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Effects of a metacognitive think-aloud strategy used to improve reading comprehension in a group of third graders

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EFFECTS OF A METACOGNITIVE THINK-ALOUD STRATEGY USED TO IMPROVE READING COMPREHENSION IN A GROUP OF THIRD GRADERS

by
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ABSTRACT

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This study investigated the effectiveness of a metacognitive think-aloud strategy used to improve reading comprehension in a group of third grade students. Fourteen general education students were pre-tested using an individual reading inventory to determine baseline independent, instructional, and frustration reading levels. Explicit and systematic instruction in the strategy, as well as hands-on practice with each component of the strategy, lasted for twelve consecutive weeks. Subjects were then post-tested with different forms of the initial reading inventory. Comparisons of pre-test and post-test scores indicate an average of one year's growth in the independent, instructional, and frustration reading levels for all subjects involved in the study.

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CHAPTER 1

STATEMENT OF THE PROBLEM

Background:

In disserting the processes needed to read, two distinct areas can be identified. First is decoding, or the ability to break apart words by looking at individual sounds, attaching a sound to each symbol, blending the sounds together, and forming the auditory equivalent of the word. The second distinct aspect of reading is comprehension, or the ability to assign meaning to the read words, sentences, and paragraphs. This latter component of reading involves multiple processes that are extremely varied and interact with each other.

While it is easy to identify comprehension as understanding what one has read, there are many complexities that compromise that definition. There are many thinking and reasoning skills utilized within a reader's mind for this understanding of text to occur. It is within this context that "reading as an active process" begins to make sense. In order for comprehension to occur, a reader must activate prior knowledge, make predictions, set a purpose for reading, make inferences, note important points, revise prior knowledge and predictions, and apply new information (Asselin, 2002).

Dolores Durkin's study of classroom instruction in the area of reading revealed that "teachers taught comprehension less than one percent of the time, and that this

instruction was more a matter of 'mentioning' than actual explanation or demonstration." She found that teachers were concentrating a majority of their reading instructional time on decoding rather than on comprehension. Teachers were found to "check" for comprehension via questioning techniques, but they did not explicitly teach how to comprehend when decoding a text. Another significant finding in her study was that there was little to no information on how to teach comprehension within teachers' manuals for basal readers and in reading instruction for teachers. Many times this lack of instruction forces students to develop their own strategies for understanding the text they are reading. These self-taught strategies are frequently inadequate (Payne & Manning, 1992).

In order to better understand why some students are proficient readers, whereas others are poor readers, researchers examined exactly what skilled readers do while in the process of reading. What they discovered is a list of strategies the proficient readers consistently incorporated into their reading processes. Not only did these proficient readers know what strategies were available to them, but they also knew how and when to apply them. Skilled readers tend to be very aware of what they are reading. They typically have a set purpose for reading a particular selection. They also have a repertoire of strategies to implement when, and if, a problem arises (Mokhtari and Reichard, 2002).

Unskilled readers, however, are very limited in their cognizance of strategy usage. They infrequently monitor for meaning. When text does become confusing or contradictory, they are less likely to detect these and other inconsistencies. They do not always seem to know that they do not understand. Not only are they unaware of how and when to apply strategies, more importantly they are unaware of the fact that they should

be employing any strategies at all when reading. All of these difficulties result in a failure of control over the reading process. Hence, there is a serious deficiency in the area of comprehension (Mokhtari and Reichard, 2002).

From these findings on proficient and unskilled readers stemmed a relatively new approach to studying reading comprehension, which focuses on a reader's metacognition. Metacognition is a "methodology that focuses on teaching students to be aware and in control of their own cognition while reading" (Tregaskes & Daines, 1989). Studies show that explicit and systematic instruction in cognitive modeling of reading strategies enhances students' reading abilities. This metacognitive approach entails having teachers model and provide guided practice in specific strategies employed by skilled readers. Students become aware of these strategies and then apply them in their independent reading. In essence, they are taught how to think while reading (Villaume and Brabham, 2002).

Need for Study:

This study is needed to prove that students will benefit from explicit and systematic instruction in specific strategies, as well as how and when to apply them in order to become more proficient readers. The standard basal reader used in some schools today does not teach students how to think about what it is they are reading. Having students answer literal level comprehension questions does not challenge them to think beyond "the box." They need to be able to problem solve on the spot when a text is not making sense. That metacognition is what leads to quality comprehension. They need strategies to apply in all kinds of reading situations to help them get the most out of the

text. Many emergent readers decode the words and move on. They are unaware of any connections they can make between the text they are reading and other aspects of their lives. The lack of connections is what leads to lifelong comprehension problems.

Value of the Study:

This study will be a valuable resource for any teacher of reading. The information provided shows the extreme importance of directly teaching students how to think aloud when reading and make connections. Students need to know what strategies are available to use when reading, as well as the guided practice using them before applying them independently. It is crucial that our developing readers internalize this process at an early stage in their education, especially when they are still learning how to read. As their development and education becomes more extensive, being an active and participatory reader will become increasingly important as they transition to reading to learn.

Research Question:

The data obtained in this study will answer the following question:
Will explicit and systematic instruction in a metacognitive reading strategy, specifically comprehension monitoring, increase independent reading comprehension levels in a group of third grade students?

Definitions:

Reading- a purposeful activity requiring the integration of "a wide variety of cognitive skills to decode, comprehend, and learn from text." According to Anderson and Pearson, it is now seen as a "multidimensional activity in which readers make inferences and bring prior knowledge to the reading task." Other researchers have added that it also involves continual monitoring and assessment of one's comprehension so that an end result can be mastered (Cross & Paris, 1988).

Comprehension- the process of reading in which meaning is constructed. "It has a central role in constructing the network of strategies that are the foundation for the self-extending system." It begins with the predictions about a text and anticipation of reading the text prior to reading, and continues after reading as the reader uses his experiences and extends it (Fountas & Pinnell, 1996).

Metacognition- the knowledge and control children have over their own thinking and learning activities. It includes two broad categories of mental activities: self-appraised knowledge about comprehension and self-management of one's thinking (Cross and Paris, 1988).

Metacomprehension- a term used when applying metacognition to the act of reading. It includes activities such as: a) setting a purpose for reading; b) identifying the most important parts of a text; c) focusing on the big picture, not minor details; d) monitoring to determine whether comprehension is taking place; e) participating in review and self-

questioning; and f) correcting oneself when there is a breakdown in comprehension (Payne & Manning, 1992).

Strategy- a plan of action arrived at by means intended to accomplish a specific goal.

Limitations:

The limitations associated with this study stem from the fact that it is impossible to assess all the reading strategies the subjects use prior to intervention. It is difficult to tell if they are actively using any strategies at all. Also, if the subjects show growth after receiving instruction on strategies geared to improve comprehension, how does one decipher whether the growth is due to the strategies, normal projected school growth, and/or maturation?

CHAPTER 2

REVIEW OF THE LITERATURE

Background of Reading Comprehension:

Defining reading is a difficult task due to the many factors involved in this multi-dimensional activity. Simply stated, it is one's ability to decode words and assign meaning to them. However, there are many more pieces to the puzzle in order for efficient reading to occur. First, sounds must be applied to symbols on a page. These sounds must be blended together to form words, sentences, and paragraphs. This aspect of reading is much more concrete than the second element, which is comprehension. Multiple cognitive processes must be implemented simultaneously in order to comprehend the words that have been decoded. These cognitive processes are frequently intertwined and are also varied.

In order for reading to be an "active process," a reader must think about the text as he is decoding. This thinking takes the form of making connections to other texts, to the world, and to one's own life. Text-to-text connections are the little similarities to or reminders of another text. Text-to-world connections require using schema of what is known about the world, what you've heard on the news, what you know about other people and connecting it to the text. Text-to-self connections are described as how your own knowledge or experience has helped you understand the text better. These three connections usually begin with a "this reminds me of...." (Keene & Zimmerman, 1987).

Making connections while reading is one way the reader monitors meaning. Monitoring meaning is crucial for the goals and purposes of reading to be met. It plays an important role in the self-regulation of the processing of text. "Children's awareness about reading processes, purposes, and strategies is regarded as an integral component of reading" (Cross & Paris, 1988). When a reader does not make connections and fails to utilize self-monitoring and other strategies, there is a breakdown in comprehension.

Prior to 1975, theorists assumed that readers extracted information from text and that the procedure in doing so was equivalent among all readers. More recent findings support the effect of a reader's schema, or background knowledge, on comprehension. Consequently, it is now recognized that comprehension levels vary drastically among readers due to the quantity and quality of their schema. Schema theorists regard the construction of meaning to be established by connecting chunks of key ideas in the text to a whole. Another significant view of schema theorists is that inferencing skills aid a reader in comprehending the material. Inferencing occurs when the reader uses his background knowledge to make connections that are not directly stated in the text, such as the correlation between character traits and character actions (Asselin, 2002).

