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# The Effect of Implementing the Cognitive Strategy of Reciprocal Teaching to Facilitate Student Comprehension

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**THE EFFECT OF IMPLEMENTING THE COGNITIVE STRATEGY OF  
RECIPROCAL TEACHING TO FACILITATE STUDENT  
COMPREHENSION**

Submitted to the Graduate Committee of the  
Department of Education and Human Development  
State University of New York  
College at Brockport  
in Partial Fulfillment of the  
Requirements for the Degree of  
Master of Science in Education

by

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## **Abstract**

This study was designed to evaluate the effectiveness of using a particular cognitive strategy, reciprocal teaching, to foster comprehension in comparison to direct instruction.

Twenty six above average sixth graders between the ages of eleven and twelve from an upstate urban New York school participated in this study. The study involved randomly separating the 26 students into two groups. Both groups examined the same segment of content area text, however, the material was presented differently. The control group was taught by direct instruction and the experimental group used a strategy called reciprocal teaching. A multiple choice test with a short answer question was given to both groups. A  $t$  test was used to analyze the data. Also, observations were made based on students' written responses.

Results from the  $t$  test indicated that there was no statistically significant mean score difference between the comprehension level of those in the direct instruction group and those in the reciprocal teaching group. However, observations made by the researcher found the written responses of the students in the reciprocal teaching group to be more detailed and descriptive.

## **Dedication**

I would like to dedicate this thesis to my grandparents, Fredrick and Gertrude Hasenauer, both of whom passed away this year. I would also like to say “Thank You” to my grandparents Clement and Eleanor Froehler. The support and encouragement that you have given me will last a lifetime.

In addition, a special thanks to Lesley Jarbe for facilitating this project and assisting me at the most inopportune time. Your efforts are truly appreciated!

Thank You

1999

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## CHAPTER I

### Statement of the Problem

#### Introduction

In classrooms today, the goal of literacy instruction is to teach reading and writing as tools to facilitate thinking and reasoning in a broad array of literacy events (David, Palincsar, Stevens, & Winn, 1991). Currently, standards and benchmarks across the country demand students achieve higher level thinking skills and engage in the intentional self-regulated learning that promotes literacy. However, all students differ in terms of their disposition to participate in literacy experiences. In addition, strategic knowledge, metacognitive ability, and schema all affect student comprehension (Paris & Oka, 1986). Therefore, cognitive strategies must be taught to students at all levels to ensure increased comprehension and guarantee the ability of all students to become intentional self-regulated learners.

#### Purpose

The purpose of this study was to evaluate the effectiveness of using a particular cognitive strategy, reciprocal teaching, to foster student comprehension in comparison to direct instruction.

### Need for the Study

There are numerous ways in which children differ in their ability to participate in the reading process. One of these differences is the extent to which they engage in the intentional self-regulated learning that promotes literacy and comprehension (David, Palincsar, Stevens, & Winn, 1991).

Reading is no longer thought of as the “mindless” application of isolated skills (Herrmann, 1988). According to Rosenshine, Meister, and Chapman (1996), reading, writing, and study skills are examples of less structured tasks. Such tasks cannot be presented in a consistent sequential order leading to an end result. Still, many teachers continue taking a direct approach in reading instruction. Not surprisingly, some readers learn to be more strategic than others.

In order for learners to understand less-structured, higher level tasks, students must possess the knowledge to incorporate cognitive strategies and procedures that enable them to derive meaning from text in an interactive and effective way (David, Palincsar, Stevens, & Winn, 1991). Therefore, it is essential for educators to know the important role a cognitive strategy can play in enhancing student comprehension.

### Research Question

1. Is there a statistically significant difference in reading comprehension scores of above average sixth graders after the implementation of a cognitive strategy called reciprocal teaching?

