A study explored how students of differing writing abilities (high, middle or low) approached a revising task that called for both editing (surface level changes) and revising (meaning level changes) and the effect that marking error location had on students' ability to detect and correct the two kinds of errors. Subjects, 12 seventh graders, were paired to form two skill-level dyads for each ability level. Each dyad was then assigned to revise either two texts in a marked condition (with sentences containing errors highlighted) or two texts in an unmarked condition. Discussions of the dyads were tape-recorded, transcribed, and analyzed. Results indicated that: (1) high-ability students appeared able to consider both texts holistically and segment them at the sentence level; (2) low-ability students considered the paragraphs holistically and never considered the text globally; (3) middle-ability students in the marked condition performed more like the high ability students, but those in the unmarked condition behaved more like low-ability students; (4) marking seemed to cause the students to focus on the highlighted sentences and not consider the text as a whole; and (5) higher ability dyads displayed more confidence toward their ability to do the revising task. Findings suggest that students who are less skilled in writing would benefit greatly from instruction that focus them on comprehending texts as a whole first, followed by activities that give them practice rearranging ideas at the sentence level. (Contains 18 references. Two sample marked and two sample unmarked texts are attached.) (RS)
Strategy Differences in Revising Between Skilled and Less Skilled Writers

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Abstract

Studies of skilled and less skilled writers suggest that there are important differences in the way that they conceive of and approach the writing task. Embedded within the writing task is the task of revision. Little research has been conducted with regard to the developing skill differences in children with regard to revision. This study employed a dyad design to investigate strategy, goal and approach differences in a revising task across three skill levels of seventh grade students working in two different text conditions. We sought to explore how students of different writing abilities (high, middle or low) would approach a revising task that called for both editing (surface level changes) and revising (meaning level changes) and the effect that marking error location might have on students' ability to detect and correct the two kinds of errors.
Revising Strategy Differences

Strategy Differences in Revising Between Skilled and Less Skilled Writers

Studies of skilled and less skilled writers suggest that there are important differences in the way that they globally conceive of and approach the writing task (Bereiter, Burtis & Scardamalia, 1988). In fact, less skilled writers differ from skilled writers in their conception of and approach to every aspect of the writing process as outlined by Hayes and Flower (1980). Skilled writers not only spend more time planning (Burtis, Bereiter, Scardamalia & Tetroe, 1983) they also make more detailed plans that contain multiple goals (Bereiter & Scardamalia, 1987; Flower & Hayes, 1981; Kaufer, Hayes & Flower, 1986). Additionally, less skilled writers differ from skilled writers in their ability to translate their plans into text (McCutchen, Covill, Hoynes & Mildes, in press) and in their conception of and approach to the task of revision (Hull, 1987; Plumb, 1991; Stallard, 1974). Children are a unique group of less skilled writers. It is well established that children do not revise often or skillfully (Bereiter & Scardamalia, 1987; Fitzgerald & Markham, 1987). However, relatively little is known about the source of their difficulty with revision (Beal, 1990) nor factors that might account for the development of individual differences (Fitzgerald & Markham, 1987).

One of the factors that may account for students' difficulty with the revising process is the process itself. Flower, Hayes, Carey, Schriver and Stratman (1986)
described revision as involving problem detection, problem diagnosis, and correction, and they argue that difficulties with any of these three steps can result in less effective revision. It is unclear, however, which of these three steps cause the most difficulty for student revisors and why.

Considerable research suggests that marking the location of errors within texts (thus helping the writer with error detection) improves the probability of successful error correction by adults (Hull, 1987; McCutchen, Hull & Smith, 1987, Plumb, 1991). Beal (1990) suggested that marking error location may be especially helpful to children during the revision process because it may reduce the cognitive demands of revising by eliminating the initial step of problem detection. Unfortunately, McCutchen, Kerr and Francis (1994) discovered that while marking errors had generally positive effects for college-aged revisors, the effects on seventh grade writers depended on the type of revision error. Marking error location helped the seventh graders with detection and correction of surface level changes but had a negative effect on their detection and correction of meaning level changes. The present study sought to explore the underlying reasons for this finding.

