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ABSTRACT
                An interdisciplinary project was developed in which faculty
and students learned to use writing in new and innovative ways. The 3-year
project focused on five problems in the teaching and practice of college
writing: the negative attitude of faculty towards the teaching of writing;
the negative attitude of students towards writing; the relative inability of
students to think critically in their written essays; the lack of knowledge
and imagination in most of the teaching of writing; and the students' lack of
experience in collaborative learning projects. Students in courses across the
curriculum used a local area computer network to create co-authored essays in
which they could communicate on-line with each other and with their professor
throughout the process. Results indicate that the project improved student
and faculty attitudes toward writing, student writing, the ability of the
faculty to teach writing, and the collaborative skills of the students. Most
of the professors who participated in the project were convinced that
students can learn about subject matter through the process of writing, and
that student essays can be interesting to read. Most of the students
recognized that academic papers do not have to be a chore to get out of the
way quickly, but can be a means of discovering what they really think and
feel about the material in their texts, and where their viewpoints fall in
relationship to those of their peers and teachers. An executive summary is
provided. (Author/SWC)

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Using Computers for Collaborative Writing: An Interdisciplinary Project (1001)
Summary

We develped an interdisciplinary project in which faculty and students learned to use writing in new and innovative ways. Students in courses across our curriculum used a local area computer network to create co-authored essays in which they could communicate on-line with each other and with their professor throughout the process. Our results indicate that the project improved student and faculty attitudes towards writing, the ability of our faculty to teach writing, and the collaborative skills of our students.

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See "Writing Between the Lines: The Case for Co-Authored, Non-Linear Texts." Vital Signs 2: Learning and Using Language Collaboratively. Portsmouth, NH: Heinemann Boynton/Cook, 1990.

Using Computers for Collaborative Writing:
An Interdisciplinary Project

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FIPSE Program Officer: John Donahue

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		$113,360

Using Computers for Collaborative Writing: An Interdisciplinary Project
Saint Anselm College   Lad Tobin, Project Director
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(Executive Summary)

A. Project Overview

Our project began when we realized that an increasing number of our incoming students were having difficulty meeting the writing requirements of our curriculum. A related problem was that most of our faculty had little experience or training in the teaching of writing. In order to improve faculty and student attitudes and behaviors, we changed almost everything about the way writing was generally being used in our courses. Students would no longer work independently to produce a traditional academic essay but would work instead in a group of three using a local area computer network to produce a non-linear, co-authored text. Faculty would no longer carry around a batch of essays in their briefcase, mark them up, grade them, and return them to be skimmed and thrown away, but would instead read these co-authored essays "on line" as they evolved, commenting, suggesting, even occasionally co-authoring.

In other words, students in the project created co-authored, "dialogic" essays which involve three students writing one essay on-line with input from their teacher from start to finish. Each of these essays contained negotiated "primary" text in which the three authors wrote about some aspect of the course material—whether that was an analysis of a poem, or a lab report on water pollution, or an argument about the American correctional system—and individual "secondary" text in which any of the students or the professor could comment on the material and on the process of writing the essay.

Over the three years of the project, fourteen faculty and over five hundred different students in a variety of disciplines participated in this innovative approach to reading and writing. The results from our three years indicate that our project made a difference, that it is possible to change the way teachers teach, students write, and both groups feel about writing. This is not to suggest that there were no problems or disappointments: in fact, several participating faculty and a number of students felt uncomfortable with either the computer technology, the logistics of co-authoring, or the concentration required in an ongoing dialogue about an evolving draft.

However, the large majority of professors who participated in the project became convinced that students can learn about Bach's music, Shakespeare's plays, Hobbes' political theory, or Darwin's experiments through the process of writing, and that student essays can actually be interesting to read. Most of the students, in turn, recognized that academic papers do not have to be just a chore to get out of the way as quickly as possible, but can be a means of discovering what they really think and feel about the material in their texts, and where their viewpoints fall in relationship to their peers' and teacher's on the subject.

B. Purpose

We focused on five specific problems in the teaching and practice of college writing: the negative attitude of faculty towards the teaching of writing; the negative attitude of students towards writing; the relative inability of students to think critically in their written essays; the lack of knowledge and imagination in most of our teaching of writing; and our students' lack of experience in collaborative learning projects. Our purpose, then, was to change the way that students write, the way that faculty generally use writing in their courses, and the way that both groups felt about writing in general.

C. Background and Origins

Saint Anselm College is a traditional, four-year, liberal arts, Benedictine college. Our curriculum, particularly in the humanities, is distinguished by its commitment to primary sources and "great books." In my original proposal, I made the case that students confronting such demanding and unfamiliar texts need help. They needed to learn how to read and discuss abstract and complex ideas and how to integrate one idea with another. By forcing students to discuss their ideas in writing with their classmates and with their professor, our project gave students a way to integrate and contextualize their readings.

D. Project Description

Our project involved clearly defined activities divided into two main stages stages: (1) faculty development and training in collaborative writing and computer use; (2) implementation of a program in co-authoring and computers in a number of courses across our curriculum. The faculty training was accomplished primarily during a three week intensive workshop held each summer before the semester began. Participants read composition theory, learned to use computers and local area computer networks, and revised their curriculum and syllabi to integrate the grant project's activities. We then implemented the project in courses across our curriculum.

E. Project Results

On the whole our project was extremely successful; we not only changed the way many of our students think about and practice writing, we also changed the attitudes and behavior of many of our faculty. Still we also encountered more problems than we anticipated, particularly in the area of faculty training. But in each of the five areas that we focused on, there were clear and encouraging progress:

(1) Improving Student Writing: The co-authored essays from students in our project show a very different kind of written discourse. These students learned to play with ideas and to consider various alternatives for pursuing an argument.

(2) Improving Student Attitudes: Student after student told us that the project made them think and work harder than they usually did—but that they liked it anyway. In fact, while many of these student complained at first about how much time they had to spend on the co-authored essays, they all acknowledged that the time was well worth it in the end.

(3) Improving Faculty Teaching of Writing: The project helped them do this in a number of ways. First, it allowed them to integrate writing into their course. Second, as a result of this integration, the writing component of their courses became a source as well as a measurement of learning. Third, it also gave them tools and strategies as writing teachers that they never had before.