In the late 1970s and early 1980s, a researcher by the name of Dolores Durkin came across some alarming findings while exploring classroom reading instruction, curriculum guides, and teachers' manuals. She found that teachers "taught" comprehension less than one percent of the time. When comprehension was instructed, it was more by means of "mentioning" than by actual demonstration or explanation (Asselin, 2002). Teachers tended to place emphasis on the decoding aspect of reading rather than balancing it with the importance of understanding what was read. Teachers

did "check" for comprehension (Tregaskes & Daines, 1989). However, the "checking" for text meaning focused primarily on the content of the students' reading. This "checking" method was mainly via questioning techniques in which students had to regurgitate information from the print. The teaching was lacking explicit instruction in "how to" comprehend when decoding a text. Importance also was placed on the assessment of skills. In addition, she exposed the fact that there was little to no information on how to teach comprehension within teachers' manuals for basal readers and in reading instruction for teachers. Many times this lack of instruction forced students to develop their own strategies for understanding the text they are reading. These self-taught strategies are frequently inadequate (Payne & Manning, 1992).

There are continuing statistics that indicate students in the United States do not read well. Very few students are critical and thoughtful readers. National test score information shows that while students in first through third grade are performing relatively well, students beyond third grade are not performing nearly as well. The American education system is not effective in moving students beyond basic reading levels. According to the 1998 *National Assessment of Educational Progress* (NAEP), "seventy-four percent of eighth graders read at only a basic level while thirty-three percent read at a proficient level. Only three percent read at an advanced level. One out of four students at the eighth grade level cannot even read at a basic level" (www.rogerfarr.com).

Analysis of Skilled and Unskilled Readers:

Recent thoughts on teaching comprehension stem from the identification of the differences between skilled and unskilled readers. Researchers determined that in order

to get a good grasp on what makes some students proficient readers, they should study their reading habits and compare them to those of less adept readers. Results of such studies specified that efficient readers are strategic and "constructively responsive" readers who are successful in being aware of exactly what they are doing and thinking while reading. This metacognitive awareness is the distinguishing factor between skilled and unskilled readers (Mokhtari & Reichard, 2002).

According to Paris and Jacobs (1984), "skilled readers often engage in deliberate activities that require planful thinking, flexible strategies, and periodic self-monitoring. They think about the topic, look forward and backward in the passage, and check their own understanding as they read. Beginning readers, or poor readers, do not recruit and use these skills. Indeed, novice readers often seem oblivious to these strategies and the need to use them" (Mokhtari & Reichard, 2002).

Various studies on the topic revealed a list of strategies proficient readers consistently incorporated into their reading processes. Expert readers were also able to articulate what they were doing or thinking concurrent with reading. Setting a purpose for reading, previewing text, reading selectively, associating prior knowledge with new information, making and revising predictions, determining meanings of unfamiliar words, remembering important ideas, reviewing text post-reading, and applying new information are a majority of the things skilled readers do concomitantly while decoding the words in a selection (Asselin, 2002).

One of the most important differences between proficient and inept readers has been identified as the proficient reader's ability to draw upon prior knowledge when reading. This level of background knowledge is directly correlated to the level of

understanding of the printed words. Being able to make connections between what is known and familiar to the reader with what is newly presented is a driving component to the end result of comprehension (Mokhtari & Reichard, 2002).

A second critical difference between capable and incompetent readers is the skilled reader's ability to be aware of the fact that they are using appropriate strategies when reading. They not only are conscious of various suitable strategies, but they also identify proper times to use them, and use them correctly. They are very aware of what they are reading. If there is a failure in constructing meaning, they have a repertoire of strategies to employ to correct the problem (Mokhtari & Reichard, 2002).

Unskilled readers tend to be young developing readers and less-experienced adolescents and adults. They are quite limited in their understanding of the reading process. Emphasis tends to be placed on the "sound" of the reading, not necessarily the construction of meaning. When text becomes confusing, they are less likely to stop and remedy the problem. They tend to overlook it and continue reading the selection. They are not always aware of the times when they do not understand or that the text does not make sense. They are not only uninformed in how to use strategies to clarify, but they also are unaware that the strategies even exist and that they should be utilizing them. These deficiencies result in a loss of control over the reading process (Mokhtari & Reichard, 2002).

According to Davey (1983), there are five aspects of a skilled reader's thinking that are frequently absent among a less skilled reader's comprehension. They all are associated with the fact that many poor readers see reading as "cracking the code," not as

a means to understand what has been written. She has identified the weak points as the following:

- Weak readers do not form good hypotheses about the text's meaning prior to reading.
- Unskilled readers do not automatically form mental images while reading.
- They do not efficiently activate prior knowledge about the content of the material.
- They are not aware of how well they understand what they are reading (no self-monitoring).
- They do not know how to repair problems when difficulties arise.

She concludes that recent work on self-monitoring and strategic problem solving has proven that these skills can be taught to struggling readers (Davey, 1983).

Explicit and Systematic Instruction of Strategies:

In light of the research explaining the differences between skilled and unskilled readers, decisions regarding children's comprehension instruction can be made. In the "real world" of reading, proficient readers do not utilize comprehension strategies out of the desire to read "the right way." They are not motivated by a list of "things skillful readers do." The strategies come forth in flexible and varied ways when they are necessary. Individuals choose to actively and thoughtfully develop meaning from a text because of the need to get something out of it. Unfortunately, many less experienced readers do not have an innate sense to use such strategies when reading. It has been found that less skilled readers can be taught how to utilize such skills when they are presented explicitly and systematically (Villaume & Brabham, 2002).

Explicit instruction ensures that students "get" what is being presented. If the goal is to help children become strategic and responsive readers, teachers must make it

clear to them what skilled readers do. One of the most explicit ways to teach a comprehension strategy is through modeling. Modeling alone is not sufficient enough, however. Confusion among students must be addressed via class conversations stemming from the modeling. Students must be given the opportunity to practice the strategy which has been presented. Guided practice is necessary in order for students to eventually integrate the skill into their independent reading. This process is known as scaffolding a skill. The teacher provides the scaffolds to support the students' practice, then gradually removes the scaffolds as they learn to incorporate the skill on their own (Villaume & Brabham, 2002).

Systematic strategy training is threefold. The first dimension is that comprehension strategies are introduced in a systematic procedure that is logical, cumulative, and purposeful. Basically this means that there is a system to the method of teaching strategies to students. There should be thought-out and logical order to the instruction rather than random fragments of instruction. The second aspect of systematic training must be that there is a comprehensive and interrelated system of strategies that unfolds over time. Students need the time to internalize a skill before another skill is introduced. A third component is that there is a systematic monitoring of what students can and cannot do. This ensures that the students are receiving instruction in what they need instead of what they already know and are able to do (Villaume & Brabham, 2002).

Studies on Metacognition:

In support of the research presented on reading comprehension in terms of skilled and unskilled readers and the need for explicit and systematic instruction in

comprehension strategies, new approaches have emerged. When students become more aware of their own reading and cognitive processes, comprehension of material improves. This principle is referred to as metacognition, or metacomprehension. When individuals read metacognitively, they are able to address their needs and apply strategies to alleviate the deficiencies. When readers are able to understand the processes that go on when actively reading, they are then able to "relate, reason, conclude, and retain the information they read, as well as consciously act to facilitate these processes" (Tregaskes & Daines, 1989).

Tregaskes and Daines (1989) selected five such strategies to incorporate in a study designed to investigate the effectiveness of metacognitive strategies in improving reading comprehension among sixth grade social studies students. The first strategy presented to students was visual imagery. Teacher questions and comments guide students in forming mental pictures in their minds associated with what they read in the text. Students visualized selected passages as the teacher reads. The students shared their images by explaining them and then later drawing them. A second technique employed was summary sentences. Students were taught to identify main ideas and eliminate minor details and redundant information from the text. They then classified and summarized the relevant and most important information. Webbing was a third strategy used with the students. Graphic representation of relationships in a passage was shown by placing main ideas in the center of a diagram. Major and minor details were then connected to the main idea in large and small circles. A student-directed questioning strategy was also utilized with the students. They learned how to question themselves to expose prior knowledge of a topic and goals for reading that selection prior

to actually reading it. This allowed for relationships and conclusions to be formed more easily. "Click" cards were the fifth strategy introduced. A monitoring system was used via cards in order to help students check their comprehension of a passage. The cards provided a consistent procedure to be used if there was a misunderstanding.

Pre-testing was completed using the Cloze test and the Error Detection Test. Instruction in the five metacognitive strategies was given over the course of twelve weeks. Post-testing was also done with the Cloze and Error Detection Test. The hypothesis was verified that there would be significant difference in the improvement in reading comprehension of social studies material of sixth-grade students who had received metacognitive strategy instruction.

Babbs (1984) also designed a study to determine if the use of a metacognitive strategy could increase students' ability to control their learning processes. Fourth grade students of varying reading abilities were selected to participate in the study. Instruction during the first five weeks of the experiment was focused on expanding students' concept of the reading process. Students used a reading plan sheet when reading in their social studies or science text for the purpose or remembering important facts. Questions on the reading plan sheet included (1) What is reading? (2) What is my goal? (3) How difficult is the text? (4) How can I accomplish my goal? (5) How can I check on whether or not I accomplished my goal? Once students internalized use of the five-step reading plan, they practiced using individual sets of monitoring cards. The cards forced them to stop periodically to think about and assess their comprehension and recall of the text and to take action when a problem occurred. The nine cards utilized to prompt comprehension monitoring in this procedure are: (1) Click—"I understand." (2) Clunk—"I don't

understand." (3) Read on. (4) Reread the sentence. (5) Go back and reread the paragraph. (6) Look in the glossary. (7) Ask someone. (8) What did it say? (9) What do I remember? Cards numbered 3 to 7 are the five strategy cards for mending comprehension failures; the others are prompt cards. Cards were introduced gradually and in a systematic order. Once students were allowed practice opportunities with the cards, the practice was integrated into their knowledge bank.

