Learn from our journey: reciprocal teaching action research: this action research project investigated reciprocal teaching's effect on reading comprehension in the content areas.

by Jane M. Hashey, Diane J. Connors

Some years ago, over lunch in the faculty room, several teachers informally discussed their independent struggles with students' comprehension. Realizing that all teachers need to be reading teachers, Diane (second author), a small-group reading support teacher, and I (first author), a middle school English teacher, sought ways to address this situation. Diane's goal was to move students beyond decoding to increased comprehension and, ultimately, to reading independence. My goal was to mesh the teaching of reading with content, thus ensuring success for all students in my heterogeneous classes. It was perfect timing when our district coordinator of curriculum and professional development invited us, and seven other teachers from grades 3-8, to address these issues. As a result of these meetings, we began an ongoing project of action research in reciprocal teaching.

To begin, we read many articles about reciprocal teaching and brainstormed a list of questions we hoped to answer, including the following:

* When can students best benefit from and handle Reciprocal Teaching?
* What instructional strategies lead students to use Reciprocal Teaching effectively and independently?
* Is Reciprocal Teaching an important strategy for students to learn before they engage in literature circles and Socratic seminars?
* Can Reciprocal Teaching be used both with literature and content area text? (Cleveland, Connors, Dauphin, Hashey, & Wolf, 2001, p. 3)

All members of the action research team committed to using reciprocal teaching in our classrooms by modeling it on a regular basis. Each teacher designed his or her own approach based on grade level and instructional style. Journals were kept to document changes in student behaviors as they moved from our district's well-developed balanced literacy program to reciprocal teaching and, eventually, to meaningful literature dialogues. Meeting once a month to share instructional strategies, successes, and concerns was critical to our action research.

According to Palincsar, David, and Brown (1989, p. 2),

Reciprocal Teaching is an instructional procedure originally designed to enhance students' reading comprehension. The procedure is best characterized as a dialogue between teacher and students. The term "reciprocal" describes the nature of the interactions: each person acts in response to the other(s). This dialogue is structured by the use of four strategies: predicting, questioning, clarifying, and summarizing.

At first, these strategies appeared familiar to us. Skeptical, we questioned whether they would dramatically improve reading comprehension. We forged ahead with the understanding that if we did not see this process benefiting our students we could withdraw from the action research project. Palincsar et al. (1989) described each strategy. Through predictions students recall what they already know about a
[Reciprocal teaching] provides a window into the thinking of proficient readers as they problem-solve their way toward meaning. Students are conditioned to approach reading as an active and strategic process and to learn behaviors that will help them become more independent readers, capable of handling increasingly sophisticated material. (Buehl, 2001)

Beginning the journey: Our commitment to reciprocal teaching and collaborative discussions

At one of our first monthly meetings we realized that although reciprocal teaching appears to be a linear step-by-step process, it is not. We came to the understanding that effective readers do not always comprehend in a linear manner. Instead, they are metacognitively going back and forth (reciprocus; Babigian, 2002), checking their understanding. This back-and-forth process integrates the four strategies (predicting, question generating, clarifying, and summarizing) as illustrated in the diagram. See Figure 1.

[FIGURE 1 OMITTED]

So what did this mean to our classroom instruction? We explicitly integrated each strategy with our lessons one at a time by activating prior knowledge, defining, modeling, and providing opportunities for students to practice and apply them. In all honesty, we struggled at this point. By sharing our successes and concerns, we slowly came to the realization that reciprocal teaching is most effective after all strategies have been introduced, which is a time-consuming process. We began to question whether this was a valuable use of our time. The elementary teachers, who could more easily integrate the strategies with the content areas, saw success before the secondary teachers, for whom the integration of the strategies proved more challenging due to limited daily contact time with students. Also, all teachers on the team learned how to use reciprocal teaching to support their already full curriculum, not add to it. We found the old adage "give a man a fish and he will eat for a day; teach a man to fish and he will eat for a lifetime" is analogous to the reciprocal teaching process: It is more beneficial in the long run.

We began with the understanding that researchers regard reciprocal teaching as an effective method for teaching reading comprehension.
predicted based on the story clues. Predictions are tested or revised as needed as I read. It helps me warm up my brain and keeps me involved in the story.

An eighth grader responded to the same question,

We need to read between the lines to get more in-depth in what is going on and what will happen. This makes it easier to foreshadow and understand upcoming events, grasping the main ideas and not focusing on the less important ones.