### Definition of Terms

1. Cognitive Strategy: Procedures that guide students as they attempt to complete less-structured tasks such as reading comprehension and writing (Chapman, Meister, & Rosenshine, 1996).
2. Scaffolding: Refers to the expert acting as a guide, shaping efforts of the novices and providing support for the learning until it is no longer needed (Meister & Rosenshine, 1994).
3. Direct Instruction: Instruction presented by the teacher in a sequential fashion generally determined through task analysis. A hallmark of direct instruction is the active and directive role assumed by the teacher who maintains control of the pace, sequence, and content of the lesson (David, Palinscar, Stevens, & Winn, 1991).
4. Reciprocal Teaching: A technique to develop comprehension of text in which teacher and students take turns leading a dialogue concerning sections of a text. Four activities are incorporated into the technique: prediction, questioning, summarizing and clarifying misleading or complex sections of the text (Carroll, 1988).

## CHAPTER II

### Review of the Literature

#### Purpose

The purpose of this study is to evaluate the effectiveness of using a particular cognitive strategy, reciprocal teaching, to foster student comprehension in comparison to direct instruction.

#### Historical Perspective

“Mentioning,” as opposed to teaching. This statement refers to Durkin’s observation of comprehension instruction in the classroom (1978-1979). Since her observation, our understanding of the reading process has changed. Historically, we have associated literacy with the ability to read and write, with both assuming narrow connotations. However, in the past sixty years, emphasis on reading for the purpose of comprehension has emerged as a main goal of reading instruction (Resnick & Resnick, 1977).

As the reading process continues to evolve, educators are becoming increasingly aware that reading is a strategic, meaning-getting process requiring awareness and control of complex reasoning processes (Herrmann, 1988). However, even with a heightened awareness, practice in comprehension instruction is changing slowly.

According to research, slow change occurs for several reasons. First, reading comprehension is an example of a less-structured task. It cannot be broken down into a fixed sequence of subtasks or steps that consistently and unfailingly lead to the desired end result (Chapman, Meister, & Rosenshine, 1996). This may lead to

teachers unintentionally neglecting comprehension instruction due to their inability to explain or identify comprehension as a cognitive process, hence, hindering the implementation of appropriate comprehension instruction (Wendler, 1989).

Secondly, Alvermann (1990) believes that the problem of poor comprehension instruction stems from the perception of the teacher. Implications regarding this statement focus on the idea that teachers perceive their primary instructional purpose to be the communication of content. According to Durkin (1981), the problem may have originated from the instructional suggestions contained in the basal reading series as well as content specific textbooks. Another study found support for comprehension assessment but only a weak foundation for any form of comprehension instruction (Maclsaac, Mosenthal, & Schwartz, 1992).

Current times indicate a needed change within instruction. Cognitive strategies need to be implemented to guide students as they attempt to complete less-structured tasks throughout the reading process. Studies attest that one cognitive strategy that may make tasks more manageable for students is reciprocal teaching. Unlike direct instruction, reciprocal teaching is not a direct process but a guide that supports learners as they develop internal procedures that enable them to perform higher level operations (Chapman, Meister, & Rosenshine, 1996).

### What is Direct Instruction?

The term *direct instruction* is a term which can be counted on to generate disagreement among educators. The reason for the controversy stems from definitional confusion. On one end of the spectrum, it sometimes represents the use of regimented, scripted lessons; other writers use the term to refer to a generalized set of teacher behaviors and classroom conditions related to high levels of student achievement (Baumann, 1988).

For the purpose of this study, direct instruction focuses on the teacher; he or she is the one facilitating. The teacher will choose a skill that needs to be learned and execute a lesson based on student needs. The steps of the lesson are generally provided in sequential order and determined through task analysis. Ultimately, the teacher maintains control of the pace, sequence, and content of the lesson (David, Palinscar, Stevens, & Winn, 1991).

