

7 Conclusion

Barbara E. Walvoord
Loyola College in Maryland

Lucille Parkinson McCarthy
University of Maryland Baltimore County

Once he grants students the intelligence and will they need to master what is being taught, the teacher begins to look at his students' difficulties in a more fruitful way: he begins to search in what students write and say for clues to their reasoning and their purposes, and in what *he* does for gaps and misjudgments. He begins teaching anew.

—Mina Shaughnessy, *Errors and Expectations*

Though Walvoord and McCarthy are the authors of this chapter, all team members have had input, and the chapter is based on the entire team's study. Thus "we" in this chapter refers to the team as a whole.

We summarized some of our findings in Chapter 1 as a way of helping readers prepare for the classroom chapters. In this chapter, we complete that summary and we discuss implications of our study both for teaching and for further research.

RESEARCH QUESTION 1: WHAT WERE TEACHERS' EXPECTATIONS?

EXPECTATIONS FOR THE PROFESSIONAL-IN-TRAINING ROLE

Throughout the book, we have used "role" as a conceptual lever to help us understand the four classrooms (p. 8). In Chapter 1 we discussed the common expectation that students would assume, in their thinking/writing processes, the role of "professional-in-training." We saw that the professional-in-training role differed in each class:

Business: the decision maker: In the upper-level business course, the

professional-in-training was a decision maker who had the responsibility to consider the complexity of a situation, but who assumed that, though the decision had to be explained and supported, the decision was his or hers to make, and would be implemented.

History: the arguer/debater: In the freshman CORE history class, the role was that of professional in society, but not necessarily a historian. This professional was knowledgeable about history and able to use historical evidence to argue in the public forum about human problems, such as the price of political stability. She or he was also able to clarify her or his own values in the give-and-take of debate.

Psychology: the social scientist/counselor/friend: In the human sexuality class, students were preparing for a variety of professions, many of them in social services. The expected role was an amalgam of several interrelated roles. The student was to use social science knowledge to counsel a friend who was receiving the letter. As social scientist/counselor/friend, the student had a responsibility to guide and inform, to remain nonjudgmental, and to facilitate the decisions of the friend/client.

Biology: the research scientist: In the upper-level biology course, the role was that of an entry-level scientist in a research and development laboratory, whose responsibility was to use the scientific method to make judgments about products.

Further research might explore other classrooms to discover other role variations. Are there classrooms where some version of the professional-in-training role is *not* wanted? What roles are expected in those classes? What other versions of the professional-in-training exist in classrooms? Are aspects of the roles common to particular disciplines?

To teachers, we suggest that role expectations may be tacit rather than explicit, as they were for our team before the study. We found it helpful for ourselves and our students to define the type of professional-in-training roles we expected, and then to ask whether our teaching methods were appropriately communicating and encouraging those roles.

EXPECTATIONS FOR GOOD/BETTER/BEST REASONING

In Chapter 1 (pp. 7–8) we summarize our finding that teachers were asking good/better/best questions and that answering those questions

in all four classes required students to perform five tasks. Here we add that the classes differed in how those tasks were explained in the teachers' models for good/better/best reasoning. Particularly, the classes differed along these dimensions:

1. The strictness of the requirement for quantification
2. The language and configuration of the teacher's model for good/better/best reasoning
3. Who decided whether something was "good" or "best"
4. What type of definition was required

1. *Strictness of the requirement for quantification*: The strictest requirement for quantification was found, of course, in the biology class, where all results had to be expressed in quantitative terms. The business course textbook showed a quantitative method—factor rating (p. 75)—for completing the tasks of good/better/best reasoning, but the teacher deliberately made room for nonquantifiable factors. The history and psychology classes were least rigid about quantifying, but in those classes, too, there was some expectation for indicating which factors were most important.

2. *The language and configuration of the teacher's model for good/better/best reasoning*: Each teacher used different language and different models to talk about the reasoning process. The business, psychology, and biology teachers saw definition in good/better/best reasoning as a beginning point; the history teacher saw definition as a connector (see Figure 6.1, p. 181).