In these and other examples of our ongoing assessments we found that students were more conscious of the merit and purpose of predicting. Mind’s Eye, an instructional activity involving predicting (Silver, Strong, & Perini, 2000, p. 108), proved valuable to all the action researchers, no matter what grade level. This activity fosters higher level thinking in regard to predicting, using classification, and logical support. (Because students should not learn a new skill and new content at the same time, introduce classification prior to engaging in this activity.) First, the teacher selects 20-30 key words from the text to be read and writes each on an index card. When selecting the words, consider both the students’ background knowledge and the desired predictions. Do not use this activity to introduce new vocabulary. Also, decide on the types or categories of words needed such as setting, tone, characters, or plot. To ensure success, make sure the words relate in some way and lead to possible predictions. In small groups, students classify the cards into groups of any size, justifying their decisions. They then make predictions based on the words and groups and share them with the rest of the class. In these collaborative groups, students make meaning and teach one another what they know (reciprocal, Babigian, 2002). After reading the text and sharing, the students reflect on their predictions. Were they right? Why or why not? We realized this reflection made them more cognizant of how to predict as they began to internalize this strategy.

Second leg of our journey: Question generating

Question generating, another strategy of reciprocal teaching, probably caused us the most consternation yet perhaps led to the deepest understanding. At the outset we agreed that the students’ question generating engaged them, challenged them to think at deeper and higher levels, and checked their comprehension. Several shared understandings emerged from our discussions. First, students do not take responsibility for their comprehension when the teacher or the textbook is the "keeper of the questions." Furthermore, students read with greater purpose when they know that they are expected to frame questions about their reading. We found these simple yet true concepts complex to implement, causing paradigm shifts for the teacher and the students. Research shows that the teacher asks the majority of questions in a classroom whereas students ask less than 5% of the questions in both elementary and secondary classrooms (Walsh & Sattes, 1991). Question generating works to reverse this trend.

To make this work, we had to step away from the content and teach questioning itself. Depending upon grade and content, we developed different strategies for instructing question generating. To teach
students the differences between factual and complex thought questions, Diane introduced the idea of levels of questions by using the terms "fat" and "skinny." Other teachers on the action research team used a variety of names for question levels such as "shallow" and "deep" and "big" and "little." After reading the first three chapters in the novel Holes (Sachar, 1998), Diane handed out strips of paper and asked each student to think of one question and record it on his or her strip of paper. Working together as a small group, students then read each question, one at a time, and recorded their answers on the strips of paper. After all questions had been answered, Diane asked the group to look at each question/answer pair and sort them into two categories. Students concluded that some questions could be answered easily and briefly while others could not. Diane then gave the definitions and characteristics of the different types of questions. "Skinny" questions ask for "yes," "no," or other brief responses all based on the text. There is a right or wrong answer. "Fat" questions, on the other hand, are open-ended and ask for much more complete and thoughtful answers, which begin at the text but extend beyond it. By their nature, there may be more than one answer. Students were asked to place the questions on a continuum, justifying the placement (Bellanca, 1992). This trial-and-error method cleared up many misconceptions. (See Figure 2.) Diane also initially posted examples of sentence starters to help students differentiate between the two. "Skinny" questions might start with Who, What, Where, or List, while "fat" questions might start with Predict or Why do you think.... It was only after students showed understanding of the levels that she asked them to begin generating questions on their own.

I introduced question generating in a different manner. Although I agreed that questioning needed to be taught first, there are many ways to do it. I refer to my lesson as "most engaging/least engaging." After students read a chapter in the novel The Outsiders (Hinton, 1967) for homework, I began the lesson in a typical way, with a guided discussion. I purposefully peppered the students with many lower level comprehension questions. They dutifully and briefly responded in a rather unmotivated manner. I mentally noted their level of engagement by their bland facial expressions, their responses, and their lack of willingness to build on one another's responses. Then, I deliberately and abruptly asked several higher order, open-ended questions and noted their reactions to these. I switched from questions such as "How did Johnny react to Bob's death?" to "Is killing someone ever justifiable?" Their level of engagement took a dramatic turn. I saw their faces light up, their hands fly up, and their eyes brighten with eagerness to engage in this kind of questioning. At this point, instead of answering the questions, we discussed the differences between lower and higher order questions. It was clear to them that the higher order questions begged to be answered. Responses were no longer text bound. We ended the lesson by charting the differences between "skinny" and "fat" questions.