Once again, significant differences emerged between students instructed in an explicit comprehension strategy and the control group. The use of the cards resulted in significantly better factual recall of a 420-word passage in a social studies book. Also, students who used the cards recalled an average of 12 literal ideas while the control students averaged just 5.5 ideas. Students with the card strategy spent an average of 11.5 minutes reading the passage as compared to an average of only 5.3 minutes for the control group. By using the comprehension monitoring cards, the fourth grade students involved in the study stopped frequently to check their comprehension levels and applied fix-up strategies when there was a problem.

Similar to the study conducted by Babbs (1984) is information provided by Davey (1983) on how to help poor readers clarify their views of reading. She identified ways teachers can help students "think aloud" by verbalizing thoughts to students when reading. The teacher needs to select a passage containing difficult material, unknown words, and ambiguities. As the teacher reads the passage aloud, students are to follow along silently. The teacher is to stop periodically and think aloud in order to work through the trouble spots. One think aloud strategy is to model how to make predictions. In this, the teacher is explicitly showing students how to form a suitable hypothesis.

Another strategy is for the teacher to describe the picture forming in his mind from the information given in the text. This shows students how good readers develop images when reading. Sharing an analogy is another way to model thinking aloud. In this, teachers show students how to connect background knowledge with new information. Davey refers to this as a "like-a" step. Many times connections are made to prior knowledge by saying, "This is like a time when....". Verbalizing a confusing point shows students how to monitor for ongoing comprehension. Statements such as, "This just doesn't make sense" show students that it is encouraged behavior to stop and assess when there is a failure in meaning. Finally, it is important to demonstrate "fix-up" strategies when there is a problem with comprehension. Showing students how to mend comprehension problems is part of this step. It is crucial to model how to reread or read ahead to help clarify meaning. Using these steps in teaching how to think about comprehension demonstrates to learners that reading should make sense.

Payne and Manning (1992) tested the effectiveness of a metacognitive instructional strategy to be used with basal readers in order to improve comprehension, strategy use, and attitude toward reading. Fourth grade students were used in the experimental and control groups. The experimental treatment was based on the instructional strategies outlined by Schmitt and Baumann (1986). Subjects were pre-tested with three measures including the *Metropolitan Achievement Test, Reading Attitude Inventory,* and the *Index of Reading Awareness.* Metacognitive strategies were utilized during pre-reading, guided reading, and post-reading activities.

Pre-reading activities included activating background knowledge by asking the students what they already know about these words and topics. Students are instructed to

look at the pictures and the title and again, think about what they already know about the topic. After activating prior knowledge, students are taught how to make predictions about the content of the text. During this activity, the teacher encourages students to make predictions based on the title and pictures. Readers also try to predict problems, solutions, and the final outcome. Setting a purpose for reading is another important aspect of the pre-reading stage. In this, the teacher tells the students to read with a purpose in mind because it helps them to focus their attention and it helps with understanding of the text. Sometimes the purpose is to discover if their predictions are correct. Finally, the teacher explains that the students should generate some questions before reading the selection. This procedure helps to keep students actively involved as they try to answer them.

Guided reading activities begin with the teacher coaching the students to stop reading every so often to review what they have read. Evaluating previous predictions and forming new ones is the next strategy introduced. The teacher explains that as they read and find out new facts, they can think back to and evaluate previous predictions. At this point, they can clarify any comprehension problems and formulate new predictions. The teacher encourages the students to relate new information to what they already know in order to help with comprehension. Finally, the teacher solicits new questions from students as the story develops. It is important that the responsibility shifts from the teacher to the students at this stage. These questions may be similar to those in the basal manual, but it is crucial for the students to formulate and discuss them, not the teacher.

Post-reading activities begin with a total selection summary. The teacher encourages the students to formulate a summary that enhances only the main points.

Then students are asked to evaluate their predictions, discuss their accuracy, and talk about what information caused them to change original predictions. Students are shown how to judge whether or not their purpose for reading was met. It is explained that this is the goal for reading with comprehension. Finally, the teacher and students share the responsibility for generating questions regarding the characters, the problem, the goal, and the solution. This information is the check for overall comprehension.

In the area of reading comprehension, the analysis between pre and post-test scores indicates that the children in the experimental group achieved significantly higher reading comprehension scores than the students in the control group after a year of metacognitive skills training. Attitudes toward reading and reading awareness scores also were significantly higher for the experimental group as well.

Another research study implemented to measure the effect of think-aloud instruction on comprehension monitoring abilities was conducted by Bauman, Seifert-Kessell, and Jones (1992). Subjects were fourth grade students assigned to one of the following experimental groups: (a) a Think-Aloud (TA) group, (b) a Directed Reading-Thinking Activity (DRTA) group, or (c) a Directed Reading Activity (DRA) group. Students in the Think-Aloud group were taught various comprehension monitoring strategies for reading stories by thinking aloud. Students in the DRTA group were taught a predict-verify strategy for reading and interacting with stories. Students in the DRA group served as the control group. They were engaged in a non-interactive guided reading approach to stories. All students were pre-tested and post-tested using an error detection test, a comprehension-monitoring questionnaire, and a cloze test. Pre-testing, intervention, and post-testing occurred within a three-week period.

The Think-Aloud instruction was implemented with the purpose of enhancing students' comprehension and self-monitoring capabilities. Instruction was presented over the course of ten lessons. Lesson one taught students how to use self-questioning as a first step in comprehension monitoring. In this lesson, students were presented the analogy comparing readers to reporters. "Reporters get information from the person they interview and from what they already know. Readers get information from the writer and what they already know" (Baumann, Seifert-Kessell, & Jones, 1992). Lesson two focused on how information can come from what is directly stated in the story as well as from what the student already knows. The third lesson introduced students to how to think aloud as they are reading by reading short sections and stopping every so often. They were trained how to say out loud what their thoughts were and ask themselves if the passage makes sense. Lesson four was a review of the first three lessons. Lesson five taught the students to use a predict-read-verify strategy. Students verbalized their predictions and whatever else they were thinking via think-aloud. In lesson six, students were taught inferencing skills in order to understand unstated information in a story. They used think-aloud to discuss what the author left out by using what they already knew along with clues from the story. Retelling the story was the focus of lesson seven. Retelling was presented as a think-aloud strategy for helping a reader understand and remember the story. Lesson eight instructed students to stop occasionally when reading and ask themselves if the story is making sense. They also were taught how to use correction strategies when clarification was needed. Lessons nine and ten consisted of review and guided practice.

All think-aloud lessons consisted of four steps: (1) What? Students were given a description or example of the instructed strategy as it was taught. (2) Why? An explanation of why the strategy is important and how it will help students become better readers was provided. (3) How? Explicit instruction of the strategy was supplied including verbal explanation, modeling, guided practice, and independent practice. (4) When? Teachers explained when this strategy should and should not be used.

There were four steps in the DRTA instruction portion of this project. Students made preliminary predictions based on the title and pictures. Students read half of the story and reviewed their original predictions based on true, false, partly true, partly false, and not mentioned. Students then were able to make additional predictions, and finally steps were repeated as needed.

The DRA instruction was based on the directions in the basal manual. Students were exposed to new vocabulary, discussed background knowledge, participated in guided reading through purpose-setting and comprehension questions, and discussed the story by reviewing the purpose, summarizing, and answering comprehension questions.

Results of the Baumann, Seifert-Kessell, and Jones indicated that the students in the think-aloud experimental group reported using more comprehension monitoring behaviors than the other groups of students. They also demonstrated greater use of the strategy. Therefore, the think-aloud students engaged in more comprehension monitoring behaviors than the DRTA and DRA students. The researchers found that prediction was the most frequently used behavior, and that the DRTA students did the most predicting. On the other hand, the think-aloud students not only reported and demonstrated more self-monitoring behaviors, they also displayed a greater range of behaviors. This was

demonstrated in the study with the presentation of forty-six self-monitoring behaviors displayed by the TA group as compared to only thirteen behaviors for DRTA students and eighteen behaviors for DRA students.

The results of various studies on the effects of metacognitive strategy training, in regard to reading comprehension, is promising. Many researchers have proven that explicit, teacher-led instruction in a comprehension strategy such as think-aloud is a successful approach to enhance students' comprehension abilities.

CHAPTER 3

RESEARCH DESIGN

Population:

A group of fourteen third grade students attending Bobby's Run School in Lumberton, New Jersey will be the subject population for this study. The students are enrolled in a general education classroom of twenty-one students, which includes three students who transferred into the district after the start of this project and four students who are classified. (The four students with special needs are not included in the subject population for this study due to the design of their educational program. They attend a pull-out resource program during the two reading/language arts periods when implementation of this research will take place. Therefore, sixteen non-classified students remain in the general education classroom during the double language arts instructional period.) Eight female students and six male students will participate in this study. The ethnic background of the subjects is fifteen Caucasian and one African-American.

Instrumentation:

All subjects were pre-tested and post-tested using the *Jerry Johns' Basic Reading Inventory.* Pre-testing and post-testing was administered individually over the course of a month. Half of the subjects were given forms A and D as a pre-test, whereas the other

half of the group was given forms B and C. The forms of the test were then switched during the post-testing period. Students who were pre-tested with forms A and D were post-tested with forms B and C. Students who were pre-tested with forms B and C were post-tested with forms A and D.

