A study examined the effects of coauthoring, also referred to as collaborative writing, on student learning. Subjects were 24 students in a ninth-grade English class. Data were collected over the first 9-week quarter of the year. Eight collaborative writing triads were formed with a primary criteria in establishing heterogeneous groups in gender, race, and verbal ability/leadership. Students wrote three essays together, with three class sessions allowed to complete each essay. Argumentative topics were used. The third writing assignment was used for the study. A Likert-type questionnaire was completed by students after the last coauthoring experience and two interviews were conducted, one after the study and the other 7 months later, to ask what students remembered from coauthoring. Results indicated that students collaborating spent a greater percentage (39%) of their energies on planning and revising than solo authors do. Findings suggest that what students most remembered from collaborative writing was planning. Over 60% said they spent more time planning when coauthoring than when writing alone. Further, the 7-month interview findings revealed that 73% of students most remembered planning or brainstorming as something they learned. Although students did not seem to be aware of it, the revision process was also going on during what they recognized as "planning." (Contains 20 references and an appendix with coauthoring coding and procedural information.) (CR)
HOW COAUTHORING IMPACTS THE WRITING PROCESS

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HOW COAUTHORING IMPACTS THE WRITING PROCESS

In order to situate writing instruction in the social context of its use and prepare students for the frequent coauthoring which occurs in the workplace, more and more writing instructors are engaging students in coauthoring, a term I use here interchangeably with the term collaborative writing. When students write together, the process itself is foregrounded because so much of the planning, revising, and negotiating occurs aloud. However, we have little empirical data about the ways in which collaborative writing influences the writing process. To understand how coauthoring influences the writing process, I studied the interactions involved in the coauthoring discourse of novice writers.

BACKGROUND THEORY AND RESEARCH

Theoretically, the study of coauthoring is grounded in both social constructionism and cognition, viewpoints that have sometimes been seen as oppositional. But research in collaborative writing informs and is informed by both cognitive and social views of knowledge construction. Theory and research in both communities indicate that thought processes have their origin in social interaction. Students benefit by internalizing each others' cognitive processes, arrived at by communicating socially. Learning to write is a social act, "a process of identifying and re-identifying ourselves to and with
Coauthoring

others..."(Welch 42). For that reason, relationships in a writing classroom are not "peripheral" to the writing process; "they are central" (Tobin 6).

The underlying assumptions which support collaborative writing are based on social constructionist epistemology. The work of Vygotsky and Bakhtin informed this study and helped me to frame many of the questions I asked, particularly questions about the influence of social factors on coauthoring interactions. Both theorists emphasize the socially constructed nature of language, and both envision thought, speech, and writing as dialogues with voices we already know through social contexts.

Despite the contribution of the social view to a broad understanding of coauthoring, when I focused specifically on the influence of coauthoring on the writing process, the cognitive lens became helpful. From this perspective, collaborative writing functions as a cognitive apprenticeship which situates writing in a social and functional context. It allows students to observe alternative cognitive processes and strategies unfold on a shared topic. When students write together, they tend to stress global before local skills; they build conceptual maps before attending to the supporting details.

Much of the research on the writing process has focused on planning, which has been viewed as a critical factor in differentiating effective from ineffective writers. Even early research on the writing process testified to the fact that novice writers do not plan enough at any point in the writing process. While experienced writers have in mind a complex goal network
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about content, process, purpose, and audience (Flower & Hayes 378), novice college writers have been found to spend only between one and four minutes making decisions before they begin to write (Perl 328, Pianko 9). If college writers plan this little, we can assume that most younger writers plan even less.

Collaborative writing can help students in revising as well as planning. Although many believe that inexperienced writers are too egocentric to be critical of what they have written (Perl 332), the problem may, instead, be in the production system. In order to revise, one needs to switch from generating text to reading critically. However, writing is so complex that the switch from one to the other is difficult. What students need is "an executive routine for switching between evaluation and generation" (Bereiter and Scardamalia 37). Collaborative writing may provide such a routine because some of the cognitive load is absorbed by other students.

The empirical research on coauthoring has often related to the writing process. Daiute, who worked with young children, found that coauthoring provided explicit experiences with talking about writing and particularly talking about writing processes (405). Working with older students, O'Donnell and her colleagues saw coauthoring groups as teaching "the cross modeling" (300) of writing strategies. A study of the writing processes of 11th graders showed 13% of all communication units focused on the writing process (Durst 362). Coauthors spend considerably more than 13% of their energies on the writing process--particularly on planning and revising--because collaborative writing naturally
Coauthoring emphasizes the writing process.