We opted for a modified protocol technique, a dyad design, reasoning that when children actively exchange points of view with each other, they naturally display their thinking, reasoning and strategies. The typical protocol technique (a single writer verbalizing his or her thoughts aloud) often works well with adults but is generally far less revealing when used with children (Langer, 1986; McCutchen, 1988). Even if
adolescents were able to monitor their thinking and provide an adequate protocol, we were concerned about the processing demands of such a task. Protocol generation is heavily verbal and necessitates concurrent production of verbal statements along with other processing activities. As noted by Bereiter and Scardamalia (1987), this puts a heavy strain on working memory, and we felt this might influence the detection of errors particularly in the unmarked condition. Additionally, we felt that adolescents might be especially more sensitive to the demand of vocalizing private thoughts in the presence of an unknown researcher.

**Method**

*Subjects.* Twelve seventh graders of varying writing ability (high, middle and low as identified by their English teacher) worked collaboratively to revise two texts. The identified students were paired within their ability group, forming two skill-level dyads for each ability level. Each dyad was then assigned to revise either two texts in a marked condition or two texts in an unmarked condition. Thus at each ability level, one dyad worked on marked texts and the other dyad worked on unmarked texts.

*Materials.* Subjects read and revised two texts (each written at the fifth-grade reading level) drawn from the Qualitative Reading Inventory (Leslie & Caldwell, 1990). Both texts were one page in length, and both incorporated a chronological structure, with events related to the protagonists unfolding over time. Within each text we embedded four surface (spelling) errors and four meaning errors involving disruptions of the chronological sequence (e.g., Columbus' sailors threatening mutiny before they had...
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set sail). We created two sets of materials, one in which we highlighted each sentence that contained an error (the "marked condition"; see Appendix A for sample) and the other in which we did no highlighting (the "unmarked condition"; see Appendix B for sample).

Procedure. Each dyad was seen individually by the researcher in a small private room. The dyads were asked to pretend that they were editors of historical magazines who had just been handed two articles by their writers. It was explained that the writer was in a hurry and had made some errors with regard to spelling, grammar and sequencing of events, and it was their job to work as a team to revise the texts and get them ready for publication. In the marked condition, the dyads were told that an assistant had already been through the texts and highlighted sentences where there were problems. There was no time limit placed on the students, and most of the dyads worked approximately twenty-five minutes on each text.

Analysis. The discussions of the dyads were tape-recorded and transcribed verbatim. Each transcript was then read and analyzed for strategies, goals and approach to the revising task. Specifically, we were interested in how the children approached the revising task. Were they confident? Could they detect, diagnose and correct the errors embedded in the text, or could they complete only one or two of the steps? If the students could not complete all three steps in a revision, what recourse did they choose? What strategies did the children use for finding the errors? Did ability level of the dyad affect the strategies, goals and approach of the students? Did the text
condition (marked or unmarked) affect the strategies, goals and approach of the students?

Transcripts were coded for statements relating to strategies, goals and approach. These statements were then compared across dyads and marking conditions to determine differences and similarities across the dyads.

Results

The preliminary analysis of the dyad discussions revealed some surprising differences in strategy and approach to the revising task. The following discussion contrasts the differences seen in the approach and strategies of the high and low ability dyads. The results from the analysis of the middle ability dyads is presented last as they were not as definitive and mirrored either the high or low ability dyads depending on marking condition.

High Ability Dyads. Children in the high ability dyads approached the revising task with a confident, independent attitude. They sought little direction from the researcher recording their interactions. The high ability dyad working in the unmarked condition asked no questions of the researcher. The high ability dyad working in the marked condition asked one question at the beginning of the task with regard to whether or not they were to read out loud. The tone of the high ability dyads' interactions with each other was also confident. They had little trouble detecting and diagnosing errors. They both corrected all four spelling and meaning errors embedded in their texts. The following excerpts from the transcripts of their conversations demonstrates their
confidence and ability to detect and diagnose the errors:

"That should be one sentence."
"Difficult' is spelled wrong."
"That should go some place down around here."
(High Ability Dyad; Unmarked; p. 2, 3 and 4)

"That's not in the right place."
"I think this should be moved up here."
"That shouldn't be there either cause it's too fast."
(High Ability Dyad; Marked; p. 1, 2, 8).

With regard to approach strategy, the high ability dyad in the unmarked condition employed a "skim through" strategy with the goal of detecting errors first. During this "skim through" they corrected the spelling errors as they came across them and marked meaning errors for later consideration. This strategy was used throughout both texts by this dyad.