(4) Improving Faculty Attitudes: The project helped teachers to take a fresh look at their teaching styles and to play a radically different role—one they seemed to enjoy. It felt good to no longer be a latecomer to the student's writing process, arriving in the margins of a text as red ink when there wasn't much point in arriving at all, except to put a grade on the paper. With six or seven group essays to read on screen, rather than a pile of papers to take home over the weekend, faculty members began to see a number of advantages to this new kind of approach to writing, for themselves as well as their students.

(5) Improving Collaborative Skills: Another problem we sought to address in the project was the isolation of students in an academic class. This is true not only when students return to their own rooms to write their essays, but also in class. Too often students tune out the current speaker to plan their own next strategy, rather than listening to see how the speaker's point might bolster or help clarify their own. If

consensus cannot be reached, then minority opinions must find their way into the structure of the dialogic essay in a workable and mutually agreeable manner.

F. Summary and Conclusions

I have several conclusions: first, even in a project which is meant to be student-centered (or perhaps I should say, *especially* in a project which is meant to be student-centered), the centrality of the teacher's role still cannot be underestimated. Again and again, we realized how dependent students and classes are—for better and for worse—on the pedagogical skills of the teacher.

A second conclusion, to which I referred several times above, is that a program like this one is likely to work only where there is already a certain degree of support. Although there was a willingness to experiment and to to develop new teaching techniques on the part of the participating faculty, there was not always enough overall support—from administrators, department chairpersons, computer experts—to make the project fully successful.

Third, this project is, if anything, more relevant now that it was four years ago when I wrote the grant proposal. There is even more interest in the potential and the limits of collaborative learning. Once of the central problems discussed in composition theory today is how to foster collaboration without compromising the rights of each individual student. Since the "hidden text" feature of our students' co--authored essays offers an alternative to the usual problems of collaborative writing, this project figures to have a long-term impact on our field.

Appendix

(1) What forms of assistance from from FIPSE were most helpful? How can FIPSE more effectively work with projects?

I was particularly pleased by his and FIPSE's willingness to let me make changes in my goals and methods as the project developed. Without that support and flexibility, I would have continued in some directions that would have been far less productive than the new ones I was able to follow. In almost every case, Jay Donahue was willing to let me revise the project's details in order to stay true to its larger vision.

(2) What should FIPSE staff consider in reviewing future proposals in your area of interest? What are emerging new directions?

FIPSE ought to continue to be careful about funding grants in computers and writing. While there was a period about five years ago when many of us in the field believed that computers would and should change everything about the way writing is taught and used, I believe that that a more cautious and realistic perspective is (or at least should be) setting in. Computers can be enormously useful in many writing projects, even essential in some. But computers are certainly not a panacea for the problems of college writing. I suppose that I would suggest that FIPSE pay attention first to the quality of the pedagogical idea being proposed and, second, to the creative use of the technology involved.

Lad Tobin, Project Director
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Using Computers for Collaborative Writing:
An Interdisciplinary Project (1001)

A. Project Overview

Our project began when we realized that an increasing number of our incoming students were having difficulty meeting the writing requirements of our curriculum. A related problem was that most of our faculty had little experience or training in the teaching of writing. These problems, as I described them in my original proposal, were as much with the process as with the product: students tended to write one-shot, last minute essays that faculty then carried around for weeks before "correcting." There was very little collaboration, interaction, or integration. As a result, faculty and students had low expectations about the writing component of their courses and, as far as I could tell, this negative attitude became self-fulfilling.

In order to improve faculty and student attitudes and behaviors, we changed almost everything about the way writing was generally being used in our courses. Students would no longer work independently to produce a traditional academic essay but would work instead in a group of three using a local area computer network to produce a non-linear, co-authored text. Faculty would no longer carry around a batch of essays in their briefcase, mark them up, grade them, and return them to be skimmed and thrown away, but would instead read these co-authored essays "on line" as they evolved, commenting, suggesting, even occasionally co-authoring.

In other words, students in the project created co-authored, "dialogic" essays which involve three students writing one essay on-line with input from their teacher from start to finish. Each of these essays contained negotiated "primary" text in which the three authors wrote about some aspect of the course material—whether that was an analysis of a poem, or a lab report on water pollution, or an argument about the American correctional system—and individual "secondary" text in which any of the students or the professor could comment on the primary material and on the process of writing the essay.

Over the three years of the project, fourteen faculty and over five hundred different students in a variety of disciplines—English, Humanities, Math, Biology, History, Theology, Music, Criminal Justice, and Philosophy—participated in this innovative approach to reading and writing. The results from our three years indicate that our project made a difference, that it is possible to change the way teachers teach, students write, and both groups feel about writing. This is not to suggest that there were no problems or disappointments: in fact, several participating faculty and a number of students felt uncomfortable with either the computer technology, the logistics of co-authoring, or the concentration required in an ongoing dialogue about an evolving draft.

However, the large majority of professors who participated in the project became convinced that students can learn about Bach's music, Shakespeare's plays, Hobbes' political theory, or Darwin's experiments through the process of writing, and that student

essays can actually be interesting to read. Most of the students, in turn, recognized that academic papers do not have to be just a chore to get out of the way as quickly as possible, but can be a means of discovering what they really think and feel about the material in their texts, and where their viewpoints fall in relationship to their peers' and teacher's on the subject.

B. Purpose

In my original proposal I identified the problem that I wanted to address this way:

> It is common knowledge that teachers carry around briefcases stuffed with student papers they dread reading, commenting on, and grading. It is also common knowledge that students usually write papers, not because they have something to say, but because they have to; that is, they write to give the teacher something to grade and, in effect, to pad the teacher's briefcase. We have too often failed to realize that traditional methods of assigning, teaching, and evaluating writing isolate teachers and students in their respective roles, and drive them apart with a thick wedge of paper.

I went on in that proposal to argue that the problem with most college students' writing—according to most college faculty—was not usually with the mechanics of writing but with the critical thinking skills and composing strategies necessary to produce a logical, analytical essay. In other words, our students could write short identification answers on exams or reports which repeated information given to them by professors or found in their texts. However, when they were asked to synthesize information, relate one idea or course to another, generate their own questions and composing strategies, or even to revise their own rough drafts, many were lost.