CONTEXT/METHODOLOGY

This study took place in a ninth-grade English class at a racially and socioeconomically diverse high school located in a medium-sized Midwestern city. Although the school "tracks" English classes, and this class was intended to be college preparatory, not all of the twenty-four students were academically motivated. For instance, two of the students dropped out of the regular school program after the first quarter. Data was collected over the first nine week quarter of the year while I co-taught the course with Carol, a ninth-grade English teacher at the school who would remain their teacher the rest of the school year.

Forming Groups

Eight collaborative writing triads, maintained over the course of the quarter, were formed in the first few weeks of the school year. The primary criteria in establishing heterogeneous groups were gender, race, and verbal ability/leadership. Students' writing performance was another criteria which was considered, but because students had only written two brief assignments at the time Carol and I formed groups, it did not play a large role in our decision making. I wanted to form the groups early before students formed strong notions of who was "smart." That was important because the strongest and most
Coauthoring force in groups is the status characteristic of initially perceived academic ability (Meeker and Weitzel-O'Neill 386). I did not assign roles within the group such as recorder or leader because I wanted to describe student discourse as it occurred naturally while coauthors negotiated responsibility and established their own ways of working and writing together.

Writing Task

The students wrote three essays together over the course of the quarter; to complete each of these essays, students were given three class sessions. I chose argumentative topics in order to promote cognitive conflict, defined as a lack of agreement about the form and/or substance of the writing task. Because cognitive conflict is an important factor in successful coauthoring, I wanted to create a writing situation in which disagreement could play a positive role. Other studies of collaborative discourse, such as those by Burnett and Deering, have associated a lack of conflict with disappointing results. The most successful coauthors, on the other hand, engage in negotiation and cognitive conflict which leads to students offering alternative suggestions for text (Daiute and Dalton 259). When students write together on an argumentative topic, they must construct an explanation, understand and defend a position, and evaluate arguments, all high level strategies.

It was the discourse of the third writing assignment that became the data for this study. For that assignment the students wrote essays supporting their stand on whether minors should have
access to birth control without parental consent, a topic chosen by students in a pilot study conducted the previous semester.

Data Collection and Analysis

To understand the influence of collaboration on the writing process, I audiotaped triads of novice writers as they coauthored. All of the tapes for all of the writing sessions were analyzed for broad themes, but only the coauthoring discourse of the third writing assignment was transcribed and coded. Each conversational turn was coded using conversational turns as the unit of analysis. The coding scheme (see Appendix A) was designed to analyze all interactions that might occur in collaborative writing. It highlights elements of the writing process and is sensitive to cognitive conflict which can prompt revision.

Data were collected from two other sources. One was a Likert-type questionnaire filled out by the entire class after the last coauthoring experience; it was designed to ascertain each student's views about coauthoring and about how well the process had worked in a student's particular group. I also conducted retrospective interviews twice, once immediately after the study to address aspects of collaborative writing that could not be well addressed by agreeing/disagreeing on a written questionnaire and again seven months later to ask what students remembered learning from coauthoring.
RESULTS/DISCUSSION

The summary data highlight the function of coauthoring in promoting factors that are often seen as separating novice from expert writers. This study suggests that students writing collaboratively spend a far greater percent of their energies on planning and revising than solo authors do. In one sense that conclusion seems obvious. Coauthors can not just begin; they must plan and negotiate. When students write alone, many tend to worry about whether they have enough to say rather than "doing the energetic, constructive planning" that experienced writers engage in (Wallace 48), but coauthoring engages students in the construction of meaning in a process which resembles the "energetic" and "constructive" composing style of more expert writers. While this study shows that for coauthors planning and revising blended to a considerable extent, the discussion of coauthoring discourse will be divided into planning and revising sections since the literature on the writing process so often follow those lines.

Planning

Coauthoring by its nature emphasizes planning because when students write together, they must articulate choices before they can even begin. Whereas many ninth-graders might write down the first thought that came to mind, the coauthors in this study had to negotiate text-in-process, thus focusing attention on complete writing processes. The organization of their essays, for instance, grew out of group discussion as students narrowed
The results of this study showed coauthors spending a considerable amount of time on planning. On average, the writing triads spent 14 percent of their conversational turns—which correlate very closely with percent of time—on task representation, a category which includes the requirements and difficulty of the assignment, audience, purpose, and genre. An additional 25 percent of students’ conversational turns were devoted to planning/revising which occurred recursively over the course of the three days devoted to coauthoring one essay. It is unusual for any student writer to devote such a high percentage of time—39 percent to be exact—to elements of the writing process that are not directly composing.

