning that was presumably taking place. When something works well, we tend to keep using it without being sensitive to whether the students still need the kind of support that the activity was initially meant to provide.

This view of instruction permits a fusion of the need for direct instruction in new skills with the recent concern about reading and writing processes. The critical feature is that the instruction take place in a context where student as well as teacher has an active role to play in the writing activity. Room must be allowed for a shared exchange of ideas between teacher and student and an underlying understanding about their roles and goals — who needs the help, who gives the help, what help is needed, and why.

When instruction is approached in this way, student and teacher roles necessarily change and, along with them, the nature of lessons and learning. Instruction takes on a different face that requires new uses of materials and new ways to assess whether learning has taken place. In this model of instruction, the teacher retains the role of planner and initiator of classroom activities. However, the activities planned need to provide scope for the students to develop their own purposes rather than simply providing responses to fit into the teacher's predetermined framework.

The notion of instructional scaffolding provides both a framework for analyzing ongoing instruction and a metaphor that teachers may find helpful in reformulating their practice. Unlike the notions of curriculum that underlie current practice, instructional scaffolding leaves room for encouraging reasoning of a higher order as well as for the basic skills. It may also offer a way to integrate recent scholarly attention to reading and writing processes with the practical and pressing concerns of the classroom.

Changing Practice

New views of instruction are not likely to replace more traditional views without well-orchestrated support for change on the part of the teacher, the school administration, and the general public. Although we began our studies with the relatively simple agenda of developing models of effective uses of writing in a variety of secondary school subject areas, we ended with a recognition of the many institutional and professional constraints that influenced what the teachers were able to do.

Institutional Constraints

Testing and Evaluation

As we have seen, testing plays an integral part in the model of curriculum that dominates in most classrooms. Test construction is generally guided by what the test writers think *should* be taught. Tests are used to diagnose the knowledge already attained and to identify what to teach next, as well as to evaluate the success of the teaching.

Evaluation of student learning is also deeply embedded in the exercises and activities that accompany commercially published text-books and curriculum materials. In addition, schools and districts tend to rely on formal testing programs to monitor educational progress and evaluate the effectiveness of educational programs. Dorr-Bremme and Herman (1986) found that in American secondary schools 12 to 13 percent of available instructional time in the subjects they studied was devoted to testing — roughly one test in each subject every three to four days.

The classrooms we studied mirrored this general pattern: tests in their various forms were frequent, and ongoing work was evaluated as an indication of previous learning. We have discussed at some length how the teachers struggled with the general problem of eval-uating ongoing work and how inhibiting this struggle was to the process of change. Many of the most interesting activities were suc-cessful only because the teachers removed them from the stream of evaluation, treating them as drafts or work in progress or as extra-credit assignments that would receive points for completion rather than grades.

Less obvious but no less real was the tension generated by more formal testing such as the school and district examinations that students faced in most subjects. As in most school districts, these tests were tailored to the district curricula and focused on information that could be tested in easily scored, multiple-choice formats. The tests emphasized breadth of coverage rather than depth of understanding. As we have seen in our studies of student learning, there is a real tension between depth and breadth of learning: activities that focus on a deeper understanding and more complex thinking usually focus on a narrower band of information. In planning their curricula, the teachers in our study often had to choose between these goals: to ask the students to write at any length about one topic meant a trade-off of time that could have been devoted to other topics. In her interview with us after the first year of work, Jane Martin commented on the effect this constraint had had:

> The district competency test had seventy-five multiple-choice items. The distribution for my class was strange; I had them skip some items. They skipped all the questions on Japan, which we never got to. But they learned better things as a result of the writing: (1) they learned how to think a little better; (2) they learned how to organize a little better; and (3) they learned better how to raise questions and judge answers [about the topics we did study].

The district examination valued coverage rather than depth of understanding and thus was at odds with the choices Martin had made. The influence of these tests was kept to a minimum only because of the professional self-assurance of the teachers we worked with. They believed in what they were doing and were secure enough with their colleagues and supervisors to accept the risk that their students' results might have a "strange distribution" as long as the students also "learned better things."