The problem is made worse by the fact that most of our faculty lack the expertise and sufficient class time to teach students how to produce this sort of writing. Traditionally at Saint Anselm and elsewhere, most faculty members rely on the erroneous belief that students should bring to college the ability to think critically and to read analytically , or, if ill-prepared, that they should learn to master the necessary writing skills in freshman composition. As a result, many of our faculty members use writing only as a measurement rather than as a source of learning: what and how much a student knows about Plato, Homer, Darwin, or Marx always takes precedence over how a student can use writing to gain that knowledge in the first place.

The problem here is that students are rarely given the opportunity to use writing as a process of discovery, to clarify their initial questions and ideas; to discuss ideas from the readings with their classmates and teachers; to relate one paper or idea to earlier ones; or to revise an essay after submitting it for a first reading. There is very little, if any, continuity between writing assignments from year to year or even from course to course. Not surprisingly, many of our students and faculty are frustrated by these writing assignments, which by their nature invite students only to try to figure out "what the professor wants." The result is that the student writes the papers with little interest or motivation and the faculty reads them in boredom and frustration.

There were then four fundamental problems we addressed: the negative attitude of faculty towards the teaching of writing; the negative attitude of students towards writing; the relative inability of students to think critically in their written essays; and the lack of knowledge and imagination in most of our teaching of writing. Our purpose, then, was to change the way that students write, the way that faculty generally use writing in their courses, and the way that both groups felt about writing in general.

Once we started the project, though, I realized that there was another deeper and more systematic problem that underlies all of these: the structure and demands of most classes and universities make it difficult to introduce new kinds of writing assignments; in other words, because college faculty often teach very large courses and often feel pressured to "cover" a great deal of material, it is extraordinarily difficult to change the nature of their syllabi and out of class assignments.

Although many faculty in our project believe that the methods we used are enormously valuable, they are not convinced that they can implement them given the present structure. Therefore, I have become increasingly aware of the need for overall curricular reform within which this sort of project could flourish.

C. Background and Origins

Saint Anselm College is a traditional, four-year, liberal arts, Benedictine college. Our curriculum, particularly in the humanities, is distinguished by its commitment to primary sources and "great books." Students are required to study four semesters of Humanities, three semesters of Philosophy, three semesters of Theology, two semesters of English and four semesters of foreign language. By the end of sophomore year, every Saint Anselm student has read a great deal of the Old and New Testament as well as works by authors such as Plato, Aristotle, Homer, Cicero, Cervantes, Shakespeare, Hobbes, and Augustine.

In my original proposal I made the case that students confronting such demanding and unfamiliar texts need help. They needed to learn how to read and discuss abstract and complex ideas and how to integrate one idea with another. By forcing students to discuss their ideas in writing with their classmates and with their professor, our project gave students a way to integrate and contextualize their readings.

However, I did not realize when we started the project how difficult it would be to implement this project in a traditional college with traditional constraints. Since faculty across the curriculum have such a large teaching load and since they feel compelled to cover so much written material, there is very little time left for the teaching of writing. Although FIPSE provided generous financial support for participating faculty to learn how to use the local area computer network and to introduce co-authoring into their classes, the overall demands on our faculty member makes it difficult for them to try new approaches or to revise their syllabi.

The problem, then, of implementing this grant in this context was that it required faculty to learn several new pedagogical approaches at once. Not only did faculty members need to learn to use computers and computer networks, they also needed to learn new methods of teaching, writing, and evaluating. Given all of this, some faculty were resistant and overwhelmed. I could imagine this project flourishing in an environment in which the issues we raised about writing and reading were already being

discussed and had already made an impact on pedagogy and curriculum. In other words, the project probably would have been more successful as a feature of an existent and solid writing across the curriculum program rather than as the basis of a writing across the curriculum project.

D. Project Description

Our project involved clearly defined activities divided into two main stages stages: (1) faculty development and training in collaborative writing and computer use; (2) implementation of a program in co-authoring and computers in a number of courses across our curriculum. Let me discuss these activities one at a time:

Faculty Training

I argued in our original proposal that we can only change the way students write by first changing the way that faculty teach writing. For that reason, faculty development, specifically our summer workshop on composition and computers, was at the very center of our project. In the first summer I trained three Freshman English professors; in the second summer I trained three Sophomore Humanities professors; and in the third year I trained six professors from upper division courses across the curriculum (Math, Biology, Criminal Justice, Theology, Philosophy, and Music). In each summer seminar we met for three weeks working half time on computer use and half time and composition theory. The goal was to prepare faculty to introduce co-authoring assignments into their courses in a smooth and effective way.

I chose to conduct the training during a summer workshop because I thought that participants needed time before the semester to get comfortable with he computer technology and to integrate new assignments into their existing syllabi. During those intensive three-week training periods, I tried to get the participating faculty members to think about the teaching of writing in radically new ways. I also tried to make sure that they gained enough expertise with the software and local area network in our Writing Center to feel comfortable engaging in ongoing, on-line dialogues with their students.

At the end of the first two years, I reported mixed results in this area: all three participating faculty became competent users of our computer network and understood the mechanics of co-authored, multi-draft writing assignments, but there was still some resistance to the philosophical and technological demands of the project. Since I attributed this resistance to our relatively short training period and lack of one-on-one computer tutorials, I made changes for the final year. I spread out the training, giving the teachers a number of articles to read well before the workshop and offering computer tutoring over a two-month period.

I think that this extended summer training did help and the project began more smoothly in the third year than the second, and in the second than in the first. this year than last. However, even with more time and more extensive training, we still encountered a certain amount of anxiety and even resistance to the some of the goals and methods of co-authoring and to the more complicated aspects of our computer network. Clearly all the faculty members understood the project well enough after the workshop to begin the project in September, but it took two of them much longer to gain expertise or

enthusiasm. In fact, one faculty member found herself uncomfortable with certain aspects of the technology throughout the entire project period and another found that it took him a full semester to gain the confidence and understanding to let go of his traditional methods of reading and responding to student writing.

I am not sure to what extent this was a preventable problem. Of course, I would have liked all faculty to feel comfortable with the computer and enthusiastic about co-authoring from the start of the project, but my sense now is that we ought to expect that each group—perhaps even each professor—will resist, even reject, certain aspects of our training and philosophy. Given the scope and ambition of our project—we are asking teachers to change their mode of operating in fundamental ways—I think it is inevitable that some faculty members will decide that they do not like communicating on-line or they are uncomfortable with the informal and casual student-teacher dialogue our project fosters. In the first two years I responded to examples of this sort of discomfort with either a frantic attempt to pressure the faculty member to try harder or frustrated resignation.