The high ability dyad working in the marked condition began with the "skim through" strategy on the first text but quickly abandoned it and jumped right to the bolded sentences targeting the spelling errors first and then the meaning errors.

"Now we've got to put these in the right places."
(Liza on page 2 of the transcript referring to the bolded sentences containing meaning errors).

They then skimmed the paragraphs to determine where to move the bolded sentences containing meaning errors, relying heavily on the preceding and following sentences. The following exchange is typical of the strategy they used to relocate the meaning error sentences. The target sentence is bolded.

"Wait, that should be somewhere on the top. Maybe after (reads)
'However, Columbus also believed that the world was round. Many people
laughed at this idea. They thought the world was flat. Columbus hoped to prove his theory, so he would sail west in order to reach the East."

"Yeah. That would work. Put that up there."
(High Ability Dyad; Marked; p. 9)

Low Ability Dyads. Children in the low ability dyads approached the revising task in an enthusiastic manner but did not seem nearly as confident and self-assured as the high ability dyads. They sought direction, clarifications, involvement and feedback on their revisions from the researcher recording their interactions. The low ability dyad in the unmarked condition had the following exchange with the researcher after they had finished the first text. This exchange is indicative of their lack of confidence in their own ability to successfully revise the texts:

"Well, did we get this one right?"

"You know when your teacher tells you about revising? Did you get it right? It's however you fix it that makes it work for you. It's not right and wrong--it's..."

"Do you think it sounds good?"
(Low Ability Dyad; Unmarked; p. 7)

The low ability dyad working in the marked condition continually tried to engage the researcher in conversation. There were a total of fourteen exchanges between the researcher and this dyad. Eight of these exchanges were seeking direction, help and feedback and were indicative of this dyad's lack of confidence in their ability to correctly detect, diagnose and correct errors.

"Shouldn't that be up there?" (p. 2)
"Are we doing this right?" (p. 5)
"That would be a comma, wouldn't it?" (p. 6)
"How do you spell 'read' (present tense)?" (p. 9)
"They didn't get no gold, did they?" (p. 19)

At one point the boy in this dyad confessed,

"I'm not good at this at all." (p. 7).

Additionally, the tone of low ability dyads' interactions with one another was unsure and tentative. When one of the partners in the dyad detected an error they checked with other to confirm their diagnosis of the error as can be seen in the following exchange:

"This sentence doesn't fit because Columbus was finding an all-water route. It kinda doesn't fit. I don't know."

"I think this should go down with these."

"When it was hard for him to find sailors?"

"Yeah."

"It's probably where we should put that maybe."

"So move it?"

"There."

"Wait! You can't start with 'however'."

"Well, maybe this is right and we have to move this."
(Low Ability Dyad; Unmarked; p. 1 - 2)

Despite their unsure and tentative corrections, this dyad did quite well detecting the errors embedded in the text, particularly in the unfamiliar text. They corrected two spelling errors and two meaning errors in the familiar text, and three spelling errors and
three meaning errors in the unfamiliar text.

The low ability dyad working in the marked condition had exchanges that were much the same with regard to content, but differed in tone in that they were not nearly as kind to each other. They also sought to engage the researcher in diagnosing the error as can be seen in the following exchange:

"OK, that's fine so far. She read (present tense) about their food... She read (present tense) about their food and how they built..."

"She read (past tense)... She read (present tense) about their food."

"OK change that to read (past tense)."

"I don’t know how to spell read (past tense). How do you spell 'read'? Oh it’s r-e-d. No, that's like red like the color red. Hmmm."

"I thought read (present tense) and read (past tense) spelled the same, but maybe I was wrong."

"Blue, red, yellow. How do you spell read (past tense)? I don’t know how to spell read. Do you know how to spell read? I don’t know how to spell read. He knows how to spell read." (referring to the researcher)

(Low Ability Dyad; Marked; p. 9)

Here the dyad struggles to diagnose which tense of "read" would be best in the sentence. Having diagnosed that past tense is the appropriate choice they then have trouble diagnosing how to spell the word. Exchanges such as these with the focus on errors which never existed made revising these texts a very difficult task for this dyad. This dyad fixed three spelling errors in each the familiar and unfamiliar texts, and one
meaning error in the familiar text and no meaning errors in the unfamiliar text.

