

In collaborative research projects, teachers from two or more disciplines work together in order to understand better their students' thinking and writing.

Models for Collaborative Research in Writing Across the Curriculum

Lucille Parkinson McCarthy, Barbara E. Walvoord

The continuing surface of educational problems requires an atmosphere in which sharing on how to build collaborative strategies is considered as valuable as dissemination of research results.

Wallat, Green, Conlin, and Haramis (1981, p. 110)

In this chapter we will argue that collaborative research in writing across the curriculum is a powerful companion to the usual workshop activities of listening, reading, and discussing. In WAC workshops, we have offered our colleagues in the disciplines a theoretical framework for understanding writing, and we have made general suggestions about pedagogy. We have been gratified by the response: Many of our colleagues have incorporated into their teaching a concern for the writing process, the view that writing is a mode of learning, and such strategies as journals, invention and revision activities, and peer response groups. In response to writing across the curriculum workshops, teachers from a variety of disciplines have reevaluated their assumptions about writing and learning, and they have experimented with changes in their classrooms.

The theoretical and pedagogical direction given in workshops, however, is a general one. Of necessity it is based on the published literature, which consists in large part of studies of K-12 students or college composition students, often in small numbers and often in experimental rather than natural settings. There is little in WAC workshops that can specifically tell a college biology teacher, for example, how her or his students are thinking as they write for a particular assignment, nor can workshops tell instructors what problems their students are having or how some students go about solving these problems while others do not. The only way instructors can know how their students are thinking and the only way they can understand how their newly learned teaching strategies influence that thinking is through close observation of their students. Systematic investigation in their own (and others') classrooms is, we feel, a central component of writing across the curriculum's "second stage." It is through such investigation that teachers will continue to grow after the workshops are finished.

The three models or structures that we describe for writing across the curriculum research are all collaborative. They are drawn from our own experiences in ten collaborations and those of some twenty other pairs or groups of teacher-researchers who have studied or are presently studying writing, thinking, and learning in various academic contexts. In each of these approximately thirty collaborations, teacher-researchers from two or more disciplines have worked together to shape their research questions and design systematic data collection and analysis procedures. And they have, in some cases, coauthored reports of their research to share with their colleagues in one or more disciplines. The three models we present here reflect the structural arrangements of the collaborations. These structures do not, however, determine the research methods that the collaborators chose. Within each of the three models, researchers have drawn on various research traditions, both experimental and naturalistic, for their theoretical assumptions, research methods, and ways of assessing reliability and validity. All thirty projects, however, explore the questions that lie at the heart of the writing across the curriculum endeavor:

- What constitutes "good" writing in various disciplines, and what are the learning and writing tasks that students must master in each? Which textual features and learning and writing tasks are discipline-specific, and which are general?
- How do students interpret these tasks, and how do they go about producing "good" writing in each discipline and classroom?
- What can we do to help students in this process?

These questions are best answered collaboratively. Underlying much writing across the curriculum research is the assumption, summarized so lucidly by Bruffee (1984), that knowledge both comes from and results in

social interaction. We need help if we are to understand the social and intellectual dynamics within our own disciplines and classrooms, dynamics that are so familiar that they may be largely invisible to us. As one teacher-researcher put it, "It's immensely illuminating to see your students and their writing through someone else's eyes. After seventeen years of working alone, I'd developed a kind of tunnel vision." And we need help to understand, and eventually to *perceive*, through the frameworks of others. In writing across the curriculum research, constructing knowledge in interaction is both the central activity of the research process and, at the same time, the object of research. We work together to discover how knowledge is generated in spoken and written interaction in various disciplines and classrooms. And then we ask how we can help students negotiate entry into the "conversations" in those communities, and how, once they are in such communities, we may best support their growth and development there.

Models for Collaborative Research Projects

The story of each of the thirty collaborations we examined was unique. The projects' beginnings and specific goals were different, as were their evolutions, their satisfactions and frustrations, and their outcomes. In our conversations with researchers as we prepared this chapter, we heard about "arguments," "clashes," "furious debates," and "fierce discussions." We also heard about "compromise," "consensus," and "working, tugging, pulling." One researcher told us that her project had been "filled with nightmares," whereas the next one we spoke with said that his project had been "fun, a wonderful alternative to the monastic loneliness of academic writing."