As Baumann (1988) states:

The teacher, in a face to face, reasonably formal manner, tells, shows, models, demonstrates, teaches, the skill to be learned. The key word here is teacher, for it is the teacher who is in command of the learning situation and leads the lesson, as opposed to having instruction “directed” by a worksheet, kit, learning center, or workbook. (p. 714)

Further research finds direct instruction translated into a model depicting the following critical features: A reading strategy or skill lesson should include:

- \* an opening statement indicating focused skill being taught, its importance, and how it will assist the student
- \* explicit instruction in the skill
- \* the introduction of heuristics or visual displays during instruction

- which students can use in the application of skill or strategy
- \* varied constructive response during instruction that do not limit the student to multiple choice answers
  - \* transfer of responsibility from teacher to student of skill or strategy
  - \* information about the conditions under which the strategy or skill can be used (Baumann, 1988).

### Attitudes and Criticisms Toward Direct Instruction

Just as the term direct instruction generates conflict, so do the attitudes of researchers regarding the effectiveness of this concept. Peterson (1979) objects to the use of direct instruction believing this teacher-directed approach ignores individual differences among students. Poplin (1984) agrees stating the “pre-programmed” instruction in direct instruction is unresponsive to the learner and to individual differences. In addition, direct instruction challenges traditional classroom practices and many teachers who are forced to use this concept feel it is against their own philosophy of teaching (Becker, 1984). Overall, varied viewpoints of the critics have caused the origin of many myths regarding direct instruction.

Baumann (1984) states the first myth associated with direct instruction involves scripted “teacher proof” lessons. The reality is direct instruction requires careful planning and the teacher must recognize when students require another example. Also, the teacher must provide students with the materials necessary for additional feedback. In addition, the teacher must be aware when to use “scaffolding” to facilitate the learner to the highest potential.

As mentioned above, the biggest criticism of direct instruction is that it does not accommodate individual differences. This remains to be true only if teachers choose not to vary the materials they use. Also, the amount of application and independent practice activities provided by the teacher can be equally stimulating (or unstimulating) to individuals' cognitive strengths and weaknesses (Baumann, 1984).

A third myth that critics suggest is direct instruction promotes passivity and teacher dependence. Again, depending on the teacher and their ability to generate student responses, the teacher has the ability to provide students with an atmosphere that allows for responses to be interactive, oral, or verbally written.

Another concern is that direct instruction somehow dehumanizes teaching and inhibits students from thinking critically. Quite the contrary, direct instruction welcomes teachers to incorporate humor, sensitivity, flexibility, and individualism into their teaching. Keeping in mind that direct instruction simply does not assess performance solely by multiple choice answers, the teacher has the ability to authentically assess any lesson opening the door for critical thinking to occur,

Lastly, direct instruction has its place in the reading and writing curriculum; that is a reality. However, it is not the best or the only means to teach literacy, it is an option. For example, it is appropriate when teaching strategies such as comprehending the main idea, writing summaries, applying specific critical reading skills, or using story grammar to understand narratives (Baumann, 1984).

### The Effectiveness of Direct Instruction

There is ample evidence to conclude that the direct instruction model is a powerful approach for remedying the educational deficits of disadvantaged students (Meyer, 1984). The most compelling research concerning direct instruction surrounds Project Follow-Through (Becker, 1984). It was found that direct instruction plays an important role in “catching up” students of lower socioeconomic groups.

Regardless of socioeconomic status, an examination of the effects of direct instruction on student comprehension have been investigated. Baumann (1984) concludes that direct instruction does increase student comprehension strategies. However, the strategies that are learned are those that are targeted by the teacher and generally include identifying the main idea, understanding anaphoric relationships, critical reading and study skills (David, Palinscar, Stevens, & Winn, 1991). What is less clear, is the students’ ability to understand and recall information from the text that has been enhanced as a consequence of direct instruction regarding particular strategies. However, it has been generalized that student improvement focuses on targeted strategies and the application of these strategies to other materials is inconclusive (1991).

### What is Reciprocal Teaching?

Reciprocal Teaching is a cognitive strategy designed by Anne Marie Palincsar and Anne Brown (1984) to improve student comprehension. Reciprocal teaching refers to a set of learning conditions in which children experience a particular set of cognitive activities in the presence of experts. Gradually, students come to perform these functions by themselves (Meister & Rosenshine, 1994).