In the final year I tried to be more patient and more realistic about what can be accomplished during a faculty workshop. Let me offer one just example from the second year: a philosophy professor who participated this year was initially somewhat resistant to the goals and methods of the project. He felt that his responsibility as writing teacher was limited to one activity: to make sure that his students "could construct a well reasoned argument for a clear and defensible thesis." For him, the first months of the collaborative experiment were a nightmare. In his self-described role as judge and evaluator he found it difficult to enter into his students' dialogues on screen until he felt their text was quite firmly in place. Instead of entering into discussion with his students, he would note all the problems--ambiguous terms, rash assumptions, the use of rhetorical questions to suffice for textual evidence, implications that would contradict their principal thesis, and so forth.

Although the assistant director and I both tried to convince him to change his style, we were unsuccessful. This discouraged us but it shouldn't have surprised us: after all, he had been teaching this way for 15 years and old habits die hard. Our sense was that his harsh, prescriptive comments were cutting lines of communication and short-circuiting the writing process. As a result, he was losing the chance to see his students' minds at work, and losing out on the chance to join in the dialogue. But those were lessons that he needed to learn over time, through direct experience.

I am not advocating passivity here; rather I am suggesting that we need to work harder to understand and, to some extent, to accept the nature of each faculty member's resistance to the project. As the project directors, we believe passionately in the goals and methods of this project, but for a variety of reasons the faculty we train may not share our enthusiasm. In some cases, we may have been asking faculty to adopt methods that contradict the traditional conventions of their particular discipline; in other cases, we may be asking them to teach in ways that feel strange or even threatening. If the project is to have long-term impact, faculty must be able to be willing and able integrate it into their current areas of interest and expertise. And for that to happen, we must work harder during the workshop to adapt the project to the particular demands of different disciplines and teaching styles. But, as I indicated above, that can only happen

if these faculty are given the freedom and support to re-fashion their educational goals, values, and strategies.

How can this be accomplished? I still believe an intensive summer workshop is an effective way to introduce this sort of project. However, in retrospect, I wish that I had also requested funding to give participating faculty some release time from their regular teaching load in order to continue their training and development after the semester had started.

Implementation of the Project

We implemented the project in three classes Freshman English classes in the first year; three Sophomore Humanities classes in the second year; and six upper division courses across the curriculum (Music Seminar: Bach; Cell Biology; American Correctional System; Math Statistics; Approaches to God; and Paris and New York in the 1920s) in the final year. Students in these courses were asked to write at do at least half of their writing using co-authoring on our local area computer network. In some upper division courses (Paris and New York, Cell Biology, and Bach) students were asked to co-author one long research essay; In several other courses (Freshman English, Sophomore Humanities, and Approaches to God), students were asked to write four or five short co-authored essays.

Although faculty members usually formed the groups, trying to create a sense of balance in style and skill level within each group, students were responsible for organizing the project from start to finish. Because one of our goals was to foster a sense of independence, we made a conscious decision not to tell groups what to do. And, although faculty members monitored the progress of each group, we left it up to the students to decide how to divide the work load within the project. As I indicated above, each essay contained negotiated co-authored text and individually authored comments. Those individual comments, which could be visible or invisible on the computer screen during any particular reading, could be minority reports, complaints, questions, digressions, discussions of the issues in the essay, discussions about the process of writing the essay, or personal reflections. For example, here is an example from a group of Freshman English students writing about a Joyce Carol Oates' short story:

> Co-Authored Text: At this point the reader can feel trauma building as Connie no longer only dreams of boys, but thinks about this one particular man she met the previous evening. Of course, Connie wanted to sexually attract this man. She did and he arrived at her house ready for her.
>
> **Sharon (one member of the group): It is at this point that I feel the most for Connie. The time when you think everything is great and you've got it all under control. The shock that will hit her has hit me many times. As I read this piece of the story my stomach began to quiver and in my mind I was shouting at her "Get out of there now!!!!!!!"**

Co-Authored Text: Their whole encounter is sexual, and the author wants it to be that way. It is a sexual experience for Connie, making her realize that sex is not all physical, and not everything is as it appears. Arnold Friend learns that he can manipulate this fifteen year-old girl. When he comes to Connie's house, he thinks that he can, but when he leaves, he knows it.

What is interesting here is the difference between the content and voice of the group text and the content and voice of Sharon's individual comment. Throughout the project, we tried to get students and faculty to notice and to analyze these differences.

E. Project Results

On the whole our project was extremely successful; we not only changed the way many of our students think about and practice writing, we also changed the attitudes and behavior of many of our faculty. Still we also encountered more problems than we anticipated, particularly in the area of faculty training.

Our goals and evaluation measures were clearly defined:

Goals	Evaluation Measures	
	(Quantitative)	(Qualitative)
1) Improve Student Writing	Comparison of Control/Treatment: Pre/Post Tests	Analysis of Student Essays
2) Improve Student Attitudes	Comparison of Control/Treatment: Pre/Post Surveys	Metaphor prompt/ Interviews
3) Improve Faculty Teaching	Comparison of Control/Treatment: Pre/Post Surveys	Interviews
4) Improve Faculty Attitudes	Comparison of Control/Treatment: Pre/Post Surveys	Metaphor prompt/ Interviews
5) Improve Collaborative Skills	Comparison of Collaborative/ Individual Essays	Interviews/ Analysis of Collaborative Essays

In the first two years of the project, we relied more heavily on quantitative and qualitative data for assessment. Participating faculty during those years each taught two sections of the same course—one using the co-authoring technique and one using

traditional writing assignments—which made it possible for us to compare the performance of students in the treatment group with the performance of students in the control group. In the third year, however, because none of our upper division faculty teach two sections of the same course, we relied more heavily on qualitative measures.

Improving Student Writing Ability

In the original proposal I argued that the project would not only improve student attitudes about writing and teach them collaborative skills, it would also improve their individual writing ability. This hypothesis was based on my assumption that improved attitudes would improve performance. Also, I thought that students would learn alternative strategies and approaches and gain a greater sense of audience by working closely with two other writers. The first year's results supported this hypothesis: the treatment group—the students who had used computers and co-authoring throughout the year—showed much more improvement as individual writers according to the pre- and post-tests than the control group. The second year's results in this area were statistically insignificant: the test revealed no overall difference between the treatment and control groups in the improvement of individual writing ability.