With regard to strategy, the low ability dyads employed a "sentence by sentence" strategy. They worked sentence by sentence reading carefully and fixing errors as they could. In contrast to the high ability dyads, the low ability dyads tended to focus first on fixing meaning errors and then read through the entire text looking for spelling errors. Correction of the meaning errors became problematic, however, because they were reluctant to segment the paragraphs into sentences and move sentences across paragraphs, as the high ability dyads had done. They chose instead to try to fix the meaning errors within the paragraph in which they occurred by adding or deleting text. When the low ability dyads did consider a move within the text, it was movement of the entire paragraph.

The low ability dyad working in the marked condition began by reading the entire text but, like their high ability counterparts, quickly moved to reading only the highlighted sentences and trying to discern what the error might be. At one point, the boy in the low ability, marked condition dyad actually said,

"I think we should be doing the highlighted parts."
(Low Ability Dyad; Marked; p. 10)

Focusing only on the highlighted sentences may have made this dyad feel as though they had made the revising task manageable. However, it proved to be disastrous to a successful revising outcome because, unlike the high ability dyad, they never read the entire text to determine the chronology and so they never successfully detected,
When they did detect a meaning error, they tried to fix it within the paragraph rather than moving across paragraphs. As can be seen from the exchanges thus far, they also employed a "sounds wrong" strategy for detection of the meaning error sentences, but they were not able to develop a successful strategy for relocating the problematic sentences.

Middle Ability Dyads. Children in the middle ability dyads displayed mixed strategies as they approached the revising tasks. Generally, they appeared confident about their abilities to revise. The middle ability dyad working in the unmarked condition had no exchanges with the researcher. The middle ability dyad working in the marked condition had three exchanges with the researcher. The first, a clarification about marking on the student copy; the second, a clarification of the errors being located in only the bolded sentences; and third, a clarification with regard to moving a particular sentence.

In the unmarked condition the middle ability dyad mirrored the strategy and approach of the low ability dyads. They corrected two spelling errors and three meaning errors in the familiar text, and two spelling errors and one meaning error in the unfamiliar text, which was presented first. Generally, they employed a "sentence by sentence" strategy, and they were reluctant to segment the sentences and move them across paragraphs. It was not until working on the second text (the familiar text) that they realized they could move sentences across paragraphs. Interestingly, the dyad in the marked condition mirrored the approach and strategy of the high ability dyad in the
unmarked condition. They corrected all four spelling and meaning errors embedded in each of the texts. This may be because unlike the other dyads working in the marked condition, they did not jump to reading only the highlighted sentences but chose instead to read through the entire text fixing spelling errors and marking meaning errors to be considered later just as the high ability dyad in the unmarked condition had done. This strategy helped them be more successful in correcting the meaning errors. Again, this dyad relied heavily on a "sounds wrong" strategy for detection of meaning errors and relocation of sentences.

Conclusion

In general, ability level of the students made a difference in the strategies they employed for detecting and correcting surface level and meaning level errors. The high ability level students appeared able to both consider the texts holistically and segment them at the sentence level, while the low ability students appeared to consider the paragraphs holistically. The low ability dyads could segment the text at the paragraph level and segment sentences within the paragraphs, but it appeared that they never globally considered the text. The middle ability students in the marked condition performed more like the high ability students, but those in the unmarked condition behaved more like low ability students.

Marking condition also made a difference in the strategy the students employed for detecting and correcting surface level and meaning level changes. In general, marking seemed to cause the students to focus on the highlighted sentences and not
consider the text as a whole. While the high ability students recovered from this tendency and went back to repair the meaning level errors, the low ability students never read the entire text and thus never detected the meaning level errors.

The higher ability dyads displayed more confidence toward their ability to do the revising task. This may in part be because they appeared better able to detect, diagnose and correct the errors. This was not the case for the lower ability dyads. They had a great deal of trouble detecting spelling errors. Once the spelling errors were detected it became a matter of correcting them—a task that proved difficult for the low ability dyads as their spelling skills were not fluent. The meaning errors were very difficult for the low ability students to diagnose and correct. They could detect them, but diagnosing them and correcting them proved to be too great a task particularly in light of their reluctance to move sentences across paragraphs. Not being able to correct the meaning errors, the lower ability dyad often resorted to deleting text.

It is difficult to generalize, based on this small sample, about the effects of ability or marking condition, on revising strategies. These results are certainly suggestive of different effects, especially when combined with the larger study reported by McCutchen, Kerr and Francis (1994). Certainly this is an area for further study.