Frequently surfacing in researchers' talk was the comparison between collaboration and marriage. One woman, a writing specialist, spoke of "proposing" to a colleague in the business school and of drawing up a sort of "prenuptial agreement" before undertaking the collaboration. In their agreement they defined their goals for the project and their individual and joint responsibilities, made time commitments, and agreed on such manuscript management issues as who would be first author on their coauthored work. (Hers would be first in writing journals, his in business.) Another writing specialist spoke of the successful "matchmaking" that had paired her with her psychologist collaborator and about how their collaboration had become richer over time as they came to trust each other more. Her psychologist partner told us, "It was a beautiful marriage. We had complementary skills and strengths and resources. Neither of us could have done it alone." Another writing specialist said that negotiating role and power relationships is as "tricky" between research collaborators as it is between newlyweds. He said that he wasn't

exactly sure how "compatibility" was achieved in either case, but "it's got something to do with choosing each other, with being equally strongly motivated, and with learning eventually to speak the same language." We also heard about a project where there were "irreconcilable differences" and eventual "divorce." This marriage metaphor suggests just how close and intense these collaborative relationships are.

Although the stories of the collaborations are unique, similarities do exist in their structural arrangements. In this chapter we will define three structural models and describe an example of each, paying special attention in our examples to qualities that appear to characterize many successful collaborations. Finally, we will recommend several sources of information about research methodology.

As we chose the collaborative projects to use as examples in this chapter, we were guided by three criteria. First, the project must have resulted in some sort of publication. Second, it must have been a satisfying experience for the researchers. And, finally, it had to be a collaboration about which we could obtain abundant information. This last criteria was, of course, best fulfilled by projects we had been acquainted with for an extended period of time. Because three of the five projects we describe here were carried out by members of our own community, the Maryland Writing Project, we knew them particularly well. Our five example projects are, however, typical in many ways of the thirty we examined. Our aim in this chapter is to offer ideas and guidance to those who are beginning systematic classroom research, an activity we consider central to writing across the curriculum's second stage. (For a description of the Maryland Writing Project and the Baltimore Area Consortium for Writing Across the Curriculum, see Walvoord and Dowling, in press.)

Collaborative Research Model 1: The Focused Pair. In this model, which is the most common, a writing specialist pairs with a teacher from another discipline, and together they study the writing going on in the latter's classroom. Focused pairs are often initiated by the writing specialist, who takes the leadership role in the beginning. These arrangements are quite flexible and easy to manage, and they are generally pleasant affairs because the researchers often know and respect each other before undertaking the project. Focused pairs, in many cases, produce not only professional growth and change but also publications.

An example of a long-standing and productive focused pair is Barbara Walvoord, a writing specialist at Loyola College in Maryland, and Virginia Johnson Gazzam, a biologist at Towson State University. Walvoord and Gazzam first met in 1982 in a Maryland Writing Project WAC workshop that Walvoord led, and soon thereafter Walvoord invited Gazzam to collaborate with her in studying students' writing processes in Gazzam's biology classes. Gazzam has all the qualities that Walvoord says she looks for in a collaborator: She is self-confident, stable in her career (tenured

like Walvoord), dependable, and productive. And, equally important, Walvoord saw that Gazzam was a committed and curious teacher who asked tough questions about her students' writing and about her own teaching. Gazzam wanted to know why her students didn't write up their experiments better and what they meant when they told her, "The writing you have us do is different from what we've been taught, different from what we do in English." In addition, Walvoord saw that Gazzam was interested not only in her own classroom but also in the larger theoretical issues of writing and learning that had been discussed in the workshop. Thus, this collaboration began, as many satisfying ones do, with two equal-status professionals agreeing to explore answers to questions they both cared a great deal about.