Many students indicated on the questionnaire and in interviews that prior to coauthoring, they had never before really planned. About one-quarter of the time spent on planning was spent on planning the structure of the paper both globally and locally. Considerations of global structure were not neatly discussed at the beginning, as one might have expected, but rather such talk of the overall structure occurred on and off over the course of the three days. One group, after planning the its introduction in detail on the first day, a narrative introduction which they referred to as a "story," began the second day with a discussion of how the whole paper on birth control would play out.

Michael: Do you want to start off with the story or with an introduction that says here is an example of
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Teresa: what could happen?
Rasheeta: Yeah, let's do that.

Teresa: How many paragraphs do we need for this?
Michael: a lot
Rasheeta: As many as we need.

Discussing the local structure seemed to occur more naturally for most groups and often occurred as students moved from one point to another throughout the three days of writing. Often this discussion was prompted by what students perceived to be the "correct" length of a paragraph.

Gina: Wait. That's like only two sentences there. Let's see if we can prolong that.
Allison: Maybe we can have one short paragraph, 'cause look at how long the other ones are.

Discussions of structure inevitably blend into those of content since students cannot discuss organization without focusing on what is being organized. A majority of the planning discourse, 60 percent of it, focused on planning both global and local content, and generally, the more conversational turns a group had, the more developed the content of the text. However, some groups which did a lot of planning and were highly interactive did not get much written down, and so the richness of their discourse simply did not find its way onto paper.

The ninth-graders whom I surveyed and interviewed indicated
Coauthoring

that what they most remember learning from collaborative writing was different ways to plan. Over 60 percent of the students said they spent more time planning when coauthoring than when writing alone. When I looked back at the coauthoring transcripts, I could see the patterns of influence the students spoke of. It was from Kelly that both Jenny and Frank learned to brainstorm before writing. Jenny explained, "The group helped me to brainstorm better. Before I didn't plan much. Now I might be more open to ideas and that'll help me think better. I'll spend more time on it." Frank, too, learned to plan by coauthoring with Kelly. He said, "I learned about writing down your ideas before you write. I never did that before. Now I'd do that to get organized. It's better than making it up as you go along."

Other students also learned to plan from each other. Dave learned "how others work on a writing assignment. I'd be more likely to plan more in the future before writing." He used a wonderful metaphor, a "spider web of ideas" to describe what can be seen when "you put down your ideas" on paper. In another group, Ron and Andy learned about the value of planning from Samantha. Ron expressed the planning process in an interesting way; he said he "learned to slow down. Usually I'd just write. Now I'll brainstorm and organize." Andy saw planning as more of an investment. "It pays off."

Seven months after I had worked with this group of ninth-graders, I returned to ask students what they remembered learning, if anything, from coauthoring. Seventy-three percent of the students mentioned planning or brainstorming as something
Coauthoring

they learned about writing by writing together. In modeling a variety of strategies for each other, coauthors perform a valuable function. As writing teachers, we often tell students to *show*, not *tell*. Coauthors do just that. Rather than the instructor explaining planning strategies, students experience them.

Revision

Initially, I intended to look at revision separately from planning. But in analyzing the coauthoring discourse, it was impossible--and almost beside the point--to try to tease out the planning discourse from the revising discourse. Revising became an inherent part of the writing process rather than a frustrating experience in which "students often sabotage their own best interests..." (Sommers, "Between" 26). When students coauthor they must pay attention to planning and revising because ideas are evaluated as they are spoken and before they are written down. In fact, it is this immediate evaluation that collapses revision into planning when students coauthor. Because students have an immediate audience for writing in process, they learn to take audience into consideration. Suggestions for text are discussed giving students immediate feedback as they talk through the writing. Confusions, because they are verbalized, become apparent, so students must revise on the spot.

The coauthoring groups that functioned most effectively in this study often constructed text together in such a way that ideas and phrasing were examined as they were articulated. In
the following dialogue about the availability of birth control for minors, the coauthors were working on a narrative introduction about "Jill." Although they were just beginning to write this section, they were also clearly revising in process. Michael had agreed to write that day, so he was trying to put on paper the phrasing agreed upon. Rasheeta often challenged the other two, and by doing that, she prompted the group to re-examine their choices.