The differences in the teachers' models for reasoning strongly influenced how reasoning was taught and learned in each classroom. Our study affirms Anne Herrington's (1988) finding, in a naturalistic study of a college literature class: "The lines of reasoning used in the students' papers mirrored the class" (146).

Those who use the Toulmin model (p. 127) for teaching or research need to be aware that the *sequence* of the elements in the model and the *language* used to describe those elements may be quite different in various classrooms.

3. *Who decided whether something was "good," "better," or "best"?* In business, history, and biology, the student made the decision and explained/defended it (Catonsville is the best stadium site; General Perez should adopt the English style of government; brand X is better than brand Y). In the psychology class, much of the responsibility for making specific decisions about what should be done (i.e., what birth

control methods to use) was left to the letter recipient. The student letter-writer, in the role of social scientist/counselor/friend, facilitated the decision by offering information, analysis, and descriptions of the decision-making process. However, only if the client/friend who received the letter was a danger to self or others would the writer actually make a decision about what should be done.

4. *What type of definition of "good," "better," or "best" was required?* The biology teacher wanted an operational definition; the other teachers wanted what Sherman called a "useful" definition (pp. 88–89). None of the teachers wanted a dictionary definition. All teachers expected a definition that was constructed by the students to serve a particular purpose or support a particular argument.

Research is needed on the forms that the five tasks may take in other settings. What language and models for good/better/best reasoning exist in other classrooms? Are the models discipline-specific—that is, would all business teachers tend to have the same model? What are other common kinds of reasoning beside good/better/best reasoning in college classes? What models and language do teachers use to present the reasoning process?

For teachers, we suggest making the model of reasoning explicit. That step helped us better understand our own expectations and communicate them to students.

RESEARCH QUESTION 2: WHAT WERE THE DIFFICULTIES?

Chapter 1 defined "difficulty" and discussed our use of the term (pp. 5–6). The classroom chapters explored the six areas of difficulty we constructed for all four classrooms:

1. Gathering sufficient specific information
2. Constructing the audience and the self
3. Stating a position
4. Using appropriate discipline-based methods to arrive at and support the position
5. Managing complexity
6. Organizing the paper

These were certainly not the only areas or the only ways of

constructing the areas in which difficulties arose in all four classrooms. Further research might investigate the difficulties that occurred in settings different from ours. The difficulties we have constructed, however, may guide teachers' efforts to help their students.

RESEARCH QUESTION 3: HOW DID TEACHERS' METHODS AND STUDENTS' STRATEGIES APPEAR TO AFFECT THE DIFFICULTIES?

In each chapter, we discussed teachers' methods and students' strategies that seemed to affect the difficulties. We treated students' strategies and teachers' methods as a pair, because of our conviction that difficulties are caused neither by students alone nor by teachers alone, but by complex interactions. In this concluding chapter, however, to get the advantage of a somewhat different angle on students' strategies and teachers' methods, we slice against that grain, treating, first, students' strategies as a group, then teaching methods.

STUDENTS' STRATEGIES

We have discussed a large number of student strategies that seemed to affect the difficulties. Here we summarize some of the most frequent and salient.

Students' Roles

Throughout the book we have discussed the three main roles we found students adopting: the professional-in-training role the teacher wanted, and two roles teachers did not want: text-processor and layperson. Our data suggest that, at least to some extent, students may be able to choose their roles deliberately and that teachers can influence this choice.

Further research might try to specify the roles that students adopt in other settings. What factors influence students' adoption of roles? How much variation in roles does a single student exhibit among all his/her classes? Does the text-processor role represent a stage in some students' development? How are roles related to other elements such as the students' and teachers' past experiences, the classroom dynamics,

gender, culture, or the students' anxiety, motivation, or other characteristics? Does teaching students to define roles and role expectations help them?

Many of the student strategies we discuss in the rest of this section are related to roles; for example, the textbook-processor role implies certain strategies for using models and approaching the textbook.