Test administration followed the recommended procedure in the inventory manual. Subjects were shown lists of words in a flash then untimed manner. The three-second flash period allowed the examiner to identify sight words in the student's range. An untimed period was given when the student did not automatically identify a word. Performance on the word list section of the test provided a starting point for administration of reading comprehension passages. Reading passages were given in an alternating fashion of oral and silent on each grade level. Students were asked to predict the main idea of the selection prior to oral and silent reading. Post-reading activities included a retelling of the story and questions focusing on vocabulary, inferencing, and factual recall. Oral and silent reading passages were given to the subject until a ceiling limit was met.

Procedure:

Students were explicitly taught how to use a think-aloud strategy while reading in order to improve comprehension monitoring and self-correction abilities. The think-aloud strategy was seen as a method for aiding students in their ability to control their thought processes while reading. The goal of the training was to improve comprehension levels. The ten intervention lessons were conducted over a twelve-week period.

Lesson one began with the introduction of comprehension monitoring. Teacher-led discussion revolved around the importance of comprehending the material which is

being read. Self-questioning was introduced as the first step in comprehension monitoring. A comparison between a reader and a reporter was made. Reporters were identified as individuals who interview people, whereas readers are individuals who interview writers. Students were asked to think of themselves as a reporter when they are reading. Reporters get their information from the people they are interviewing, and readers get their information from the writer and any background knowledge he brings with him to the selection.

Lesson two was based on a form of a question-answer relationship strategy. Students were taught that information and ideas are not always formed solely on what is written in the text. The relationship between ideas from the story and ideas the ready already has was explored in this lesson. The students and teacher discussed that sometimes an author gives clues to an idea without bluntly writing that idea. The author sometimes wants the reader to do more work by thinking about what he has written and combining that knowledge with what the reader already knows and thinks about the topic.

Lesson three marked the introduction of the think aloud. The idea of think aloud was established by the main question, "Is the story making sense?" Students were explicitly taught how to read short sections of text, stop periodically, and ask themselves if the section was making sense. They responded to the question and a discussion followed.

Lesson four was a cumulative review of what was taught in the first three lessons. Discussion was included and uncertainty was clarified.

Lesson five introduced a predict-read-verify strategy. Students presented their predictions either verbally or in written form prior to reading. During and after reading,

students evaluated their own predictions. Through think aloud, students discussed how accurate they felt their predictions were prior to reading. After short segments of text, students verified predictions. Attention was brought to the idea that sometimes predictions need to be altered, more predictions can be made, and others can be discarded.

Lesson six focused on understanding unstated information. Inferencing skills were taught via think aloud. Students verbalized what information the writer left out by using context clues directly stated in the text and what the reader already knows. Reference was made to the second lesson in that a reader must merge what is stated with clues the author has provided and what background knowledge the reader possesses.

Students were taught retelling skills in lesson seven. It was presented as a think aloud strategy to be used to help a reader better understand and recall a story. Important and unimportant details were discussed. Retelling focused primarily on main characters, main events, and outcomes.

Lesson eight reviewed how to read a section, stop, and question oneself as to whether or not the material was making sense. When the student stated that it was not making sense, two correction strategies were employed. The first one was to reread the section of the text. It was discussed how sometimes minor details are missed during an initial reading. The second correction strategy was to read-on and withhold judgment. It was discussed how sometimes text is confusing because all details have not been revealed in the short section which was read. Sometimes clarification is found by reading on and connecting new information to what was initially read.

The final two lessons consisted of review instruction and guided practice of the first eight lessons. The repeated review and guided practice ensured that students understood the strategies presented. This understanding was a critical component in students' independent use of the strategies.

This explicit teaching model consisted of four steps in each lesson. The four steps consisted of: (a) What: a definition, description, or example of the comprehension strategy that is being taught; (b) Why: an explanation of why the strategy is important and how it will help the students become better readers; (c) How: explicit instruction in how to use the strategy, which includes an oral explanation, teacher modeling, guided practice, and independent practice; and (d) When: includes an explanation of situations when the strategy should and should not be used.

CHAPTER 4

ANALYSIS AND INTERPRETATION OF THE DATA

Analysis of the Data:

The purpose of this study was to determine whether the use of a metacognitive reading strategy would increase independent reading levels in a group of third grade students in a general education classroom. This study required explicit and systematic instruction in a strategy focusing on comprehension monitoring. The study was evaluated through the use of an individual reading inventory administered to subjects prior to direct instruction in the strategy and after fifteen weeks of instruction with the strategy. The independent reading levels obtained from the pre-testing were compared to those gained during the post-testing. Results are displayed in Figures 1 through 14. Student scores are coded with an "A" or a "B". "A" represents the students' pre-test scores, whereas "B" represents their post-test results.

Data gathered through the course of this research project indicated that the instruction in the metacognitive reading strategy was advantageous in raising independent reading levels. All participants showed growth in their reading levels after receiving the intervention when compared to their results on the baseline assessment. Figures 1 through 14 show the progress made by each student. On average, subjects gained approximately one year's growth in all three reading levels: independent, instructional, and frustration. The average amount of growth shown, when analyzing independent

reading levels, was almost one year (.96). This average showed the greatest growth out of the three reading levels (.86 for instructional and .93 for frustration).

Of the fourteen students who participated in this study, all showed growth in their independent reading levels. One student showed one half year's progress, whereas the remaining thirteen showed one year's growth. When analyzing the instructional reading levels, five showed one half year's growth; seven showed one year's growth; and three showed one and one half year's growth. Contradictory to the results acquired from the independent and instructional reading levels, not all students showed improvement in their frustration level. One student's scores did not change from her pre-test prior to the introduction of the strategy. Of the remaining thirteen students, three showed one half year's progress; eight showed one year's growth; one showed one and one half year's advancement; and one showed a two year increase of scores.

Another method of analyzing the data to determine the success of the strategy intervention is to compare individual student's scores. A majority of the students showed one year's growth in all three reading levels. This means that they gained one year in their independent, instructional, and frustration reading levels. This amount of growth can be seen when analyzing the scores of Students 6, 7, 10, 12, 13, and 14. Student 1 displayed one half year's progress in all reading levels. Students 2, 3, 4 and 9 showed one half year's progress at least one level, and one full year's progress in the other level(s). Three students showed more than one year's growth in at least one reading level. This progress can be seen when analyzing Student 5, 8, and 11. Student 5 showed one and one half year's growth in her instructional reading level. Student 8 showed one

and one half year's progress in his instructional and frustration reading levels. Student 11 showed two year's progress in her frustration reading level.

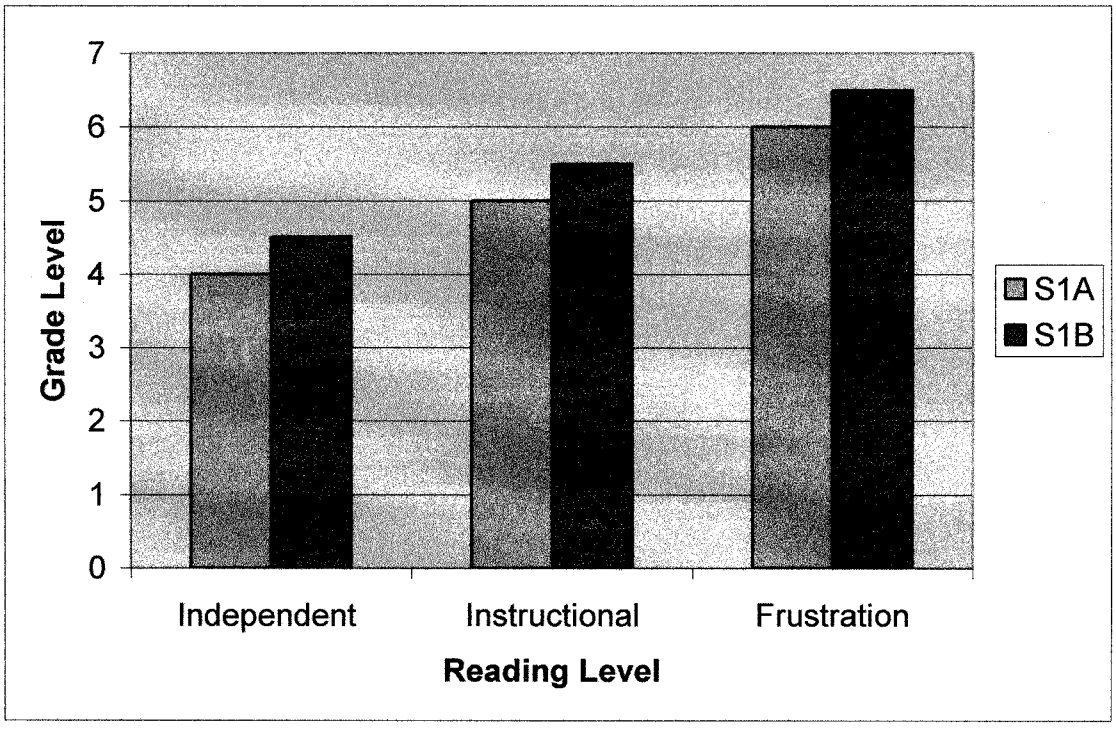

Figure 1. Student 1 Pretest and Posttest Comparisons.