Clearly we need more data before we can demonstrate conclusively that the project improves individual writing ability. However, our data does suggest two significant results: first, it demonstrates that in spite of the fact that the students in the the project produced much less individual writing during the year than the control students, their progress as individual writers was no less. The significant point here is that the students seemed to benefit as a result of collaborative writing more than the students in the control groups without falling behind as individual writers. Second, for the first two years, our data demonstrated that weaker writers make greater progress using computers and co-authoring than traditional methods of writing instruction. While there was no significant difference in the progress of average and strong writers in the treatment group versus the control group, the weaker writers (those whose scores were 1.5 or lower out of a possible 4.0) in the treatment groups made more progress than the weaker writers in the control group. (I should note, however, that because the sample size was was small, the result is not extremely significant with the Wilcox-Mann-Whitney test giving a probability of at most .17 that the treatment scores would have surpassed the control scores in this manner if there were no differences in pedagogical approach.)

In addition to this quantitative data, we also analyzed the essays themselves. The fundamental problem that I described in our original proposal was a sense of detachment and superficiality in traditional student essays. Part of that problem is created by the process itself—a last-minute effort in which ideas are not carefully or thoroughly examined. As a result their essays lack a sense of voice and perspective, as if they are writing not to succeed but only to avoid failure. The co-authored essays from students in our project show a very different kind of written discourse. These students learned to play with ideas and to consider various alternatives for pursuing an argument. Here is a short excerpt from a collaborative group's on-line discussion, just after they received their first group assignment:

Chris - I don't know where to go with this idea of the City of God and the City of Man?

Meghan - Maybe we should just compare and contrast the city of God with the city of man?

Pat- Sounds okay, Meg. What do you think, Chris?

Chris - We could compare a religion-based government with one which is totally independent from religion, such as the U.S.S.R. and the U.S.

Meghan - How about this for a thesis statement: "Although Americans live in a country whose government is based on religion (in God, we trust), it is feasible to establish one which is totally independent of any religious affiliation." Needs work, but not bad for a start!

I like this idea! Bro. Phil

Chris - I think we should compare and add our own opinions on the two different types of governments God and civil). We can argue which one is more beneficial to the people, and add what we think would happen if a City of God was converted to a City of man.

This is even more interesting! Bro. Phil

Pat - Or we could concentrate on what must change when you go from a city of God to a city of man?

Even better. Go for it! Bro. Phil

Collaborative writing (on or off screen) inherently involves more inquiry and reflection--looking back into the process leading to a completed draft or even a completed sentence. For example one co-author write this:

I think our ideas are defining themselves a little better now, but we have to define "predestination" more clearly and set up the rest of the paper as well. I hadn't interpreted "consequences" as including the problems of Calvinism; it's a good thing, Sky and Debi, that you made that point. I guess that changes our thesis to: "Calvinism revealed many of its own contradictions in its political interpretation, but even still, it has had significant influence on American and European society. What do you think? -- William

But there is not only a dynamic exchange of ideas within each essay, there is also a continuity of learning from paper to paper that is uncommon for the individual writer:

Kathy - In King Henry IV, Shakespeare wants us to realize what is important to us as individuals, and to strive to obtain it. He also wants us to make sure that what we are striving for doesn't become a corrupting "God." He wants us to ask: Does the struggle for power have to lead to unhappiness? Can the qualities of love, cooperation, loyalty and faith exist along with the struggle?

Adam - Kathy, it's good to have you back from the dead. Hope you're feeling better ... and up to working again. You seem to have some valuable material here. (I'm actually agreeing with you for a change.) It seems very natural for humans to make decisions which govern their lives. An aspect which we were going to use in our first paper, but didn't, was the idea that God gave us free will. Below is the material about it from the last paper.

Since there is a certain angst involved in writing a paper collaboratively—the patience, compromise of ideas and styles, the division of labor—it becomes nearly impossible for students to avoid analyzing the process involved in deriving their group paper. By watching each other write, as well as their teacher, students come to see their own strengths and weaknesses, as well as those of their peers with new clarity. But since this process is complicated and occurs gradually over time, students in our project may not show immediate improvement *as individual writers.* Still, there can be little doubt that our students show dramatic improvement *as thinkers.* One of the participating professors commented on this extensively:

I have come to see the project as something more than a method of teaching composition. In the end there may be no substitute for the relatively lonely hours spent writing an individual paper. Once may be able to learn to write as an individual. However, one can never learn to think well on one's own. Learning how to think well, like learning how to play basketball well, requires teammates and opponents. No one can think of every objection to one's own position. No one can keep in mind all of the evidence of one's position, of only because we are each limited in experience and knowledge. We think better when we think with one another. The collaborative project provides students with an opportunity to think about something together. And even if this is all that the FIPSE project should accomplish, it is a sound accomplishment indeed.

One of the outside consultants who read many of the essays after the third year, Randall Albers of Columbia College in Chicago, commented:

The idea itself is a good one, as far as I can tell, especially in a class where the hidden text takes on the character of a written conversation among students. This conversation does a number of things, but two things that strike me as particularly valuable for the development of writing ability: (1) it gets students *writing* rather than *composing,* simply sitting there in solitary agony, scratching their heads and gnawing their pens as they try to form perfectly-shaped sentences and airtight

arguments; and (2) they move closer to the sort of writing that happens in letters and journals, where the audience of peers and of themselves enables them to explore speaking-writing connections of voice essential to generating writing in all modes.

Improving Student Attitudes

Our results strongly support our hypothesis that the project improves student attitudes towards writing. In evaluating the collaborative writing project, students were asked how they felt about the process of writing by responding to 43 attitude statements. The attitudes of both the control and the treatment sections towards writing were positive, as the summary on Table 1 indicates. Nevertheless, the treatment group—the students who used computers and co-authoring—showed significantly more positive attitudes towards writing through the analysis of variance.