Administrative support at the department, school, and district level is critical if teachers in general are to accept such goals. Instructional change does not take place when it is in conflict with institutional values, particularly as those values are expressed in the system of testing. Although many school administrators claim to desire instructional programs that foster higher levels of thinking in content learning, the tests they mandate often evaluate the more superficial and unintegrated learning supported by less complex writing and thinking.

Thus new criteria need to be developed to evaluate more complex forms of student learning, and these criteria need to become part of traditional testing programs. Including essays as a regular and expected part of all examinations would help in this regard, although they would have to be accompanied by innovative marking procedures. Unfortunately, the easiest way to grade essays is to develop rubrics that give credit for specific information included in the writing. But if essays are graded by such rubrics, they reward exactly the same sorts of learning as do the multiple choice examinations they are meant to replace. Teachers of English have come to rely increasingly on general impression or primary trait scoring as ways to deal with such problems — methods of evaluation that turn attention toward the effectiveness and structure of the argument as a whole rather than toward the parts out of which it is built. It should be possible to modify such approaches to reflect the quality of students' reasoning about specific subject matter, striking a balance between the power of the underlying conceptualization and the accuracy and breadth of the supporting detail. Such alternative ways to evaluate student learning and to judge program effectiveness at the district level would serve as powerful

support for teachers to use more thoughtful approaches to instruction and evaluation in their own classes.

Textbooks and Materials

Another institutional factor that constrained the approaches the teachers were able to adopt was the quality of the textbooks and instructional materials available to them. Virtually without exception, the materials available provided piecemeal and inadequate models of teaching and learning. In working with us, none of the teachers could turn to the materials already available for helpful suggestions or new ideas; they had to create each activity from scratch. Even with the support provided by the project staff, this was a slow and laborious process requiring more time and energy than most teachers can afford to invest. Rather than new approaches, the activities in the commercially available materials reflected an eclectic and haphazard collection of old suggestions, focusing for the most part on breadth rather than depth of coverage and on evaluating what students had learned rather than on helping them in the process of learning.

The problems in the textbook materials operated at two levels. On one level, the activities and exercises emphasized review and evaluation. On another level, the textbooks themselves were poor models of writing and thinking within the disciplines they represented. Rather than conveying the excitement of scientific or historical inquiry, the textbooks in those subjects served more as reference guides to scientific or historical information. They were dull and gave little sense of the organizing concepts that might matter within the discipline. The teachers were aware of the difficulty and devoted much of their teaching time to reviewing ideas that students should have gotten from their textbooks. To a greater extent than should have been necessary, they devoted class time to creating rather than reinforcing and extending frameworks for understanding the subject matter. The teachers we chose to work with were able to do this quite well, but one must wonder how teachers with less experience or background in their fields can manage.

Conditions of Instruction

The third set of institutional constraints stemmed from the conditions of instruction. One of the most frequent concerns about asking students to write is how to manage the paper load. When teachers meet five classes daily, each with thirty or more students, the concern is legitimate. The teachers in our study had no control over the conditions under

which they taught, but they did find their own solutions to the paper load. These solutions took a number of forms, including limiting the length of the assignments, focusing on content rather than on spelling and grammar, relying on peer response to early drafts, and postponing grading until the final stages. At other times, student papers were used as the basis of class discussion, relieving the need for collecting and reviewing them.

At the same time, these solutions raised various kinds of tension, foremost among them the teachers' concern that their actions would be misunderstood. As one teacher said, "If I send work home without marking all of the spelling errors, will the parents think I don't know any better?"

Counterbalancing these concerns was a gradual discovery that well-constructed writing tasks lead to interesting writing, which in turn can reduce the burden of responding to the papers. Jane Martin expressed it well:

> I actually had fewer papers to grade during the project time — not so many objective things to grade. Overall it probably took more time though, because the writing took longer. But I enjoyed reading it; I even look forward to reading their papers. That was a change.