Reciprocal teaching has two major features. The first is instruction and practice of four comprehension-fostering strategies: questioning, clarification, summarization, and prediction (Palincsar & Brown, 1984). The process begins by the division of text into short segments, initially a paragraph or so in length. The leader, who usually is the teacher in the beginning, will read aloud. Once the segment has been read, the teacher, leader, or group members will generate several questions prompted by the passage previously read. The members of the group will answer the questions.

The next step in the process is clarification. If the passage or questions produce any problems the teacher or leader and other group members clarify matters. A student can ask for clarification on a meaning of a word, or on the pronunciation of a word. If this is the case, the student uses strategies taught for decoding. The students will remind others of the steps to follow, including: chunking, phonetics, and blending techniques. Lastly, a student can ask for clarification on an idea or concept found in the reading.

After all the questions have been answered and any misunderstandings have been clarified, the teacher or leader will summarize the segment. Students will then make predictions about the contents of the upcoming section. The sequence

of reading, questioning, clarifying, summarizing, and predicting is then repeated with subsequent sections.

The second major feature of reciprocal teaching is the dialogue. In the beginning the teacher is the leader. He or she models the procedure being taught and scaffolds instruction until practice becomes dialogue. At this point, students will become the leaders and the teacher is there for support only. They are provided instruction in why, when, and where activities should be applied to new text (Meister & Rosenshine, 1994). Ultimately, one student will ask a question, and another will answer. One student will summarize, and another will comment or help to improve the summary. One student will identify a difficult word, and the other students will help to infer the meaning and give reasons for the inferences being made. In the course of this practice, dialogue becomes the vehicle for learning and practice which foster the incorporated strategies (Meister & Rosenshine, 1994).

#### Criteria for Models of Reciprocal Teaching

As noted previously, reciprocal teaching has two major features: instruction and dialogue. When focusing on instruction, reciprocal teaching is broken down into four comprehension-fostering categories: questioning, clarification, summarization, and prediction (Palincsar & Brown, 1984). Questioning begins after a segment of the text has been read aloud by a group leader. Members will then generate questions based on the material. A good question must meet the following criteria (RCSD, 1998):

- \* it may be a question that can be answered directly from the text.

- \* it may be a question that requires inferencing.
- \* it may be a question that requires evaluation.
- \* it may be a question involving all of the above statements.

Nevertheless, when a leader or members are done questioning, they should have addressed the main elements of the text: who, what, why, when, where, and how.

The next step in the process is clarification. Clarification occurs if the passage or questions produce any problems. A good clarification by a group leader or members include (RCSD, 1998):

- \* an explanation of how you went about clearing up a problem you had with a reading.
- \* may focus on an idea, word meaning, or word pronunciation.

Dialogue for clarification may look like the following examples below

(Jarbe,1998):

1. A word meaning:

I read \_\_\_\_\_. I am not sure what this means. I have looked at the picture or have read to the end of the sentence. And now I .....

2. An idea:

I didn't understand \_\_\_\_\_. First I \_\_\_\_\_ (reread, looked at pictures, etc.) Then I \_\_\_\_\_. I reread the sentence and it made sense.

3. How to say a word:

When I come to a word I don't know, first I look for chunks I know. In this word I know \_\_\_\_\_. If I still don't know

the word I look at letter sounds. In this word I know the sounds \_\_\_\_\_, \_\_\_\_\_, .... I blend the sounds together. The word is \_\_\_\_\_.

Then I check by rereading the sentence.

When dialogue such as the above occurs, members join together, share strategies, and remind others of techniques they may have forgotten.

The third skill applied during reciprocal teaching is summarization. A good summary will (RCSD,1998):

- \* give only the key points related to the story line or main ideas
- \* be told only in the students' own words

Overall, the main point to summarization is to identify the main idea.

Finally the last step is prediction. A member or group leader will predict what will happen next based on the text and the interaction among students. A good prediction will (RCSD,1998):

- \* use information from the text.
- \* use prior knowledge.
- \* use clues from visual cues.
- \* is logical based on the above characteristics.