Students in the treatment sections were much more likely to respond favorably than the control students in a number of areas. For example, after the project the treatment students were more likely to say that "I like to write," "I get satisfaction from my writing," "My writing has impact," and "I think of myself as a writer" than were the control students. At the same time they were less likely to say, "Writing is very hard for me," or "When I get a writing assignment, my usual response is to face the blank page and hope for the best." The analysis of variance further highlights the fact that those students who used computers and co-authoring felt that early drafts were not necessarily important, perhaps because they came to appreciate the ongoing, dynamic process of writing.

This quantifiable data was supported by qualitative research as well. Based on post-project interviews with ten participating students, it seems clear that students were strongly positive about the project activities. In fact, although almost every one of these interviewees criticized some specific aspect of the project, only one of the ten was negative about the project as a whole. The criticism of the others focused primarily on logistics—the difficulty of finding time to meet or to work on the computer—while their praise was directed at the general goals and methods of the project. Here are some representative excerpts from our interviews:

On the collaborative papers I didn't care as much about the grade. It was just interesting to hear what others in the group had to say ... how we all had interpreted the text or responded to the lecture. It was like our own little mini-seminar. I normally don't talk in regular seminar, but in the small group we battled out our ideas and I was part of it.

I didn't do half as well on my Humanities papers last year. Mostly, it felt like I was writing the paper for a teacher. I'd say. "Okay this will sound good...this will sound good." I got mostly C's and I couldn't understand why I couldn't do any better. But it was like between me and the teacher. But this year it was different interacting with other students. We all sat back and thought about it; more time was put into the papers. We took them on at a personal level. It wasn't just write a paper, hand it in, get it back. It wasn't just doing it for a teacher and a grade.

It is not as if student attitudes were magically improved or that most students claimed to love the project. Instead there was a sense from the interviews that the project made their work more interesting and more meaningful. In fact, student after student told us that the project made them think and work harder than they usually did—but that they liked it anyway. In fact, while many of these student complained at first about how much time they had to spend on the co-authored essays, they all acknowledged that the time was well worth it in the end. As one student put it:

> I think that collaborative work is something you should do. I don't really always enjoy it, but it is a good experience. I might turn down writing collaboratively in the future, but if I did I would know that I was cutting corners.

Improving Faculty Teaching of Writing

According to student evaluations, the participating faculty were more effective as writing teachers in their treatment group than in their control group. Students were asked to evaluate their instructors' performance in terms of the writing component of the course. They were presented with twenty-six statements about their instructor's behavior and asked to evaluate them according to the following scale: outstanding, very good, good, average, or poor.

Students in both the control and treatment groups gave their instructors relatively high evaluations for their teaching; however, the analysis of variance in Our data clearly shows that the treatment group after the project feels more positively than the other three groups (the treatment group before the project and the control group before and after). The students who participated in the project stood out in feeling that their instructors set fair goals, valued their comments, gave workable assignments, and graded fairly.

My sense is that we made much more progress in improving faculty teaching of writing in the second and third year than in the first primarily because we were not working with writing teachers after that first year. The three faculty members in the second year were from the Philosophy, French, and Humanities departments and from across the curriculum in the third year had received no previous training in the teaching of writing. In fact all twelve acknowledged that they were eager to find a more effective means of discussing composition and responding to student writing. The project helped them do this in a number of ways. First, it allowed them to integrate writing into their course. Most began the project as accomplished and skillful seminar leaders but all acknowledged that the student essays had always been only a tangential aspect of the course. As a result of the project, though, most felt that writing became a central and integral part of the course:

> I now see collaborative writing as a continuation of the Socratic dialogue that takes place in my seminar. It allows for the dialogue between teacher and students and among students, to take place perhaps in a less threatening manner than that which takes place on the spot discussion in the seminar.

As a result of this integration, the writing component of their courses became a source as well as a measurement of learning. But to accomplish this, they had to learn to play a new, less prescriptive role, to become members of the community of writers by joining the conversation. Each of the participants learned to respond to the text as it evolved on the screen, to probe student writers with questions at the right time, nudging them to dig a little deeper, to rethink, rephrase, rework their paper before it was too late. But the project improved these faculty's teaching or writing not only by giving them a new role; it also gave them tools and strategies as writing teachers that they never had before:

> Professor Staley: My ability to teach argumentative writing and reasoning skills was greatly enhanced by the project. Given that several students are working on a single paper, the overall number if papers is reduced. Much more detailed commentary is then possible. Second, given that the papers are written on the computer, it is possible to make one's comments at length and suggest how students might deal with the problems in the text. Students can take these integrated comments into account as they revise. This is, I think, a much more effective use of teacher/student interaction that the way I used to read and respond to papers. Constructive criticism is often moot after the fact. In this project, though, it becomes quite valuable because it forms part of the writing process itself. Finally the computer screen and use of hidden text is a much more flexible medium that hard copy. This project has significantly enhanced my teacher's ability to teach.

Just as students seemed to see their own approach and style more clearly because they could compare it to the approach and style of their co-authors, so, too, did the faculty see their own teaching style more clearly because they could compare it to the other two participating faculty. In some cases, the professor was forced to look—perhaps for the first time—at his own assumptions and methods about teaching writing and compare these with those of his colleagues. It is to the credit of the project and of these professors that they were willing and able to incorporate effectively such new and unfamiliar methods.

Improving Faculty Attitudes

Over the three years of the project the results here were strongly positive. 11 of the 12 participating faculty indicated that they felt more positively about their teaching of writing than before they participated in the project. This was particularly true in terms of their attitudes towards reading and responding to rough drafts. In each case their scores on their surveys indicate that when they began the project, they saw this part of the writing process—dealing with student writing in progress—as unnecessary or as a dreaded burden. But at the end of the project, they indicated that they not only saw the value of this aspect of the process, they actually enjoyed reading, commenting on, and discussing student drafts. Since ongoing student-teacher dialogue about an evolving draft is central to the project's continuation and success, we see the improved attitudes in this area as a crucial and encouraging result.

In addition faculty attitudes about their students as writers were also more positive after the project. Most of the faculty began the project with relatively low expectations about their students' abilities to write and almost all finished the project with much more confidence in those abilities. Again in almost every aspect of writing—drafting, composing, and revising—the scores of the faculty went up dramatically from pre- to post-test.