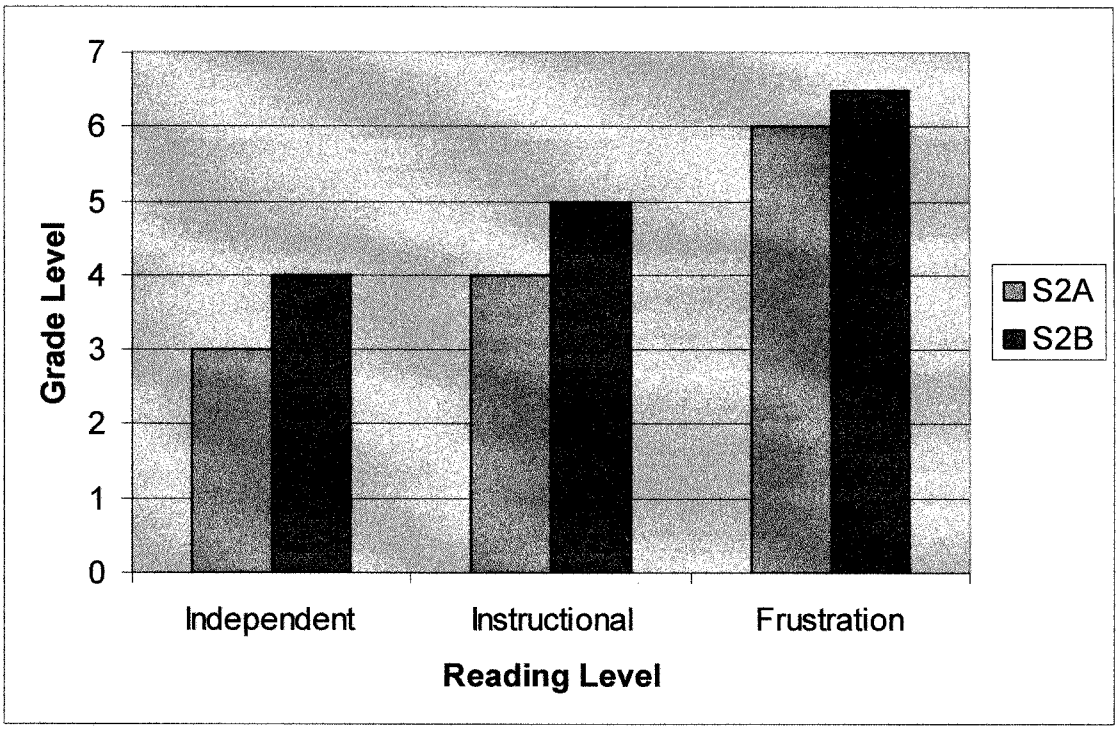

Figure 2. Student 2 Pretest and Posttest Comparisons.

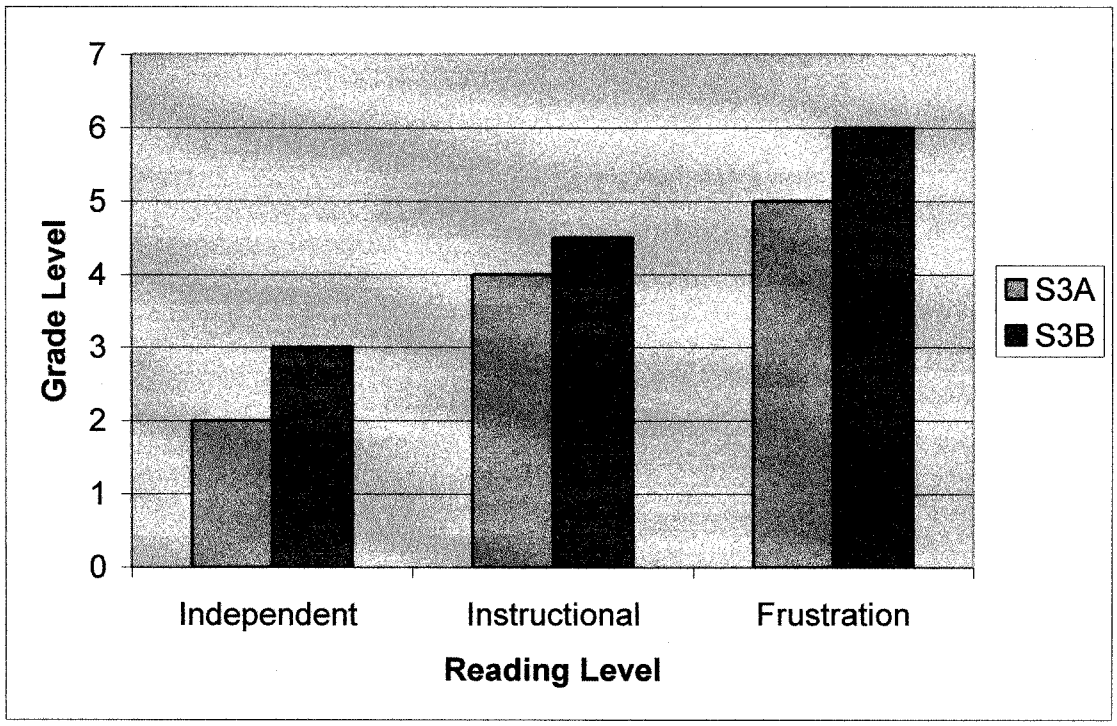

Figure 3. Student 3 Pretest and Posttest Comparisons.

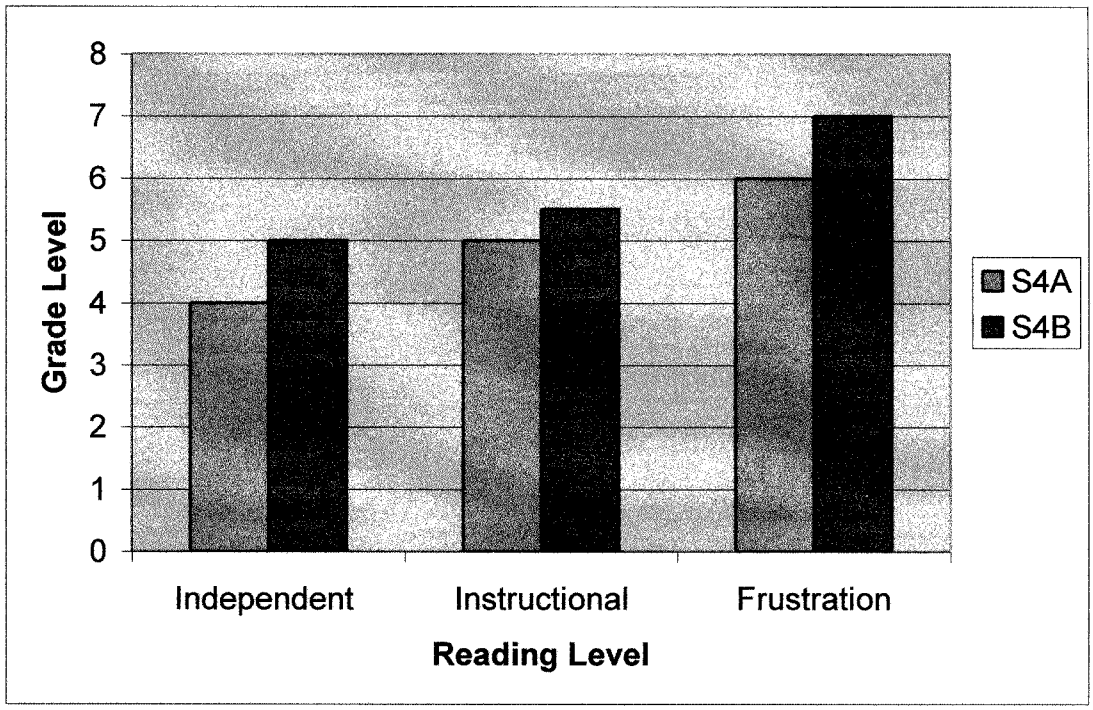

Figure 4. Student 4 Pretest and Posttest Comparisons.