The teachers who adopted flexible approaches to the paper load were those who became most comfortable assigning writing to their classes. They used preparatory writing as the basis for discussion, review writing as preparation for papers and self-assessments as well as for personal journals and learning logs, and writing to reformulate and extend as part of work in progress. Each type of writing was also used as the basis for peer responses as well as for whole class discussions. Writing, the teachers learned, can be for the *student* as well as for the *teacher*.

Professional Constraints

The final constraint on adopting new approaches stemmed from a general failure of the teaching profession to provide teachers with clear conceptualizations of the nature of writing specific to their disciplines. While teachers can easily recognize (and reward) correct information, they have more trouble articulating the rhetoric or the rules of evidence that govern effective argument within their particular disciplines.

If teachers are to help students think more deeply about the subjects they are studying, then we must begin to articulate the components

of effective discourse in particular disciplines. Further, if writing is to play a meaningful role in subjects other than English, then the teachers of those subjects will need to have a conception of writing specific to their disciplines, one that emphasizes what is unique about writing (and thinking) in their subject, rather than one that emphasizes ways in which such activities will foster the work of the English teacher.

Although broad discourse purposes or uses of language are common to the various high school subjects, the similarity in purpose may also mask very important differences in how these purposes are achieved. These differences are likely to involve very fundamental concepts — notions of causality and proof, of evidence or warrants for claims, of assumptions that can be taken for granted, and of premises that must be made explicit and defended. Such concepts may lie at the heart of learning to write effectively about a particular subject area, as well as at the heart of the development of the higher level thinking skills that so few students seem to achieve.

Our studies of effective teachers have highlighted the extent to which our understanding of writing skills has focused at the level of generic purposes and has ignored the specific content domain within which students are writing. In retrospect, this focus has contributed to two widely held assumptions that we sought to challenge in the present study: (1) that writing is primarily the job of the English teacher, who should be teaching the generic strategies; and (2) that writing within other subjects has no fundamental relationship to the teaching of those subjects. Given these assumptions, to the extent that writing is emphasized it will be only as a help to the English teacher or as a diagnostic tool to see what students have learned.

However, another way of viewing the classroom can transform the role of writing. This is to view the classroom as a community of scholars (or of scholars and apprentices) with its own rules of evidence and procedures for carrying the discussion forward. Students must learn, then, not only the "basic facts" around which discussion is structured, but the legal and illegal ways in which those facts can be mustered in the disciplinary community defined by that classroom. This discussion will be partly oral, in the presentations and interactions that make up the dialogue of instruction; but the opportunity for individuals to make extended contributions during class discussion are necessarily limited. Writing then becomes a primary and necessary vehicle for practicing the ways of organizing and presenting ideas that are most appropriate to a particular subject area. In such a view, writing, rather than being an aid to the English teacher, becomes a major vehicle for conceptual learning in all of the academic disciplines.

Final Thoughts

We began this book by stating our belief that the effective teaching of
writing is an essential component of school programs in general. Much
beyond the English classroom, writing supports more complex thinking
and learning about the subjects that students are expected to learn.
We also provided evidence from recent studies that the amount and
complexity of the writing required in American schools gives cause
for concern.

   The studies we presented in the major portion of this book have
helped to answer some of the very basic questions we set for ourselves.
Written language does indeed make a contribution to content learning
and it can support the more complex kind of reasoning that is
increasingly necessary for successful performance in our complex
technological and information-based culture. It becomes essential, then,
to make clear and effective writing in all school subjects a central
objective of the school curriculum. If this objective is to be met,
however, policy makers, administrators, and teachers alike will need
to work together to reward thoughtful argument over simple recitation,
to judge the effectiveness of schooling by standards that take into
account how students reason and learn about the subject matter in
addition to how much they know, and to communicate these expec-
tations clearly and forcefully to the students themselves and to the
community at large.