Students' Use of Models from Other Settings

Our students *did* transfer knowledge from one classroom to another. In each classroom, we saw students guide their thinking and writing by models they had learned elsewhere, such as the "term paper," "reflection paper," "thesis and subs," or the model of the streetcorner debate. Sometimes these models were either inappropriate, or the student applied them in ways that were not helpful, but at times, too, the models did serve students well. Teachers, we noted, might elicit certain models such as the "reflection paper" by the length of the paper, its source of information, or the phrasing on the assignment sheet.

The "thesis/subs" model was prevalent in the Loyola College classes, where the model was directly taught in Breihan's history course, and where it was used by students in the business class as a carryover from composition. We noted that high-success students used it more than low-success students in Sherman's class. But we also noted that students often had difficulty applying the model, and that the thesis/subs model might encourage some students to use a limited "find reasons" strategy, in which they merely searched for reasons or advantages to support their recommendations.

More research is needed into what models students have when they arrive at college. What models do they most commonly use? How do students interpret teachers' messages about models? How do students select appropriate models? What intellectual or contextual factors contribute to making a model so rigidly fixed as to hinder the student's ability or willingness to change it, ignore it, or learn new models? Research on, for example, what "term paper" means to students will surely profit from the research on "schemata" for stories and other forms (e.g., Stein and Trabasso 1982).

It would also be interesting to study further any situation like Loyola where a single model is strongly taught in a freshman composition course, and trace how various students use that model over the years of their schooling, and, perhaps, afterwards as well. Such a study

might help elucidate how students use their freshman composition training. McCarthy's 1987 study of a single Loyola student has made a start in that direction.

Students' Approaches to the Textbook and Other Source Texts

We noted that some students approached all textbook material as declarative knowledge, while teachers viewed some textbook material as procedural knowledge (p. 59). Investigators might explore students' notions of texts and how those notions change. What factors can change a student's view of texts? Is a single student capable of viewing texts differently in different classes? How do culture, socioeconomic class, age, or other factors influence students' approaches to texts?

Students' Strategies for Using Assignment Sheets

Students relied heavily on written assignment sheets, treating them as the most important guides to the task and often interpreting them narrowly and literally as recipes and as rulebooks (pp. 57–58). The teacher's language on the assignment sheet seemed a contributing factor in a number of students' difficulties. Further research might investigate the assignment sheet's role in a wider variety of classroom settings. Previous research on "charter documents" (McCarthy, in press) will probably be relevant.

Students' Reading Comprehension

Reading comprehension appeared more and more complex as we saw how the meaning of that term depended upon purpose and setting. For example, Sherman's students had to interpret procedural information as procedural, not declarative (p. 59), and Breihan's students had to understand how information could be used as evidence—had to see texts as voices in a debate. Research might explore further these multiple meanings of "reading comprehension" and investigate how students learn appropriate strategies for comprehension in different settings.

Students' Approaches to Definition

Definition, we found, was a crucial element for good/better/best reasoning in all four classes. Defining "good," "better," or "best" was

one of the five tasks of good/better/best reasoning (p. 12). Teachers expected students to *construct* definitions that would serve certain functions in investigation or in argument. Students, however, often viewed definitions as fixed entities that could be correct or incorrect and that could be *found* in a source text and used unchanged. Further investigations might continue to explore the role of definition in various academic disciplines. How do students learn definition in childhood? What does definition mean to them? What is the role of definition in the different cultures, schools, and other settings from which students come? How do students move from a concept of definition as a fixed, found, "correct" statement to definition as a constructed tool for argument or research? What underpinnings are needed to make such a move possible?

Students' Categories for "Seeing"

In assignments where students collected information from observation (including experimentation) rather than from texts, they sometimes did not appear to realize their need for specialized, discipline-based categories with which to "see" (p. 62). Further research might explore students' notions about observation as a method of inquiry. How do students attach value to observation? How does their view of observation as a mode of inquiry compare to their view of reading as a mode of inquiry? Do some students readily adopt appropriate categories in a variety of disciplines? If so, how do they learn to do that?

Students' Ways of Distinguishing the Sequences of Decision Making, Composing, and the Paper

We found that students often acted as though all three of these sequences must be the same. Further research might explore student notions and uses of sequence in other settings.