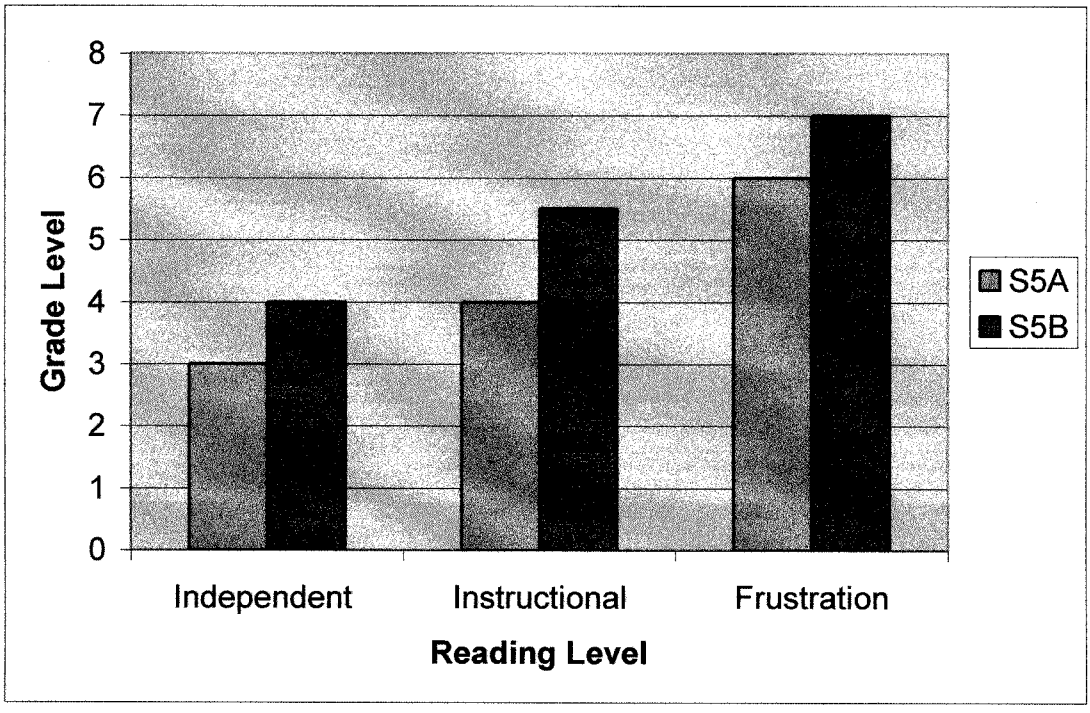

Figure 5. Student 5 Pretest and Posttest Comparisons.

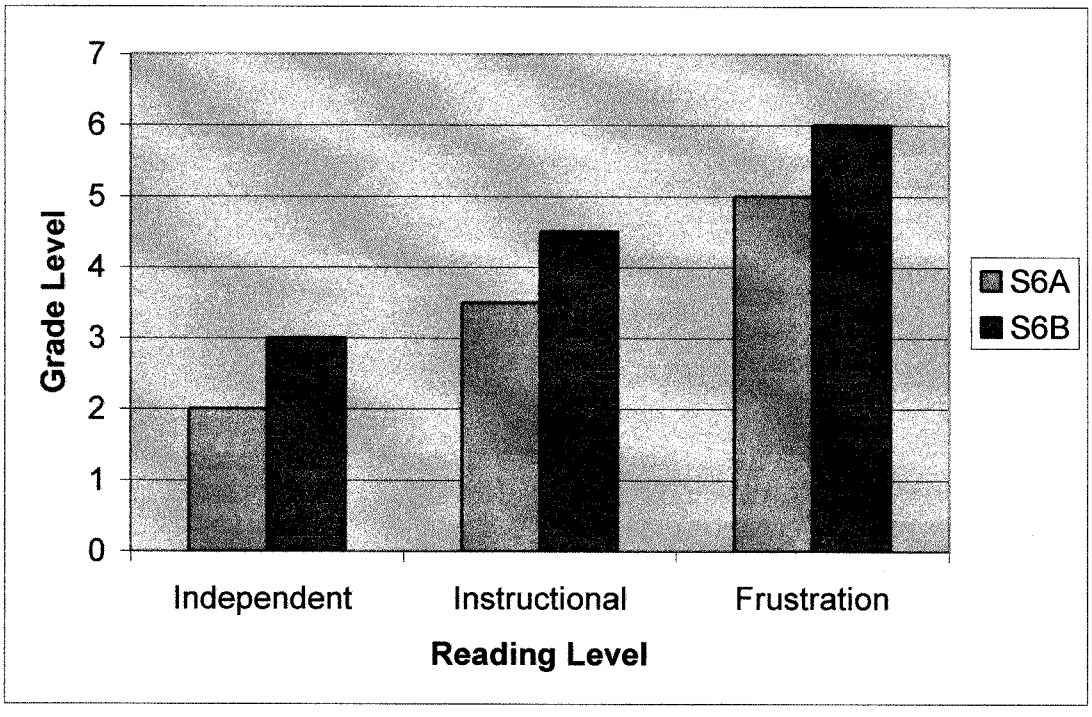

Figure 6. Student 6 Pretest and Posttest Comparisons.

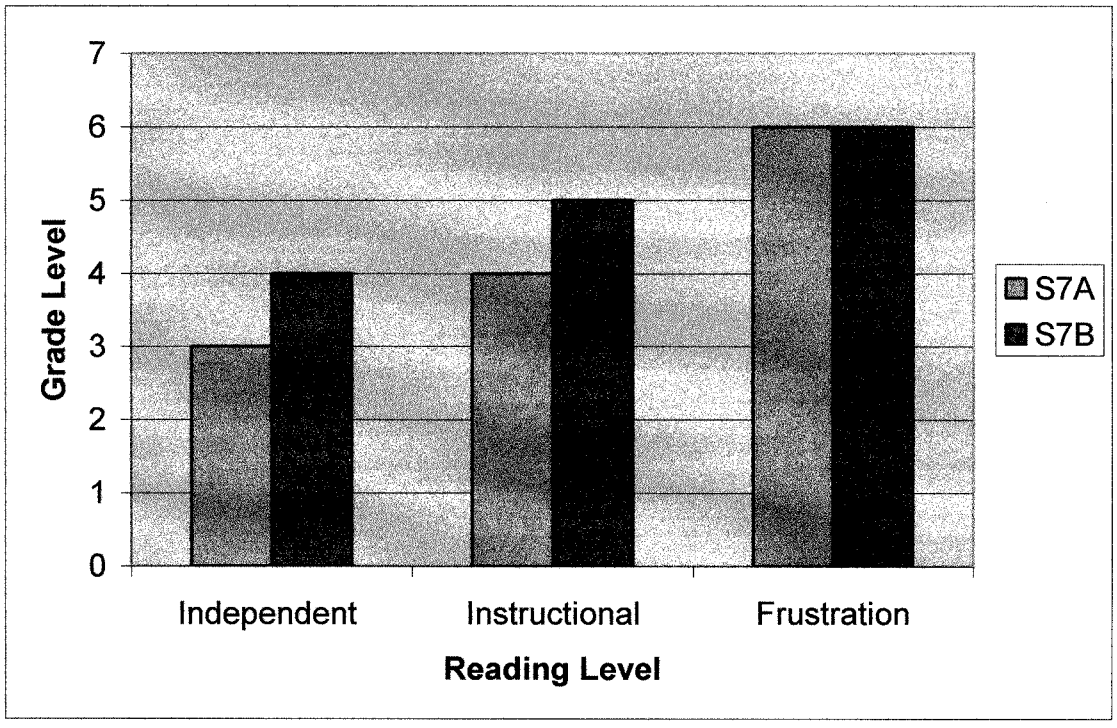

Figure 7. Student 7 Pretest and Posttest Comparisons.

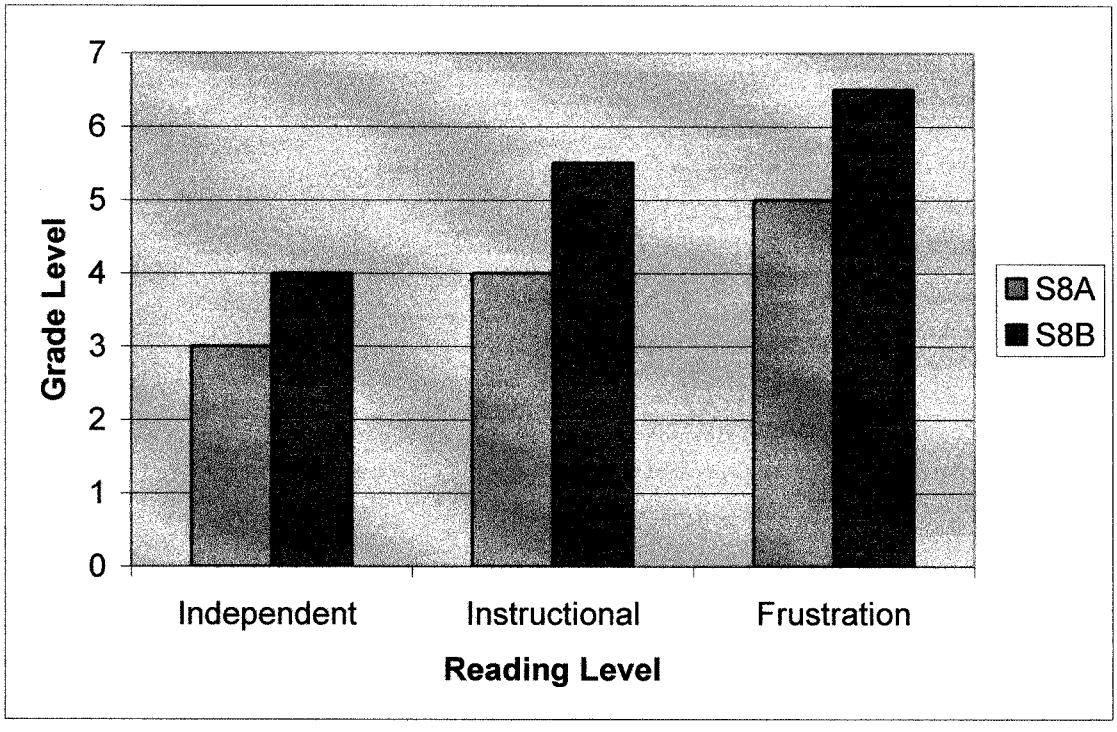

Figure 8. Student 8 Pretest and Posttest Comparisons.