B. Interviews

Here again the evidence from our interviews and observations supports what our quantitative surveys suggest. Of course, there were problems, frustrations, and setbacks. As I acknowledged earlier, few of the faculty took to the methods immediately. But by the end of the project they spoke about writing in ways that faculty rarely speak:

> Blais: I remember the more elusive moments of excitement about the project; when I went to the computer I read the comments of students attempting to communicate at different levels, when the students would stop me in the lab on campus to talk about their papers. This never happened in my other seminars.

> Brother Philip: I can honestly say that I looked forward to reading and grading my papers, an interest in responding to rough drafts, in seeing how the group responded to my response, as well as looking forward to seeing how the groups were interacting among themselves. Since I put more time into assigning paper topics I also looked forward to seeing the outcome, in other words in investigating how my idea worked or did not work. I found myself frequently calling someone who worked in the Academic Resource Center over to share with them a particular phrase, sentence or dialogue. Again this is something I did not find myself doing in the past.

But as positive as these statements are, they cannot reflect the sense of dynamism and excitement that these faculty often demonstrated during the project. For example, it was not unusual to see Brother Philip in the Resource Center checking his students' files three, sometimes four, times each day, and on weekends. His commentary on the screen usually started as soon as students make their first entry, and continued casually, steadily, at times with urgency, until his student groups' papers begin to take form. On any particular morning he checked the date and time memorandum on his partition in the disk drive where his students' files are stored to see who had last worked on a paper. He would ask one of us, "What have my kids been up to?" and then begin pounding out comments, occasionally in 16-point boldface type if he disturbed by a writer's stance or by a good point they failed to make. Suddenly he would move to another file: "Now that's interesting," he'd say, referring to a three-way exchange between students discussing a rhetorical approach. "These kids are good critics of their own writing."
There is a synergistic quality about the faculty/student involvement that we observe in these dialogic essays and in the face-to-face exchanges we see taking place as a result of the collaborative project. One of the principal goods of the academic life—intense and meaningful discussion of important issues—is taking place and being recorded, in some unlikely places. And it has helped these teachers to take a fresh look at their teaching

styles and to play a radically different role—one they seemed to enjoy. It felt good to no longer be a latecomer to the student's writing process, arriving in the margins of a text as red ink when there wasn't much point in arriving at all, except to put a grade on the paper. With six or seven group essays to read on screen, rather than a pile of papers to take home over the weekend, faculty members began to see a number of advantages to this new kind of approach to writing, for themselves as well as their students.

Improving Collaborative Skills

Another problem we sought to address in the project was the isolation of students in an academic class. This is true not only when students return to their own rooms to write their essays, but also in class. Too often students tune out the current speaker to plan their own next strategy, rather than listening to see how the speaker's point might bolster or help clarify their own. Teachers, too, admit it is easy to allow cloudy thinking to go unchecked in a classroom discussion, to let a glib speaker dominate the seminar, or let a point remain unresolved as the class hour comes to an end. But in a computer dialogue aimed at evolving into a dialogic essay, the question at hand must be resolved in some reasonable manner; differences of opinion must be clearly articulated. It becomes quite difficult to take the attitude "so what." If consensus cannot be reached, then minority opinions must find their way into the structure of the dialogic essay in a workable and mutually agreeable manner.

Frequently, opinions that might never even have reached the floor in a classroom discussion surfaced with fierce clarity on the screen. Consider this on-line response regarding a topic based on Hobbes' Leviathan:

> Jeff - The points that Hobbes likes to make are true, but incomplete. I need to rip them apart. I don't believe that man by nature is evil, which is basically what Hobbes is saying. Personally, I place the needs of others in front of my own quite frequently. And look at social workers ... they don't get paid jack sh...t for the work they do. What about Hobbes' view that we are all solely driven by our human passions. This contradicts everything that we've discovered in any of our papers this semester. Do you guys think we were wrong, or do you think Hobbes might be a little off cue with his evaluation of man?

> **It's possible that Jeff will have to include a minority report if the three of you cannot agree. Something like ... this is the way it might seem, but there are other ways of looking at it. What happens to the dignity of man in Hobbes world? Bro. Phil.**

One of the other professors in the project also noticed that his students were learning how to work together, to negotiate, to argue. And what may be most encouraging is that this negotiation often involved students who rarely spoke up in class:

> Professor Staley: I also discovered that the project benefitted those who are somewhat shy in discussing matters in seminar. I have two individuals in mind. Each was absolutely quiet unless called upon and then was somewhat brief, backward, and

noticeably nervous. But each proved to be a dominant participant in the collaborative writing process. Each demonstrated insight, creativity, and a sensitivity to texts that I would not have gathered otherwise. The project provides an excellent medium in which these students can test and develop their dialogue and critical thinking skills without fear of embarrassment.

Ideas abound when students write collaboratively. It is no longer a matter of having too little to say, but a problem of having too much to say; and as teachers we do not consider that situation to be a problem. Students bring forward what they see as important, consider the positions that others bring forward, and decide how they will use the medium of language and the essay form to connect the information, deal with opposing viewpoints, and arrive at a workable product. Predrafting techniques appear automatically on the screen as students attempt to show each other how their thinking is evolving. Here is one group's first thoughts on "What is the nature of Man?"

Meg: Why don't we just think about the different characteristics of man?

greed	*courage*	*lust for wealth*	*need for respect*
pride	*emotions*	*personal gain*	*deceitful*
honor	*lust for power*	*selfishness*	*stubborn*

Pru: Now, this list is according to Shakespeare, right? Because not all men possess all of these qualities!

Chris: Except for TEKA brothers. Don't you think there is a softer side to the nature of man?

Meg: Well, why don't we compare Shakespeare's version to our version, or something like that?

Chris: Sounds good; let's do it.

Another example is worth noting. First, one group of two females and one male told us in the interview that they would not have been able to write a good essay on Goethe's Sorrows of Young Werther if their group had not been mixed-gender. "We would have only had the male or the female point of view and there is not way someone can really understand Werther and Lotte's relationship without seeing both sides."
Of course, sometimes seeing both sides leads to conflict, even stalemates. But this too had its educational value.

Staley: Students in the project had to face and cope with fundamental and irreconcilable differences of opinion. I remember two members of one group coming to me with a rather worried look on their faces. The other member of the group was actually defending the legitimacy of theocracy. Horror of horrors. What were they to do with this mad man? The group ended up writing a debate paper. The opposing view points were presented, debated, and rebutted. This same sort of thing

happened in several groups, and each came up with some sort of solution or compromise. I think that students learned something very important in this process, namely that genuine intellectual inquiry can often be pursued because of and not simply in spite of radical differences of opinion.