When this step is complete, the process will begin again with the next segment of text. Eventually students will understand this process and the teacher moves from being a group leader to a facilitator.

### Why Reciprocal Teaching?

According to research, reciprocal teaching is suitable for three main reasons: effectiveness, efficiency, and feasibility (Derber, Palinscar, & Ransom, 1989). In one study of effectiveness, the goal of middle school students with poor comprehension skills was to demonstrate statistically significant gains on standardized measures. Furthermore, their progress had to demonstrate reliable and long-term gains on criterion-referenced measures of comprehension as well as measures taken in social studies and science classes. Within 20 consecutive days of instruction, it was found that over 90 percent of the students tested met the criteria established (Brown and Palinscar 1982, Palinscar and Brown, 1984).

After conducting research for an effective reading instruction program, Carter (1997), implemented reciprocal teaching in Highland Park, Michigan. She states:

In that school year, when I assumed responsibility for student achievement (as curriculum director first and later as superintendent), I faced the challenge of my professional career: giving the teachers the hope and stimulating student achievement to at least the minimum standard required by the Chapter 1 program. (p. 64)

The effects were outstanding. The 1994 state assessment reports noted that where many Michigan school districts were declining, Highland Park was improving. Fourth grade reading scores doubled from 14.4 to 28.8 percent in one year (1997). Fourth grade reading scores doubled from 14.4 to 28.8 percent in one year. In addition, reading scores for the next two years' groups of fourth graders continued to improve: for 1995, 31.5 percent; for 1996, 39.6 percent (1997).

Efficiency is a second reason reciprocal teaching is a strategy being implemented throughout the country. In a study of 7th graders, individuals were

assigned to one of three separate groups: (1) reciprocal teaching; (2) a condition in which the teacher modeled the four strategies on each segment of the text and the students observed and answered the teacher's questions; and (3) explicit instruction during which the teacher demonstrated and discussed each strategy in isolation for the first half of each session and the students completed worksheet activities using the strategies for the second half. The outcome to this study found that no significant gains were made regarding comprehension when the teacher modeled the strategy. There were gains in comprehension when explicit instruction was utilized, however, the gains made by those in the reciprocal teaching group preceded the others (Brown & Palincsar, 1987, Palincsar, 1985).

Lastly, feasibility. After receiving permission, the Springfield, Illinois schools invited staff to take part in the development of implementing reciprocal teaching into their daily instruction. First, teachers' reflected on and discussed their desires for increasing student comprehension. Second, the theory behind reciprocal teaching was introduced. Third, teachers viewed videotapes on this subject. Fourth, teachers role-played reciprocal teaching dialogue. Finally, a demonstration lesson and a debriefing between a teacher and a researcher took place. In addition, teachers received adding coaching as they implemented this strategy in their classrooms. All this support showed considerable success in implementing reciprocal teaching, as demonstrated by weekly procedural reliability checks (Derber, Palincsar, & Ransom, 1989).

## **CHAPTER III**

### **Design**

#### Purpose

The purpose of this study was to evaluate the effectiveness of using a particular cognitive strategy, reciprocal teaching, to foster student comprehension in comparison to direct instruction.

#### Research Question

Is there a statistically significant difference in reading comprehension scores of above average sixth graders after the implementation of a cognitive strategy called reciprocal teaching?

#### Methodology

##### Subjects

The subjects consisted of 26 urban sixth-grade above average students who were grouped homogeneously in an urban school setting. Thirteen of the 26 students served as the control group, receiving direct instruction for content specific material. The other thirteen students were the experimental group. Both groups were chosen randomly. The experimental group was introduced to reciprocal teaching and the strategy was implemented using content specific material.

### Materials

Students in both groups used a sixth grade science text published by Macmillan/McGraw-Hill entitled, *Force*. Both groups read the same unit. A test was provided to each group containing two sections: (1) a multiple-choice/fill-in-the-blank section, and (2) a short answer section that required students to summarize a main idea in their own words.