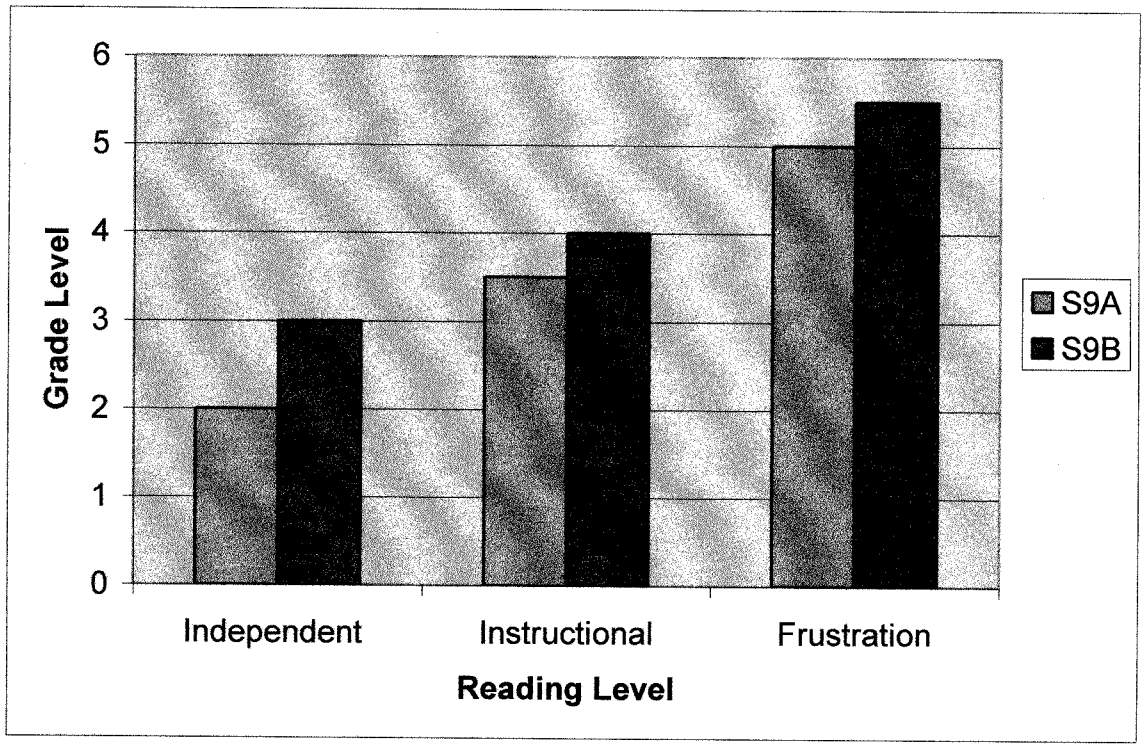

Figure 9. Student 9 Pretest and Posttest Comparisons.

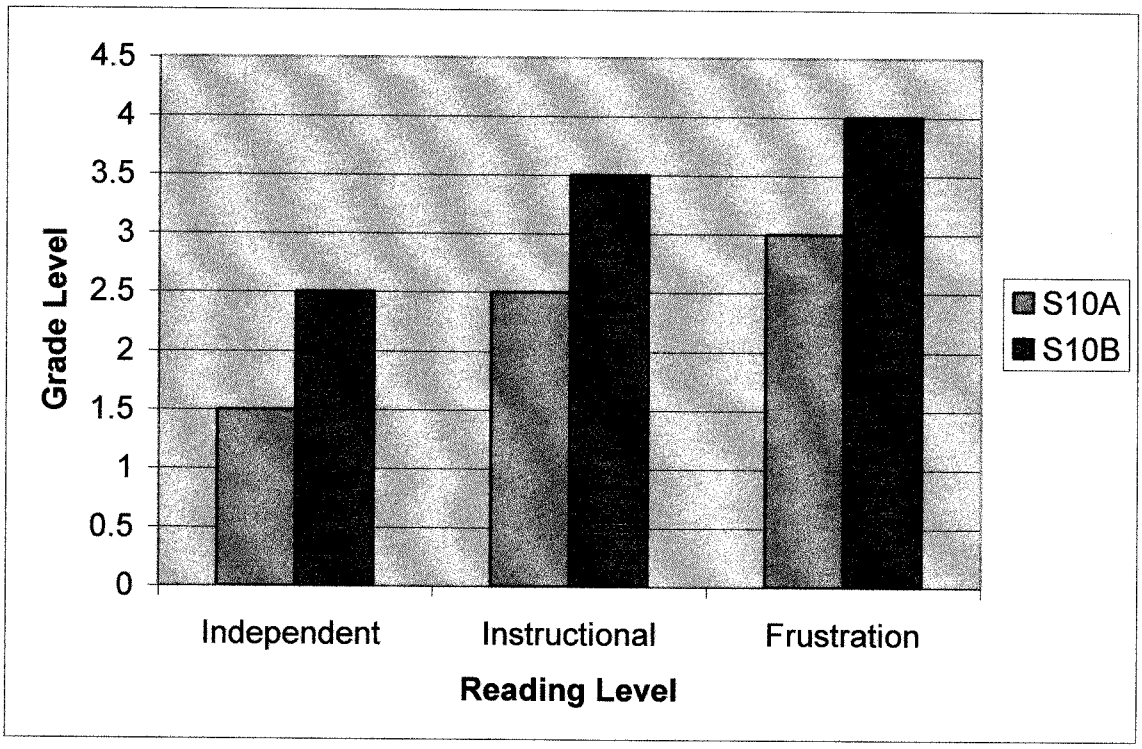

Figure 10. Student 10 Pretest and Posttest Comparisons.

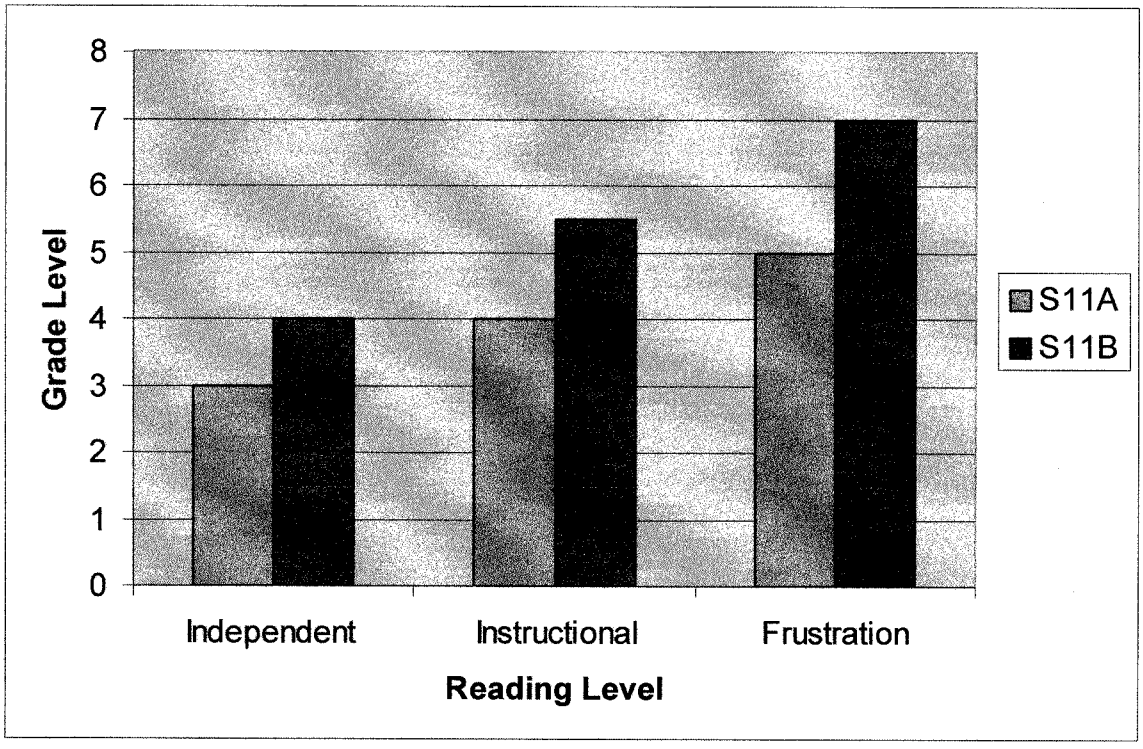

Figure 11. Student 11 Pretest and Posttest Comparisons.