Perhaps the most dramatic example of this occurred in a group in which one of the students had done very little work on the two previous essays. Not surprisingly the other two students were angry and resentful. Amazingly the group resolved the problem constructively by decided that the negligent student should have to write the first draft of the group's essay on the Sartre unit by himself. He proceeded to write a comic play about the situation in which he admitted that had "acted in bad faith" and now was willing to act responsibly. The revised play not only demonstrated a working knowledge of Sartre's ideas, it also showed a group willing and able to solve their own problems.

But once again, I feel compelled to mention several recurring problems that put our successes into perspective. First, as I indicated, faculty training remained a problem throughout the project. Second, access to computers was often limited and thus the source of tension and even frustration for faculty and students. Finally, there were some groups in each course that felt uncomfortable with the process and with each other.

Dissemination of the results to the local and national community.

During the three years we have made slow but steady progress in getting out the word on our project. Our first audience has been our own students, faculty, and administrates. Through a series of workshops, presentations, and desktop newsletters, we have raised the campus consciousness about the activities and value of the project.

But we have also succeeded in reaching a larger national audience. First, I spoke about the project at several faculty workshops; second, the assistant director, Elizabeth Lindstrom, presented a paper, "The Dialogic Essay: When the Teacher Joins the Conversation" at the New England Writing Center Association meeting in Springfield, Massachusetts; third, I published an article, "Writing Between the Lines: Hidden Comments in Co-Authored Essays," about the project in a new book, *Vital Signs 2: Collaborative Writing*, Heinemann/Boynton-Cook, Portsmouth, NH, 1990; fourth, news of the project has been included in on-line discussions on Bitnet of the computers and writing organization; fifth, I presented and discussed the results of the project at national conferences throughout the country; and finally, I am working on a book about the project which, I hope, will be out by the end of next year.

F. Summary and Conclusions

I have several conclusions: first, even in a project which is meant to be student-centered (or perhaps I should say, *especially* in a project which is meant to be student-centered), the centrality of the teacher's role still cannot be underestimated. Again and again, we realized how dependent students and classes are—for better and for worse—on the pedagogical skills of the teacher. Simply because we try to "de-center" authority does not mean that it *is* de-centered or that students will know what to do with freedom and responsibility once they are given it. This is not to suggest that all classes are or need to

be dominated by the teacher and his or her agenda; it simply means that teachers need to acknowledge the responsibility that they have and to them use it responsibly.

The key, I think, is for a teacher to strike a balance between too much direction and not enough; too much control and not enough involvement. Let me give just one example. One professor in the project responded to his first batch of co-authored essays by inserting "hidden text" comments throughout the drafts on all aspects of the product and process: he criticized and corrected the grammar; deconstructed the arguments and the issues that they groups were discussing; he gave the group explicit and prescriptive directions for revision. Not surprisingly his students felt resistant, even resentful. So the next time he read through the drafts very carefully but decided to write nothing at all. Again his students were resentful; "Professor Staley is not even reading our essays anymore," one student complained.

A second conclusion, to which I referred several times above, is that a program like this one is likely to work only where there is already a certain degree of support. Although there was a willingness to experiment and to to develop new teaching techniques on the part of the participating faculty, there was not always enough overall support—from administrators, department chairpersons, computer experts—to make the project fully successful.

Third, this project is, if anything, more relevant now that it was four years ago when I wrote the grant proposal. There is even more interest in the potential and the limits of collaborative learning. Once of the central problems discussed in composition theory today is how to foster collaboration without compromising the rights of each individual student. Since the "hidden text" feature of our students' co--authored essays offers an alternative to the usual problems of collaborative writing, this project figures to have a long-term impact on our field.

Appendix

(1) What forms of assistance from from FIPSE were most helpful? How can FIPSE more effectively work with projects?

I found FIPSE extremely helpful and supportive throughout the project. Although the written materails from FIPSE and the project directors' meeting in DC were helpful, I received by far my most useful support from Jay Donahue, my project director. During the time that I was writing the proposal , at the directors' meeting, on the phone when I called with problems, and during a visit he made tto my campus, Jay offered the common sense advice and experience that I often needed.

I was particularly pleased by his and FIPSE's willingness to let me make changes in my goals and methods as the project developed. Without that support and flexibility, I would have continued in some directions that would have been far less productive than the new ones I was able to follow. In almost every case, Jay Donahue was willing to let me revise the project's details in order to stay true to its larger vision.

Although I enjoyed myself quite a bit at the Directors' meetings, I am somewhat less enthusasiastic about their usefulness. Part of the problem is that there were very few grants in my area—writing across the curriculum—and thus very few sessions that dealt with the specific features and problems of our project. Given FISPE's scope and mission,

this problem may be inevitable. Still I left the meeting each year feeling that my 15 minutes with Jay Donahue were more useful than any of the more general sessions that I attended. In fact, Jay's campus visit was by far the most useful support that I received from FIPSE, so useful that I wsih he had come much earlier in our grant period.

(2) What should FIPSE staff consider in reviewing future proposals in your area of interest? What are emerging new directions?

I have a few suggestions here: first, I think that FIPSE ought to continue to be careful about funding grants in computers and writing. While there was a period about five years ago when many of us in the field believed that computers would and should change everything about the way writing is taught and used, I believe that that a more cautious and realistic perspective is (or at least should be) setting in. Computers can be enormously useful in many writing projects, even essential in some. But computers are certainly not a panacea for the problems of college writing. I suppose that I would suggest that FIPSE pay attention first to the quality of the pedagogical idea being proposed and, second, to the creative use of tthe echnology involved.

Emerging new directions? I'm not sure but my suspicion is that it will be a kind of synthesis of a couple of old directions. Most composition teachers are trying to find a way to reconcile and integrate the emphasis on personal narrative and discovery that fueled the "process " movement in the early 80s with the the emphasis on collaboration and academic discourse that defined the "social construction" movement in the late 80s. Rather than creating these as binary opposites, in other words rather than saying that students should write collaboratively or individually, formally or informally, the best new projects will show how students can and should do both. In that way they will integrate rather than separate these two very different emerging directions.