Since 1982, Walvoord and Gazzam have conducted naturalistic research in Gazzam's upper-division biology classrooms. In order to answer their questions about what Gazzam's students do between the time she makes the assignment and the time they hand in their final reports, Walvoord and Gazzam have collected the following kinds of data: (1) all students' notes, drafts, and final papers, (2) students' writing activity logs, (3) tapes of students interviewing each other about their processes and problems, (4) tapes of students' small-group meetings, and (5) tapes of students thinking aloud at home or in the dorm as they work on the experiment and the report. In addition, Walvoord has observed and participated in Gazzam's classes, interviewed her, and collected all of her instructional materials. As they have analyzed these data together, Walvoord and Gazzam have been able to glimpse what happens in students' minds as they fulfill Gazzam's assignment. Walvoord's and Gazzam's discoveries as they have gone along have refined their questions and, at times, redirected their research focus. These discoveries have also changed Gazzam's teaching.

Walvoord and Gazzam have given numerous conference presentations together in both of their disciplines, and these presentations have been, they say, extremely helpful to their collaboration. Going to conferences has given them time (on airplanes and over breakfast, for example) to reflect on their work, and presenting together has required them to agree on a common language for reporting their research. Furthermore, they say, each has gained insight into the other's disciplinary community, its language, concerns, and practitioners. Walvoord's and Gazzam's oral presentations have laid the foundation for their chapter in Walvoord and others (in press).

Walvoord speculates that the naturalistic (qualitative) research that she and Gazzam do together may be even more challenging for collaborators than research done in the experimental (quantitative) tradition. This is because naturalistic research is less structured, its questions and directions emerging as researchers gather and analyze data. Walvoord remem-

bers one afternoon, shortly after they began data analysis, sitting in her den with Gazzam, the two of them looking at "about 400 pages of material and twenty hours of tapes." She turned to Gazzam and asked, "What shall we do now?" At times like those, Walvoord said, "You've got to be able to agree on analytic procedures, categories, and language; you've got to enjoy thinking together. Of course there will be conflict. That's what you want. That's what makes it rich. But you have to have strategies for negotiating conflict. And a sense of humor doesn't hurt." Walvoord's and Gazzam's collaboration, like other satisfying ones we've heard about, has become richer over time as the researchers have come to understand and perceive through each other's perspective.

Other collaborative studies of writing across the curriculum that may be characterized as focused-pair research include Flynn (1987), writing and chemical engineering; Flynn, McCulley, and Gratz (1986), writing and biology; Forman and Katsky (1986), writing and social psychology; Gorman, Gorman, and Young (1986), psychology and writing; Maimon and Nodine (1978), writing and psychology; McCarthy and Braffman (1985), writing and history; Neubert and McNelis (1986), education and English; Selfe and Arbabi (1986), writing and civil engineering; Selfe, Petersen, and Nahrgang (1986), writing and mathematics; Singer and Walvoord (1984), business and writing; Soven and Sullivan (1987), writing and philosophy; Strauss and Fulwiler (1987), chemistry and writing; Walvoord and others (in press), writing and biology, history, production management, and psychology. About one third of these studies are experimental and two thirds are naturalistic.

Collaborative Research Model 2: The Reciprocal Pair. This structure is unlike the focused pair in which both researchers investigate writing in the discipline teacher's classroom. Instead, in this model, two teacher-researchers exchange classroom visits, exploring the writing going on in both contexts. Reciprocal pairings are often initiated by a group of which the researchers are a part, a group that may help the researchers manage their project by providing release time. Reciprocal collaborations, perhaps even more than collaborations of other types, may require scheduled release time for pairs to plan and carry out each visit and then discuss it afterward (Neubert and Binko, 1987).

In 1986, the Philadelphia Writing Project initiated a program of reciprocal pairings for secondary teachers. In addition to adequate release time (and excellent substitute teachers), successful reciprocal-pair collaboration depends, according to project director Susan Lytle, on the teacher-researchers' controlling their own relationships. If teachers are to become "expert learners" together, they must feel that they are having observations done *for* them, not *to* them. Thus, it is important that the teachers being observed initiate the visits, inviting the visitor into their classrooms in order to obtain help on a particular problem. The teacher

being observed should also suggest the most helpful role for the visitor to play: observer, student, team teacher, or solo teacher demonstrating a writing-related lesson.