With teacher modeling and guided practice students were able to generate questions at multiple levels—but not without struggle. Students, more familiar with lower end questions, encountered difficulty creating deeper ones. In addition, we found that questions cannot be categorized into just two levels; there is indeed a continuum. In other words, questions are not necessarily "skinny" or "fat" but may be "pudgy," falling somewhere in between. Teachers on our action research team began to refer to three levels, with which we all became comfortable. Each teacher seemed to use different terms, but all expressed the same idea. For example, some used the titles "Right There" (the answer is found in the text), "Think and Search" (the answer is in the text, but difficult to find) or "Author and You" (found in the text but requires more thought, such as inferencing), and "On Your Own" (judge, evaluate, or analyze information in the text; Raphael, 1986).

Another unexpected bump in our journey involved the quality of responses. With our focus on how to craft questions we had not anticipated needing to discuss how to answer them. We found that students were giving "skinny" answers to all types of questions and needed instruction on elaborating, piggybacking, inferring, and supporting. Teacher prompting such as "Tell me more" or "Tell me why" was necessary until students were able to answer fully without our prompts.

Students needed to see the value of question generating in order to internalize it and use it independently as a strategy. To assess whether they had internalized it, we asked them two questions: "What did you learn?" and "How will this help you as a reader?" Their responses varied from "I can ask myself questions as a way of checking to see if I understood what I read" to "I gained new insights as a result of discussing 'deeper' questions with my peers." Other responses were "I learned that I needed to answer the lower level questions in order to better answer the 'fatter' ones" and "It makes reading--which was always so
boring--more interesting." These journal entries affirmed that students were learning more about this strategy, and we felt ready to move to the third strategy, clarification.

Halfway there: Clarifying

Students react to difficult or unfamiliar material in various ways. We discovered that competent readers sought clarification when needed, but weaker ones often did not. Realizing that students already had been taught a variety of clarification strategies such as rereading, using context clues, visualizing, activating prior knowledge, or referring to reference materials, we wanted to review these and practice which ones to use in specific situations. At one of our collaborative meetings we discussed ways to challenge all our students to use this strategy in a more conscientious manner.

One such way was the activity Lost in Literature (Strong & Silver, in press). Diane asked her students, "What would you do if you were lost in a forest or in a city?" The students, working in small cooperative groups, listed possible solutions to either one or the other and shared them with the whole class while she wrote them down. They then brainstormed how each possibility could parallel ways of finding meaning when lost in literature. For example, students who backtrack through the forest or city are similar to readers rereading confusing material with a stronger focus. Students searching for familiar landmarks such as a gnarled tree or an unusual building they had seen are similar to readers activating prior knowledge of vocabulary, grammar, or syntax. Students scanning a subway map or calling home for directions are similar to students referring to outside sources, such as dictionaries or atlases. The students began to understand that they needed to slow down and concentrate; just pretending they were not lost would not get them out of their predicament. After this review, Diane consistently modeled the strategy of clarification using a variety of texts while encouraging her students to share how they seek clarification as needed (reciprocus, Babigian, 2002). She also encouraged them to use this strategy in all content areas, stating how it could help them, for example, with a difficult chapter of new science or social studies material.

As an eighth-grade teacher, I looked upon clarification as a reading strategy and good preparation for high-quality literature circles and Socratic seminars. After reviewing a variety of clarification strategies in class, I sent the students home with a chapter to read and sticky note flags to mark confusing words or concepts. During our discussion of the chapter I incorporated clarification strategies by having the students share what was flagged. We noticed that many students had flagged the same words and parts. As a teacher I realized this was an authentic way to handle vocabulary instruction. This also built confidence in dealing with confusing text as they realized, "I'm not the only one." We knew that confusion could lead to misinterpretation; therefore, it was important to clarify. A good example of this occurred in chapter 7 of The Outsiders (Hinton, 1967) when students did not understand why one character, Sandy, left town to live with her grandmother for several months. Because they did not understand that Sandy was unexpectedly pregnant, they missed this fact's important impact on the characterization of Sodapop, a major figure in the novel. Thus, they began to value clarification and its importance to true understanding. After more flagging and practice as a whole class, they were better prepared for literature circles and independence.