Students' Ways of Combining Reason with Feelings and Solution-Searching with Rationale-Building

Combining reason with feelings and solution-searching with rationale-building were necessary to good/better/best assignments in all four classes (Tasks 4 and 5). Trying to integrate these elements created complex difficulties in all the classes. Students in the layperson role

tended to rely too heavily on feelings and on rationale-building. Students in the professional-in-training role sometimes were confused about how to combine feelings within the reasoning process their teacher expected. Researchers might explore how Tasks 4 and 5 are worked out in other settings. There may be stages in students' development of the ability to integrate feelings and evidence. (Perry's 1970 scheme is one attempt to show such stages). How do discipline-based differences affect students' ways of combining feelings and evidence? How do teachers in various settings assign value to feelings? to rationale-building? What models do students choose to help them in integrating feelings with evidence, and rationale-building with solution-searching? How do age, culture, gender, and former schooling affect the integration?

Students' Strategies for Pre-Draft Writing

We defined "pre-draft writing" as any writing that preceded the drafting of at least two-thirds of what the student considered to be the paper. We identified some of the many functions of pre-draft writing and indicated that high-success students seemed to do more pre-draft writing and different kinds of pre-draft writing than low-success students (pp. 91–92). These findings need to be tested in other settings.

We suggested that students needed forms of pre-draft writing that would help them with good/better/best reasoning Task 3: bringing different kinds of information together in a disciplined way so that a single judgment could be made. Investigators might explore further how the discipline or the classroom setting influence students' ways of relating different kinds of information. How do various kinds of instruction influence students' use of pre-draft writing? Would composition-class instruction in certain types of pre-draft writing that allow such connections among different types of information be useful or usable by students in later courses?

Students varied greatly in their outlining for different papers in the same course, causing us to question whether previous studies of the low incidence of outlining across many types of writing may mask the high incidence of outlining for certain types of papers. Further research might investigate students' notions, and practice, of outlining.

These student strategies are some of the most salient and frequently occurring in our study of the four classrooms. We suggest that teachers

might gain important insights by investigating these strategies among their own students.

TEACHERS' METHODS

The Power of Teaching

This book is an argument for the power of teaching to shape thinking and writing. That argument is made by our constructions about how teaching methods went awry as well as about how they succeeded. The argument is also made through our descriptions of how the different models for good/better/best reasoning shaped the nature of thinking and writing in each classroom. Also, the chapter on Anderson's biology class shows how students' thinking and writing changed in a later class, after she had changed her teaching methods. One conclusion the four teachers carried away from our study was the sense that students' ability and motivation—the two aspects the teachers had most commonly blamed for students' shortcomings—played less significant roles than the teachers had thought. We saw students trying hard to meet teachers' expectations—harder than we had often given them credit for. Students' failures to meet their teachers' expectations were often directly traceable to mixed signals by the teacher, or to instruction that was needed but not provided. After seeing in our data how his assignment sheet had led to students' misunderstandings and difficulties, one of our teachers remarked wryly, "In other words, I got what I deserved."

The Effects of Teacher Research in the Classroom

So how can teachers deserve, and get, better learning, thinking, and writing among their students? Our first answer to that question is—by *observing* students systematically. All four members of the team whose classes we studied had attended writing-across-the-curriculum workshops and were at various stages in trying out the teaching methods that had been discussed. It was our *observation of our classrooms*, however, that enabled us to see whether, and how, our methods were working, and that gave us clues about how to help our students more effectively. Marshall's (1984a) and Langer and Applebee's (1987) studies of high school teachers have emphasized that teaching methods learned in writing-across-the-curriculum seminars may lose their force because they are contradicted by other things the

teacher is doing, because they are sabotaged by students' goals and ways of working, or because they are incorporated by teachers into old patterns of interacting with students and into old ways of using writing for evaluation.

Our study confirms that this may happen. But it also suggests a remedy: teacher research. A key phrase was repeated by each of our teachers in some form or another as they analyzed data from our study: "Oh, if I'd only known the students were doing that, I would have. . . ." And then would come ideas for change. Thus we would recommend that workshops on teaching not only suggest teaching methods that other teachers have found helpful, but also give participants the tools and the encouragement to conduct systematic inquiry into their own classrooms to discover how those teaching methods are working in their own settings.