Philadelphia Writing Project pairs consist of one member trained as a teacher-consultant in the project's summer institute and one member not so trained. Teacher-consultants meet regularly to share the journals they keep about their reciprocal visits, journals that focus on the process of teachers influencing each other. Although most pairings at the secondary level have included at least one English teacher, this need not necessarily be the case and will change soon, according to Lytle, as more discipline teachers are trained to be teacher-consultants. Several conference presentations have resulted from this program (Philadelphia Writing Project, 1987).

Reciprocal pairings at the college level were part of a five-year WAC program funded by the National Endowment for the Humanities (NEH) at Loyola College in Maryland. In this program, completed in 1986, pairs of teachers, all consisting of a writing specialist and a discipline teacher, were given release time for a semester to attend a course taught by their partner. The same group of students had been scheduled into each pair of observed classes. During a summer workshop preceding the reciprocal observations, paired teachers worked together, deciding on ways to combine their subject matters for their shared students and on roles they would play in each other's classes. During the semester of their collaboration, nearly all pairs responded together to students' papers. This was "a sobering experience," writing teacher Barbara Mallonee told us, when she gave a paper a B and her historian collaborator John Breihan gave the same paper a D. In the process of articulating what they were rewarding, these teachers learned more about their own notions of "good" writing. Each of them also learned to value things that they had previously regarded as peripheral, and this influenced their teaching. In coauthoring an article (Mallonee and Breihan, 1985) about the insights they gained from reading student papers together, this pair exchanged drafts of their manuscript and, at times, composed together, sitting side by side at the word processor. When they could not agree on ideas or language, they actually composed alternate sentences. The voice that emerged, Mallonee said, belonged to neither of them; rather, it was a composite that pleased them both.

In another Loyola College reciprocal pairing, structured like Mallonee's and Breihan's, Judith Dobler, a writing specialist, and Faith Gilroy, a psychologist, shared twenty-five students and exchanged classroom visits for a semester. Dobler met these twenty-five students in her freshman composition class in the morning while Gilroy observed, and Gilroy met them in the afternoon for social psychology while Dobler observed. Writing instruction was integrated with psychology instruction in ways the

pair had agreed on during the previous summer's workshop. As a result of their reciprocal observations and subsequent discussions, both said, they came to understand more fully the writing and learning in their own and the other's classroom.

At the end of the semester, Dobler and Gilroy combined research methods from their disciplines in order to answer questions that had emerged during their classroom observations. As they had scrutinized students' work in social psychology, Dobler and Gilroy had been surprised at how difficult it was for their students to read psychology journals and how much time students spent on assigned articles. Thus, in order to understand better the task of reading in psychology, Dobler and Gilroy combined text analysis and an attitude survey to compare the prose styles of various psychology journals with the attitudes of professional psychologists and students toward these journals (Dobler and Gilroy, 1987). This pair's successful research experience supports Odell's (1987) contention that, ultimately, "the best research question is one that arises from an area in which [the researchers] are interested and with which [they] have experience; the best analytic procedures are those that [researchers] modify or invent to answer [their] own questions" (p. 137).

Collaborative Model 3: The Chief Researcher with Many Collaborators and Informants. In this model, a single researcher or a group of researchers pursues the answers to research questions into whatever settings they lead and the researcher or group works with whatever collaborators or informants can help. Informants are distinguished from collaborators in that informants only provide information to researchers while collaborators, though they may also provide information, help the chief researcher plan and carry out the research. In this model, students can and *should* play both roles, their perspectives as informants and collaborators being sought at every stage of the research. This is because students bring a perspective to both data collection and analysis that is very different from the perspective of teacher-researchers. Those who have collaborated with students say that students' insights are invaluable (Goswami, personal communication, October 1987). Projects that fit into this model are usually initiated by an individual or an institution, and data collection extends over a long period of time.