Rasheeta: One night Jill finally saw the...
Teresa: One night Jill felt the pressure very heavily.
Rasheeta: We should say somthing like Jill was really depressed because she really liked Tim.
Teresa: Jill really liked him and they
Rasheeta: He got her drunk and she said Ok (laughing)
Michael: So one night Jill felt the pressure
Teresa: very heavily
Rasheeta: No, that doesn't sound right.
Teresa: Well, she'd been subjected to pressure. Well, she, she'd been feeling the pressure for...
Rasheeta: That doesn't mean she was depressed from it.
Michael: Jill felt the pressure...
Teresa: No, no, no. I'm just saying she felt the pressure a lot that night, more than she had ever felt it before.
Michael: Anyway, one night Jill felt the pressure. How did you say that now?
Teresa: Jill one night...
Rasheeta: It doesn't sound right, "felt the pressure heavily." It's like drinking heavily.

Teresa: One night Jill felt the pressure more than she had ever felt it before.

Rasheeta: Right.

Teresa: Write that.

This excerpt of coauthoring dialogue clearly shows students revising even while they are planning and composing. Concepts and phrasing are open to evaluation before they are committed to paper. It is this aspect of coauthoring that takes so much time. But because students are experiencing both planning and revision, it is time well spent.

The students in the study were rarely aware that they were revising. Revision was embedded throughout the writing process to such an extent that when the students were interviewed, they thought they had not revised at all. In fact, they revised each time one student challenged another's choice of organization, wording, or example. For coauthors in this study, revising was a recursive process of negotiation and evaluation. It is possible that coauthoring's need for consensus encourages a more recursive revising process than most novice writers would adopt when writing alone. Sommers has pointed out that unlike student writers, experienced writers assume a reader who is a "critical and productive collaborator" (Revision 385) and that is what prompts them to compose recursively. Perhaps coauthoring encourages a more sophisticated revision process because that "critical and productive collaborator" is a present reality.
CONCLUSION

What the results of this study of collaborative writing suggest is that coauthors' writing processes tend to resemble those of more expert writers. That is, for coauthors, planning, composing, and revising collapse into one another and become all but indistinguishable in processes that are truly recursive.

That recursiveness very well may be prompted by the immediacy of audience which impacts on students' writing processes. Coauthoring gives students a "real" experience with audience, often for the first time. Novice writers composing alone often tend to produce "writer-based" prose (Flower 19); they lose their readers by not giving them all of the information needed to follow the text. Since novice writers know what they mean, they can not imagine that anyone else does not know. But coauthors get built-in feedback from their peers. Suggestions for content, organization, and word choice are often negotiated taking into account the reactions of an audience that is immediate: the other coauthors.

Because of the interactions necessary for coauthoring, students must give specific and analytical attention to their own writing processes as well as those of others. While writing teachers rarely have the time to untangle individual writing processes, coauthors are in a position to focus on each other's writing and model alternative composing strategies. As teachers, we can learn much about our students as writers by
Coauthoring

watching coauthoring groups. When we observe them writing together, "we become more sensitive to where students are in their learning rather than concentrating on where we think they should be" (Morgan et al. 25).

Since we know that attention to planning and revision are weaknesses for novice writers, coauthoring, with its natural emphasis on process, can be an effective way for students to focus on and observe various writing processes and strategies. It allows students to discuss writing in a social context and to experience how meaningful writing is composed through the necessary attention to process that it entails.
WORKS CITED


Coauthoring


Coauthoring


APPENDIX A

CODING

COMPOSING

CR requesting text content
CT literal suggesting of text
CW suggestions at the word level
CM mechanics
CC clarification

STRATEGIC THINKING ABOUT PROCESS

TASK REPRESENTATION

STD difficulty
STA audience
STP purpose
STR requirements
STG genre
STW meta-writing talk

PLANNING

SPCG content-global
SPCL content-local
SPSG structural-global
SPSL structural-local
SPR requesting ideas

REVISING

SRCG content-global
SRCL content-local
Coauthoring

SRSG structural-global
SRSL structural-local

PROCEDURAL SUGGESTIONS

PL division of labor
PD directives
PT time management

REREADING TEXT

RR rereading what is written

AFFECTIVE ELEMENTS

AA personal associations
AP positive
AN negative

MISCELLANEOUS

OT off task
U unclear
INC incomplete
SRT study-related talk
WP word play

TAG-ON CODES USED THROUGHOUT

/A alternative idea/phrasing
/E elaboration
/EV evaluation
+ positive
- negative
? uncertain
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