Are we there yet? Summarizing

Palincsar et al. (1989) cautioned that, although there is no particular order for strategy instruction, summarizing is difficult and might best be saved for last. We agreed. As teachers, most of us had not really differentiated in our own minds between retelling and summarizing, which led to lively action research team discussions. In truth, we learned as much as the students. We came to the understanding that not only are retelling and summarizing different skills for different situations, but that we needed to let the students in on that. Summarizing is an effective strategy for comprehension because it requires students to focus on key points, not to restate everything.

One fourth-grade teacher on our team approached summarizing by having her students create a definition for summary and then asking them to compare and contrast two different teacher-written passages, one a summary of a text and the other a retelling. Then, on a chart, the class identified the characteristics of each passage. The teacher led them to understand that summarizing challenges them to decide what is
important and what isn't, requires them to identify the big idea, helps them better understand and remember what they read, and teaches a critical life skill (Cleveland et al., 2001). We also learned that the ability to summarize varies with age and maturation. Younger students in grades 3 or 4 rely more on bulleted lists, oral summaries, and discussions. By eighth grade, students are more able to write an effective summary. Retelling, on the other hand, restates all the information.

To make this explicit, I gave my eighth graders several situations as an ongoing assessment and asked them whether a summary or retelling was required. For example, a woman has the flu and cannot attend her beloved cousin's wedding, so she asks her sister who will attend to report back to her on the wedding and reception. Does she want a retelling or a summarizing? Another example would be a surgeon who was very interested in a workshop that would be conducted at a conference she and her colleague would be attending. The surgeon couldn't go due to an emergency. Does she want her colleague to retell or summarize the workshop? A third situation involves an absentee student. Feeling better that evening, he turns on his computer and sends an instant message to his best friend, asking about school that day. Does he want a retelling of his classes or a summary? The differences between the two became clearer.

A fifth-grade teacher used a round robin summary technique, asking cooperative groups to affirm each member's selection of the key parts of the text that belong in a summary. First, students read several examples of good summaries of a particular genre, such as short stories. Then, after reading a short story for homework, each student wrote a summary. Returning to their groups, they shared their summaries aloud. As one read, the others highlighted the parts of their own summaries they had in common with the reader. After all have read, each should recognize that the highlighted parts are most likely the key points. Finally, the students should look closely at the points that were not highlighted to determine if they should be. This practice helps students internalize a challenging reading comprehension strategy.

We've arrived: Questions answered

As we concluded our second school year of action research, we revisited the questions with which we began our journey. First, we discovered that students best benefit from reciprocal teaching beginning at the third grade. They need strong decoding skills; reciprocal teaching moves them into deeper comprehension. Our team, ranging from grades 3 to 8, all found success. Second, several instructional strategies emerged as the strongest supports for reciprocal teaching: teacher modeling and think-alouds, guided practice, independent practice, and those already described. Third, reciprocal teaching vastly improved the quality of our classroom dialogues. All students were able to participate and provide input and thought. Last, we agree with Palincsar et al.'s statement, "Generally students have been taught the reciprocal teaching procedure using expository or informational text" (1989, p. 26). This process mainly targets content area reading. We found, though, that reciprocal teaching was equally effective with fiction.

Wish-you-were-here postcards: Reflections on gathered data

How did we know that reciprocal teaching was effective? At regular intervals we looked at both informal and formal data to answer this question. "Listening to students during dialogue is the most valuable means for determining whether or not students are learning the strategies and whether the strategies are helping them" (San Diego County Office of Education, 2002). Most informal data came from listening to students and reading their learning journals. We saw increases in our students' confidence and success, in their understanding and use of the strategies, and in their enjoyment of literature. We often heard and read comments similar to the ones expressed by these seventh graders: "Reciprocal teaching helped me personally get into the conversation and remain an active participant," "It helps me understand the book more, understand meaningful questions, understand other people's opinions," and "I learned to express myself on many subjects because I had to think more than usual."