An example of this collaborative structure is found in a two-stage project begun in 1978 at Canisius College by chief researcher David Lauerma (1988; Lauerma, Schroeder, Sroka, and Stephenson, 1985). In the first stage, Lauerma and several colleagues in the English department conducted research into writing in nonacademic settings—in business, government and the social services, science and technology, and teaching and "public life" (the media, public relations, law, and fund raising). They involved faculty members from other disciplines by asking them what professions their majors chose and the names of people to contact

in those professions (often Canisius alumni). Faculty across the disciplines were also invited, after the research was concluded, to participate in a workshop where Lauerma and his colleagues shared their findings about writing in these nonacademic settings and began to define goals for upper-level writing courses aimed at business, social science, science, education, and humanities majors. Also invited to participate in these workshops were the project's informants—that is, the business and professional people whose writing had been studied. After the workshops, members of the English department worked out final course designs. About this project Lauerma told us, “Our research in writing across the curriculum is a queer bird. The writing that people are doing in the community informs the writing that our students do on campus. Usually people in academia see it the other way around” (personal communication, October 1987).

Of equal interest is the second stage of the Canisius College project. Here Lauerma continues to play the role of chief researcher, but now he manages a research team comprised of the students in his classes. Lauerma's students, using the same research methods that Lauerma and his English department colleagues used in the first stage—namely, questionnaires, text analysis, and discourse-based interviews (Odell, Goswami, and Herrington, 1983)—carry out research into writing in settings of their own choice. According to Lauerma, students' research activities are central to his courses and are vivid and exciting learning experiences for students. They discover, as they conduct research, what it is that writers in particular settings actually do, what these writers know, and what constraints they must deal with. It is this research component in his writing courses, Lauerma believes, that keeps them oversubscribed semester after semester. And not only do students value the research but administrators and faculty in business and other disciplines also value and recommend it. Administrators and faculty's confidence in the English department's writing courses came originally, Lauerma says, from their participation in the research process.

Additional studies that may be characterized as following the model of the chief researcher with many collaborators and informants include Applebee, Auten, and Lehr (1981), Biddle and Fulwiler (in press), Britton and others (1975), Herrington (1985) Martin, D'Arcy, Newton, and Parker (1976), McCarthy (1987), Nelson (1987), and the Sociology Writing Group (1986).

Research Design and Methods

A detailed discussion of research design and methods cannot be undertaken in this chapter. Here we are limited to recommending a few sources that we feel provide helpful discussions of theories and methods of class-

room research. Many of the sources we recommend emphasize naturalistic approaches that study writing in context. We suggest these sources because of researchers' increasing appreciation of the central role that social context plays in shaping writers' processes and products and in defining their successes and failures. We would like to caution, however, that just reading about various research methodologies is not likely to be enough. As Odell points out, "such reading will probably have to be supplemented by frequent conversations with someone who understands both research methodology and the goals of a specific study" (1987, p. 135).

Excellent theoretical and practical introductions to classroom research are provided by Goswami and Stillman (1987) and Myers (1985). The ethnographic approach is discussed by Doheny-Farina and Odell (1985), Gilmore and Glatthorn (1982), Hymes (1972), Spindler (1982), and Spradley (1979, 1980). Survey methodology is discussed by Anderson (1985). And issues of reliability and validity in naturalistic research are dealt with in Goetz and LeCompte (1984) and Lincoln and Guba (1985).

Conclusion

Collaborative research, undertaken to answer teachers' questions about their own and their students' practices is, we believe, an essential component of writing across the curriculum's second stage. This research is based on the assumption that knowledge is gained not only through action but also for action. For many of the teacher-researchers we talked to, their collaborative research represents a highly valued learning process. Their systematic research in writing across the curriculum has yielded insights that are both intellectually exciting and personally renewing for them. And these insights are the necessary foundation for lasting and satisfying change.

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Lucille Parkinson McCarthy is an assistant professor of English and teaches writing at the University of Maryland Baltimore County; in 1986 she received the Promising Researcher Award from the National Council of Teachers of English.

Barbara E. Walvoord is an associate professor of writing at Loyola College in Maryland and is a founder and former codirector of the Maryland Writing Project and the Baltimore Area Consortium for Writing Across the Curriculum. She is also a member of the board of consultants of the National Network of Writing Across the Curriculum Programs.