**Educational Implications**

This study provided some interesting insights into likely strategy differences across writers of different ability during the revising process. It seems likely that students who are less skilled in writing would benefit greatly from instruction that focused them on
comprehending texts as a whole first, followed by activities that gave them practice rearranging ideas at the sentence level and examining the effects of such rearrangements at the level of the whole test. These seemed to be the two areas that gave the low ability writers the most trouble. In addition, whereas marking error location has been effective in improving revision by adults (Hull, 1987; McCutchen, Hull & Smith, 1987; Plumb, 1991) marking error location may not be helpful to all younger writers. Younger writers of low ability seem especially prone to focus on small sections of text, and thus tendency may be exaggerated when error locations are indicated. It seems that low ability writers would benefit from learning the revision strategies used by high ability writers. One way to accomplish this might be through the selective pairing of students in revising dyads or small peer response groups in which high ability writers could model their strategies for their lower ability peers. When grouping students, it may be beneficial for low ability students to be selectively paired with high ability students.
References


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Appendix A: Sample Marked Texts
Christopher Columbus

Christopher Columbus was determined to find an all-water route to the East Indies. Discovering this would bring him fame and fortune. However, Columbus also believed that the world was round. Many people laughed at this idea. They thought the world was flat. The sailors threatened to take over and turn back.

King Ferdinand and Queen Isabella of Spain thought Columbus's idea had merit. However, Spain was fighting a costly war. Columbus had to wait seven long years. Then they gave him money to finance the expedition. It was easy to buy ships and supplies. It was more difficult to find sailors who were willing to join him. Columbus claimed the new land for Spain and named the inhabitants Indians. Columbus had ninety sailors and three ships. His ships were the Nina, the Pinta, and the Santa Maria.

After they had been out of sight of land for a month, the sailors became frightened. They did not really believe the earth was round. They were afraid to sail too far to the edge. No one had ever sailed out so far upon the "Sea of Darkness." The sailors talked of mutiny. Columbus tried to convince them that they had nothing to fear. He reminded them of the gold they would get if they finished the voyage and he told them they would be famous. Finally, in 1492, he set sail on the uncharted, unexplored Atlantic Ocean.

Just when it seemed they would go no farther, branches and leaves were seen in the water. The sailors felt much better and agreed to continue sailing. Then on October 12, 1492, the welcome call was heard that land had been sighted. Columbus hoped to prove his theory, so he would sail west in order to reach the East. He mistakenly thought he had found a new route to the East. In fact, Columbus died believing he had reached the Indies.
Margaret Mead had always been interested in the ways of life of people from other lands. Margaret spent the rest of her life studying and writing about primitive ways of life that no longer exist today. This is the study of how different people live. Margaret decided to make this her career. She believed it was important to study primitive people before modern ways of living destroyed their culture.

Margaret realized that living with a people is the only effective way to learn about them. She chose a village in Samoa to investigate. Several islands make up Samoa which is in the Pacific Ocean. One day she said to herself, "I can't go on," in Samoan and then she thought that maybe she could continue after all. She studied languages like the Samoan language. She read everything she could about the Samoan people. She read about their food and how they built their homes. She read about their ceremonies, their past history, and their taboos. But she wanted to learn much more.

Finally Margaret arrived in Samoa. At first life was difficult for her. She was alone. She was not fluent in the Samoan language. She lived in a house with no walls and no electricity or gas. It had no running water and no bathroom. Margaret became fluent in the Samoan language, and the people soon regarded her as one of the village. She listened to their talk, their jokes, and their gossip. They told her their problems. Margaret thought that being a woman assisted her in learning more about the lives of these people. Instead of having to go on hunts with the men, Margaret stayed with the women. She observed the children play and learned how food was prepared. She made efforts to get the older people to recount tales of the past. Margaret worked hard to prepare for Samoa.

Margaret learned many things from the Samoan people. She always took notes and kept careful records of what she heard. These notes were used to write her first book which was called Coming of Age in Samoa. It made her famous. When Margaret went to college, she took a class in anthropology.
Appendix B: Sample Unmarked Texts
Christopher Columbus

Christopher Columbus was determined to find an all-water route to the East Indies. Discovering this would bring him fame and fortune. However, Columbus also believed that the world was round. Many people laughed at this idea. They thought the world was flat. The sailors threatened to take over and turn back.

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