Diane administered the Basic Reading Inventory (Johns, 1997) to her students three times a year. These individual reading inventories, among other things, gave data about strengths and needs among the four strategies. In September, after making miscues that didn't make sense, many students continued reading without self-correcting when meaning was lost. By January, students' attempts to use these newly introduced strategies often needed teacher prompting to be successful. At the end of the year, as a result of reciprocal teaching, students stopped and often commented, "Hey, wait a minute, that doesn't make sense," in efforts to seek clarification. It was obvious that they were well on their way to reading independence by their more effective use of the strategies and by Diane's lack of need to prompt.
As stated, learning journals were another valuable source of information. For example, one journal prompt asked students to choose one of four pictures (rake, keys, magnifying glass, or helicopter) and create an analogy as to how it was similar to reciprocal teaching. Responses showed appreciation for and understanding of this process. For example, one student compared reciprocal teaching to a rake, with the fingers on the rake the four strategies. Without them, information would be harder to grasp. Working together, they help pull it all together for better understanding of what is read. In addition, classroom discussion on text of any genre was richer and more insightful. This was especially true in literature circles and Socratic seminars. We heard interactions about vocabulary and ideas, pointed predictions, and much better questions than we had heard before. Students were obviously monitoring their own learning and thinking. The formal data were also convincing. The bar graph in Figure 3 illustrates results of our middle school’s annually administered Stanford Achievement Test, a standardized test measuring skills in several content areas, including reading comprehension. Our eighth graders do not take this test because they take the New York State English Language Arts Test.

The graph in Figure 3 gives data on 42 sixth and seventh graders, 12 of whom were classified as learning disabled. (Although more students were exposed to reciprocal teaching in Diane’s class, unless they had been in the district for two consecutive years, they were not included due to lack of data.) All of Diane’s students received instruction in a pull-out program every other day. As indicated in Figure 3, the majority of medium- and high-ability students made impressive gains, which is consistent with Palincsar et al.’s (1989) conclusion that their process is not as effective for students with decoding difficulties. Although we realized that these researchers advised caution in using standardized tests to evaluate the instructional effectiveness of reciprocal teaching, Diane and I thought we’d look at this data anyway. In our opinion we considered it a piece in our reciprocal teaching puzzle that further validated the results of our action research. (Data for grades 3, 4, and 5 are not included as the elementary teachers on our action research team primarily used informal observations and other anecdotal information, which also supported the effectiveness of the process.)

Back home again: What we learned

In our two years of action research we came to several realizations. First, give it time. Introduce the strategies one by one, and review each strategy until students can monitor their own thinking and reading. In order for reciprocal teaching to be effective, children must have many opportunities to practice applying the strategies. Be patient--it’s worth it. Palincsar et al. (1989) recommended that students be taught in small, heterogeneous groups, allowing each student to practice while receiving feedback about his or her performance. Some teachers have modified the process for whole-class instruction, using writing activities for practice and feedback.

Work together. Each person involved acts in response to another and is a coach and reflective partner. This fosters relationships between students at all ability levels and helps the teacher differentiate instruction in reading in the content areas. Teachers relied heavily on think-alouds and modeling, weaning students from dependence on the teacher to reading independence. For the teacher, reciprocal teaching is a lot like stepping out of his or her skin and showing students what a good reader thinks and does (Babigian, 2002). For weaker readers, the fact that they go beyond simply struggling with content (and often giving up) to wrestling with the struggle itself is convincing proof of the effectiveness of the strategy. Another support for differentiating instruction is cross-content collaboration. The students who were exposed to this process in multiple disciplines made the largest gains.

We discovered, not surprisingly, that another outcome was richer discussion in both literature circles and Socratic seminars. (Prior to reciprocal teaching, we had varying success with these activities.) Because we had released the role of reciprocal teaching expert from the teacher to the students, they were able to remind one another to implement strategies and to ask for full participation from every group member (Palincsar et al., 1989). We were very pleased when we observed students conducting dialogues with little or no assistance.

Down the road: Where will we go from here?

To address the reading comprehension needs of students beyond the third grade, we envision reciprocal teaching becoming as entrenched in our district as is our early years’ balanced literacy program. In order to systematize this process, we continue to push into content area classrooms. Already, reciprocal
teaching is a professional development opportunity open to all teachers in grades 3-8 in our district. The saying "All teachers are reading teachers" will, we hope, become true when content area teachers are given ways to help support reading comprehension in their own classrooms. Reciprocal teaching, like a pebble tossed into water to form ripples, will spread its effect throughout our district, enabling all our students to become independent and strategic readers.

FIGURE 3
Sixth- and seventh-grade Stanford Achievement Test reading comprehension scores

<table>
<thead>
<tr>
<th>Level</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>31.7</td>
<td>32.4</td>
</tr>
<tr>
<td>Medium</td>
<td>34.4</td>
<td>47.4</td>
</tr>
<tr>
<td>High</td>
<td>46.4</td>
<td>69.8</td>
</tr>
</tbody>
</table>

Remedial reading ability levels
Note: Table made from bar graph.

References


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