Principles for Effective Teaching

Our investigation gave us nine guiding principles for reshaping our teaching in response to what we learned about our students' thinking and writing.

1. *Make the teaching methods fit the writing and thinking processes of high-success students.* Our investigations of difficulties in our classrooms often showed us where our teaching methods ran counter to the writing and thinking strategies that high-success students were using in spite of us. For example, Anderson's early request for a draft of "your Introduction and Methods and Material sections" led students into difficulty because it implied, wrongly, that the order of the final paper should dictate the order of composing. Robison's early web nicely emphasized some aspects of what she wanted, but ignored what was an early consideration for her high-success students—delineating their letter recipients.

2. *Present procedural knowledge procedurally.* In all four classes, we found that verbal descriptions of a process, whether presented in class or in a textbook, were difficult for students to translate into action. Further, students often treated procedural knowledge about how to do something as declarative knowledge to be summarized, not used to guide a process. We concluded that procedural knowledge often needs to be taught procedurally—by concrete experiences under the guidance of the teacher who leads students physically and directly through the procedure. This was the key, for example, to the exercises

about mold that Anderson added to help her biology students apply what she had earlier only *said* about how to formulate operational definitions. It was the key to Breihan's history class debates, which physically placed students on opposite sides of the classroom in an actual debate, conveying unmistakably to them that they were to take a position and construct arguments to defend it. Sequenced writing assignments, when well planned, were a powerful instrument to guide students as they learned to use the methods of the discipline.

3. *Define clear goals for informal, ungraded writing.* Our investigation convinced us of the usefulness of informal, ungraded writing, but showed us how important it is to plan that writing to achieve specific goals. We saw Breihan use informal writings completed outside of class, which he collected and marked, and Anderson use informal writings completed outside and inside class, which she rarely collected. What made both kinds of informal writing effective was that the teacher shaped and revised those writing assignments, based on information about students' thinking and writing processes and on clear learning goals.

4. *Guide peer response.* In both classes that used teacher-structured peer response—psychology and biology—we concluded that such response could be helpful or unhelpful, depending upon whether the peers actually knew enough to help one another. Particularly, peers seemed unable, without considerable guidance and instruction, to help each other with major issues in good/better/best reasoning. In Anderson's biology class, specific instruction aimed at the whole class appeared to enable peers to help each other more effectively because they knew better what they were doing and what to look for. In both classes, peer groups did better when they had specific things to look for and specific guidelines. Our data caused us to question the oft-used model of peer response as the "first-line" response, followed by teacher response. Further studies are needed on the role of peer response and the roles of students within peer response in a variety of college classrooms. Anne Herrington's 1989 paper usefully explores outcomes of peer response beyond merely whether it improves students' papers.

5. *Make teacher draft response consistent with the writing process and the reward system.* One technique frequently recommended in writing-across-the-curriculum seminars is teacher response to students' drafts. In two of our classrooms—history and business—teacher draft response was a powerful impetus for students' revision and improvement of drafts. Students revised directly from the comments, made revisions

for virtually every suggestion, and most of the time improved the papers. In the psychology classroom, however, few students revised at all in response to teacher comments on a draft. The difference seemed due in part to the fact that in the psychology class the teacher's response came later in the composing process; i.e., after students had received peer response, revised those drafts, and typed a draft for teacher response. Also, in the psychology classroom, less credit toward the final grade was awarded for revision, and the suggestions for revision were made at a late point in the spring semester. Beach (1979) records significant gains in the quality of high school students' revised papers as a result of teacher response to drafts. Our study indicates that such gains may depend heavily upon context and may not hold for all classrooms.

6. *Craft the assignment sheet with care.* Because of the way students approach the assignment sheet as a recipe and rulebook, it is important to craft the assignment sheet with great care. Robison's CRAFT acronym (p. 151) is a guide to the kinds of information the sheet usually needs to include. Teachers need also to attend to the sequence of the decision-making and composing processes, and to the organizational patterns for the finished paper, that students may infer from the sheet. This is particularly important, given students' tendency not to separate those sequences and to interpret recursive processes linearly.