### Procedures

Students in the control group and experimental group were given the same unit of the sixth grade science book. The control group was presented the material using the teaching method, direct instruction. The experimental group was trained effectively using a comparable unit in the same text for ten lessons by the instructional support teacher with expertise in reciprocal teaching. Therefore, students had a complete understanding of the dynamics of this method when the experiment was being implemented.

The same test was given to each group to see if incorporating a strategy such as reciprocal teaching is effective in aiding student comprehension. The first part of the test consisted of multiple choice/fill-in-the-blank questions. The second part of the test required students to write an answer that summarizes a main concept of the chapter. The tests were then scored, and a comparison between the control and experimental group was calculated.

### Analysis of Data

Once the post test was complete, a t test was used to determine if there was a statistically significant difference in the level of reading comprehension between the control and experimental group. In addition, a descriptive explanation of students' short answers will be examined.

## **CHAPTER IV**

### **Analysis of the Data**

#### Purpose

The purpose of this study was to evaluate the effectiveness of using a particular cognitive strategy, reciprocal teaching, to foster student comprehension in comparison to direct instruction.

#### Null Hypothesis

There will be no statistically significant difference between the mean of the scores of the students in the direct instruction group and the mean of the scores of the students in the reciprocal teaching group.

#### Analysis of Data

A correlated  $t$  test (dependent means) for the difference between the two means was used to compare the mean score of the students taught by direct instruction, versus the mean score of the students taught by reciprocal teaching. A calculated  $t$  score of 0.97 was obtained. Since the critical value of  $t$  for 24 degrees of freedom is 2.064 and since the  $t$  obtained was 0.97, the null hypothesis is retained. See Table 1 on the following page for reference.

Table 1

t Test of Differences between the Two Mean Scores

Groups	Subjects	df	mean	t
Reciprocal Teaching	13	24	10.6	.97
Direct Instruction	13	24	9.85	

Crit t ( $\alpha < .05$ ) = 2.064

Having determined that there was no statistically significant difference ( $\alpha < .05$ ) between the mean scores of the reciprocal teaching group and the mean scores of the direct instruction group, the null hypothesis has been retained.

Observations

Although significant statistical gains did not favor reciprocal teaching, the researcher felt that samples of student work from that group contained more descriptive information. In many examples, the short answer questions requiring a summarization of the main concept were more detailed and the descriptions given showed the students' ability to think critically. For example, the following question was found on the exam: Reducing friction is good for the environment. You can reduce friction by properly inflating the tires of your car. First, describe

how inflating your tires reduces friction, and second, what is the benefit of reducing friction by ensuring that your tires are at full capacity? Below are two answers given by students in the study. The first is that of a student in the reciprocal teaching group, the second in the direct instruction group.

Subject 1 - Reciprocal Teaching

The way inflating your tires reduces friction is that if there is more air in them your tires go across the ground easier. If your tires weren't inflated the tire being without air will rub harder on the ground so your car will not go as fast. This causes a lot of heat between the tires and the road which is friction. The way you can benefit by reducing friction is by ensuring that your tires are at full capacity this way less of your tires rub on the ground and the less heat there will be. Plus, by inflating your tires you will save less money on gasoline.

Subject 2 - Direct Instruction

Inflating your tires reduces friction because with less air it makes more friction and it's harder to go the speed and distance. Reducing friction is a benefit because it keeps accidents from happening.

The examples provided were consistent among subjects. The researcher attributes the descriptive answers to the dialogue involved in reciprocal teaching. It allows students to extract new information from their peers and integrate it with what they already know to generate a complete detailed response.

## **CHAPTER V**

### **Conclusions and Implications**

#### Purpose

The purpose of this study was to evaluate the effectiveness of using a particular cognitive strategy, reciprocal teaching, to foster student comprehension in comparison to direct instruction.