7. *Give explicit instructions and guidance, especially when designating a peer audience and/or a familiar setting and topic for student writing.* In business, psychology, and biology, the teachers designated a "peer" audience and/or a familiar setting for certain assignments. These designations were part of those teachers' strong emphasis upon helping students to relate course learning to their own experiences and to move away from the text-processing role—students merely summarizing or synthesizing written texts for a teacher they envisioned as merely checking their textbook knowledge. We noted the success of such peer audience designations in capturing students' interest and involvement—for example in Sherman's Stadium and McDonald's-Popeye's assignments. We do not agree with Bartholomae (1985) that assigning a peer audience is "an act of hostility" on the part of the teacher because it fails to train students in the "expert" stance they must assume for college writing. Bartholomae (and some students) assume that the students would write as nonprofessionals—for example, as a baseball fan to other baseball fans or as friend to friend.

Our teachers, on the other hand, expected students to view themselves and their peer classmates as professionals-in-training (business and biology) or as client-like seekers of help (psychology). In both cases, the peer audience was chosen by the teacher to give direct practice to students in the professional roles they would someday assume. In the psychology class, many students showed great ingenuity in constructing themselves as “experts” in their letters. The appropriate response by teachers, we believe, is not to eliminate the peer audience or the familiar setting for assignments, but rather to help students assume appropriate roles in that context and to construct their audiences appropriately.

8. *Offer early guidance.* Early guidance by the teacher, as students first defined the task, gathered information, made notes, planned the paper, and produced the first draft, seemed crucially important to students’ success in all our classes. Draft response alone might appear too late for students to amend certain kinds of problems whose origins lay in early stages, particularly since students rarely returned to their original sources as a result of teacher response to drafts. Further investigations might uncover circumstances in which students do return to original sources, or might investigate aspects that help students make better use of late guidance, such as teacher draft response. However, it seems productive also to turn our attention to developing better ways of guiding students in early stages of their planning, information gathering, role taking, and envisioning of the paper they will write or the reasoning tasks they will perform.

9. *Use language in the modes you want students to use.* In each classroom, we found students mimicking the language of the teacher and the classroom. In the psychology class, for example, students who established successful tone in the letters seemed to model directly from their teacher’s classroom talk and the language she gave them on the assignment sheet. In the history class, the dialogic talk of the classroom, particularly embodied in the seven in-class debates, seemed to help students achieve the dialogic thinking and writing that was so highly valued in that classroom. Further research could explore more fully the relationship between classroom talk and the forms that students’ planning, thinking, and writing can take. Particularly, it would be important to note whether forms of higher-order thinking can be taught to students through forms of classroom talk, as Breihan’s students seemed to learn the dialogue of argument and counterargument through the debates and classroom discussions.

WHAT CLASSROOM RESEARCH MEANT TO US

In addition to the findings that we have constructed and presented here for others to interpret and use, our seven-year collaboration produced knowledge that we ourselves have used. Each of us believes that what we learned about these four classrooms enabled us to become more effective teachers. In mid-career, when we might have become bored or cynical about teaching the same classes year after year, the project has made our undergraduate classrooms places of learning and growth for us, and has sustained our interest in our students—how they learn and how they can be guided.

Our study suggests research for classroom teachers as well as for composition researchers. Our team members began to reap the rewards of our research as soon as we had looked at the first student packets, as soon as we had constructed the primary trait scale, as soon as we had coded and then analyzed how our students used pre-draft writing. Our interdisciplinary collaboration, with its mix of perspectives, helped us see our classrooms in new ways and effect changes there. We believe that important rewards can come to any teacher who undertakes systematic investigation of his or her classroom, even within a limited scope, alone or with a collaborator. This project has taught us about our discipline-based ways of knowing—how, as Geertz puts it, “we organize our significative worlds.” It has also helped us understand how our students struggle as they try out our languages and work to meet our expectations. Becoming learners in our own classrooms has enabled us, in Shaughnessy’s words, “to teach anew.”