#### Conclusions

The results of this study regarding the effect of reciprocal teaching on student comprehension do not reflect what the researcher found in much of the previous research on reciprocal teaching. Still, there is a small difference in the average mean score between students in the reciprocal teaching group, 10.69, and students in the direct instruction group, 9.85. These results may have been more extreme if the number of subjects increased, lowering the critical  $t$  and possibly providing a statistical difference favoring reciprocal teaching.

The researcher discovered during the course of this study that scores on the multiple choice section of the test did not greatly differ between groups. The researcher relates these findings to the fact that all 26 students in the study were above average readers, indicating that reading strategies were already in place. Many of the previous studies examined disadvantaged readers and the progress they were able to make by utilizing a new strategy. The students in the current study were already at an advantage and reciprocal teaching was another tool to add to their “bag of tricks.” Students who were taught in the reciprocal teaching

group can now implement this approach with classmates in cooperative groups to further their growth.

While the scores on the multiple choice section of the test did not differ greatly between the two groups, the researcher did find a discrepancy regarding replies to the short answer section requiring a summarization of the concepts learned. Much effort was made in modeling, practicing, and reviewing the key components of reciprocal teaching. Undoubtedly, the component that was the most useful was the ability of the students to utilize dialogue. If the passage or questions produced any problems or misunderstandings, the leader and other group members clarified matters. For example, during one session in continuing to work with *Force*, a student pointed out the difference between force and friction. Then, a second student provided an example. At the end of the segment students were able to summarize the segment and indicate the distinction between different concepts. This dialogue is not possible in direct instruction. The answers provided by the reciprocal teaching group resembled a reply in a conversation. They went beyond a simple retort indicating the application of their knowledge. Many students even provided examples indicating their complete understanding of the concept being taught. Overall, students' short answer responses were more detailed and descriptive than students who were in the direct instruction group.

### Implications for the Classroom

This study, along with previous research, has provided information on the implementation of the cognitive strategy reciprocal teaching. These findings have several implications for educators.

First, teachers need to recognize that all students comprehend differently and reciprocal teaching is a “tool” to facilitate reading education, not a means to an end. Although studies have shown reciprocal teaching is effective for disadvantaged readers, reciprocal teaching is only as effective as the modeling, practicing, and reviewing done by the leader or teacher to ensure success.

Second, teachers cannot rely solely on the students to carry out this process once they are trained. Teachers are still key players in this strategy. It is their job to facilitate this process by making sure students are incorporating the four main concepts: questioning, clarifying, summarizing and predicting. Also, teachers must realize the importance of stepping into a conversation and adding the necessary information to prompt dialogue and lead students to higher levels of thinking.

Lastly, students responses do not have to be narrowed down to just discussion or multiple choice tests. Ultimately, assessment of this strategy takes place during the teacher’s role as a facilitator. However, narrative, expository, and personal responses are all ways students can show the summarization process of this strategy. In content areas, reading logs can be implemented to record student understanding and growth. Supplemental activities in addition to this process compliment comprehension and lead to better student understanding.

### Implications for Research

Further investigation into the use of reciprocal teaching as a means to develop comprehension in student reading is suggested. Research in the following areas are needed.

1. Once students understand reciprocal teaching, do they begin to think more conceptually? What effect if any does this have on the comprehension of all types of material, fiction and non-fiction?
2. What is the impact of reciprocal teaching on the writing process? Does it promote students to be more detailed and descriptive in their written responses?
3. Is there a certain level at which reciprocal teaching should be implemented so as to maximize students' concepts of the comprehension process?
4. Is there one comprehension fostering strategy related to reciprocal teaching that is more essential than the others and deserves more emphasis?
5. How often should reciprocal teaching be used to enhance comprehension?

For further study, the following changes in this study are recommended:

1. A larger sample size of at least 50 for both the experimental and the control group should be used.
2. Replicate the study using subjects that were disadvantaged readers.
3. Use different age levels or grade levels for cohort studies.
4. Analyze the written responses in a way that is measurable to indicate whether or not answers from the reciprocal teaching group are more detailed and descriptive.

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