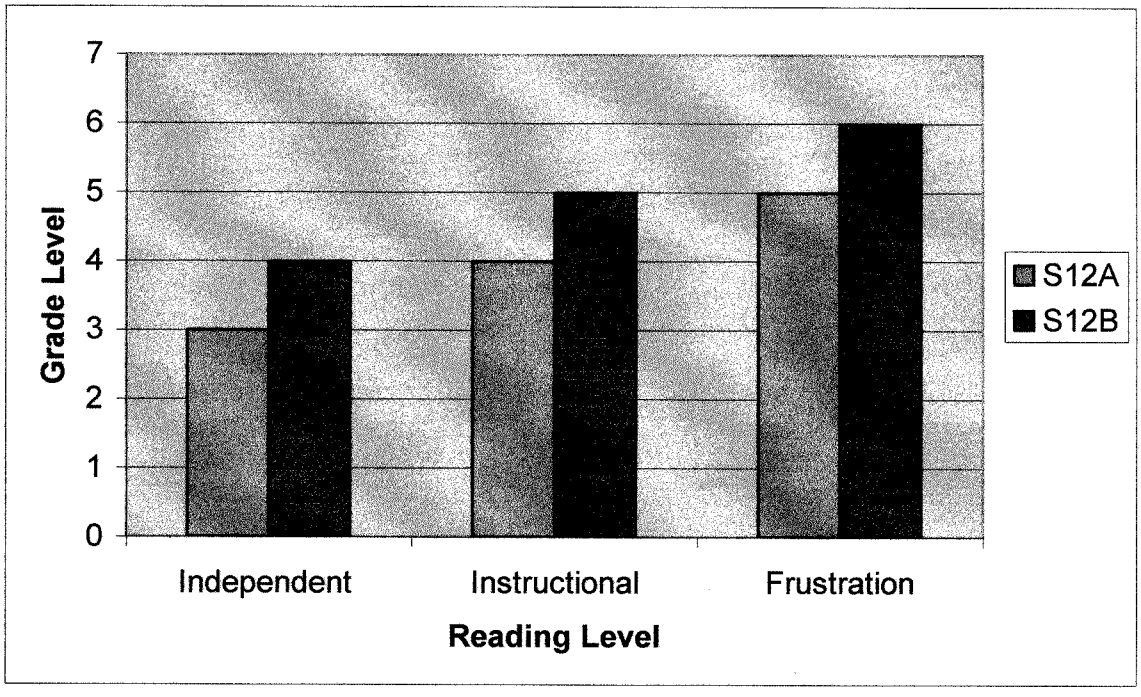

Figure 12. Student 12 Pretest and Posttest Comparisons.

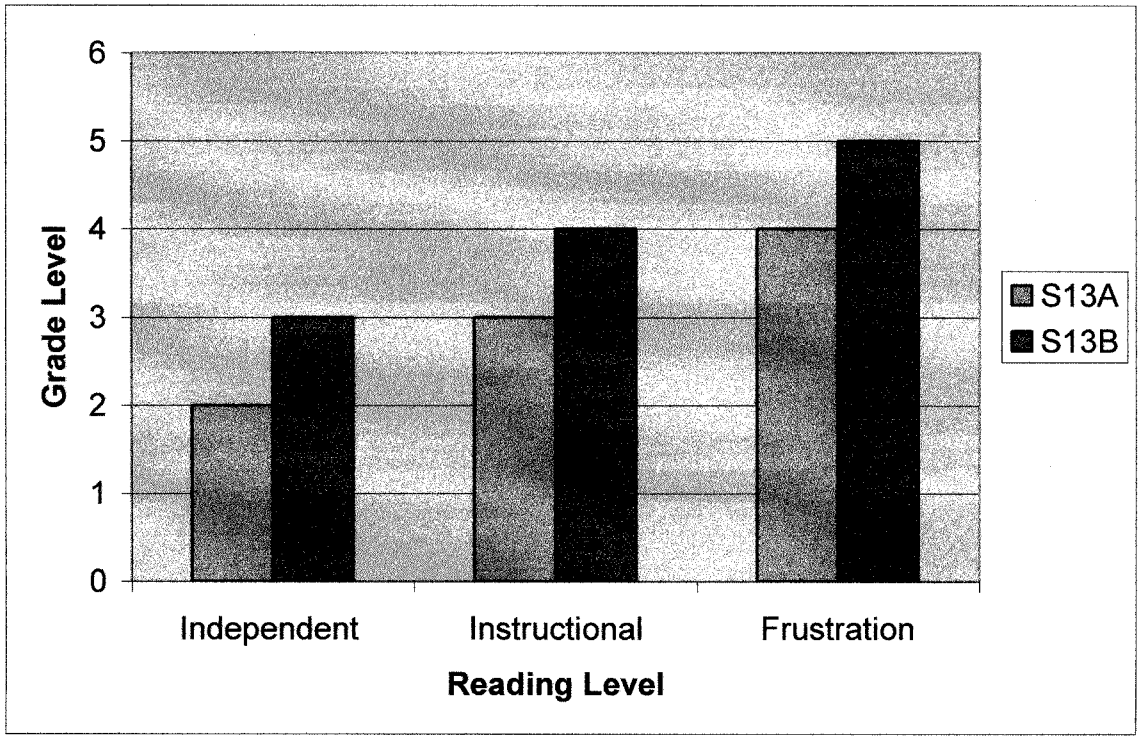

Figure 13. Student 13 Pretest and Posttest Comparisons.

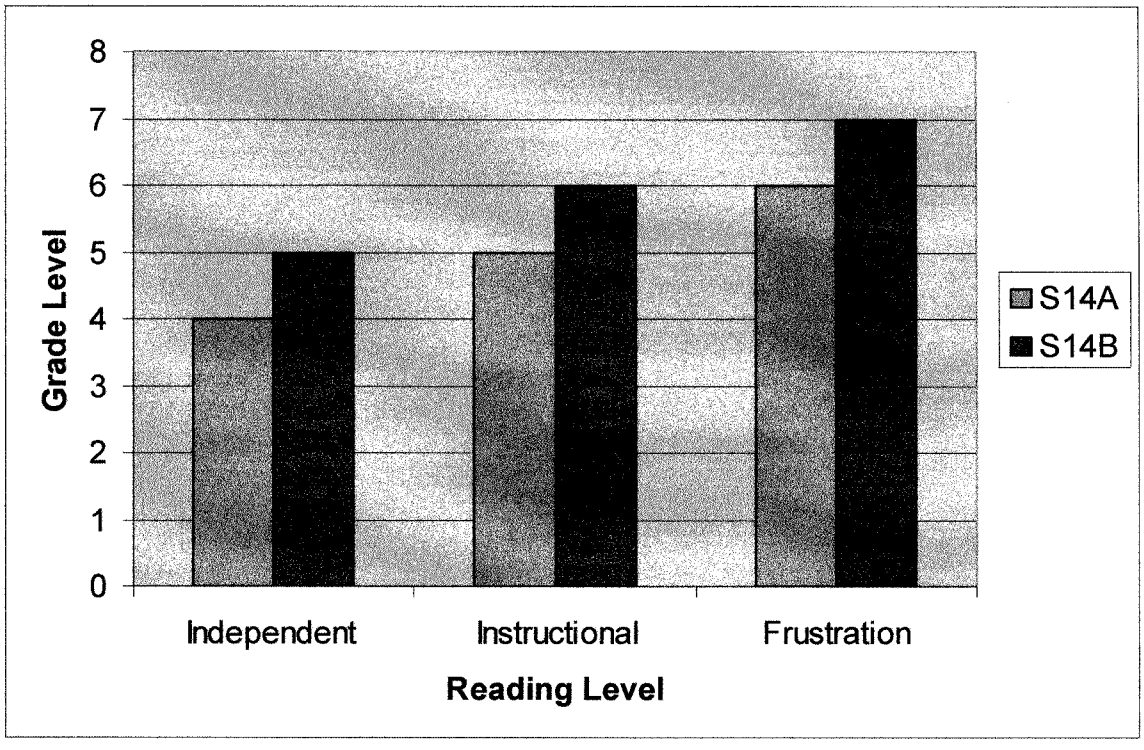

Figure 14. Student 14 Pretest and Posttest Comparisons.

CHAPTER 5

SUMMARY, FINDINGS, AND DISCUSSION

Summary:

This study investigated the effectiveness of a metacognitive think-aloud strategy used to improve reading comprehension in a group of third grade students. Fourteen general education students were pre-tested using an individual reading inventory to determine baseline independent, instructional, and frustration reading levels. Explicit and systematic instruction in the strategy, as well as hands-on practice with each component of the strategy, lasted for twelve consecutive weeks. Subjects were then post-tested with different forms of the initial reading inventory. Comparisons of pre-test and post-test scores indicate an average of one year's growth in the independent, instructional, and frustration reading levels for all subjects involved in the study.

Findings:

Results of this study indicated that the instruction in the metacognitive reading strategy was advantageous in raising reading levels (independent, instructional, and frustration) in the students exposed to the direct instruction. All subjects showed growth ranging from one half year to two years after receiving the intervention when compared to their baseline assessment results. The average amount of growth shown, when analyzing independent reading levels, was almost one year (.96). This reading level showed the greatest amount of growth when compared to the progress shown in instructional and frustration levels (.86 and .93 respectively). These data support the

author's hypothesis that utilization of explicit and systematic instruction in a metacognitive think-aloud strategy can improve reading levels among students.

Discussion:

The area of reading is one in which multiple processes must occur simultaneously in order to reach success. Individuals must be able to decode words and assign meaning to the words, sentences, and paragraphs. This comprehension of material is the ultimate goal of reading. There are many complexities that sometimes jeopardize comprehension of material. Many times, the reader does not actively engage in the material being read, which in turn compromises comprehension. Teachers frequently are at a loss as to how to teach comprehension to their students. Many basal readers frequently check for comprehension, but fail to actually teach it.

This study was designed to implement a specific metacognitive strategy in an explicit and systematic manner in order to teach students how to comprehend the material being read. The strategy used was a think-aloud strategy aimed to improve monitoring and self-correction abilities. It was seen as a method for helping students in their ability to control their thought processes while reading.

Twelve third grade students in a general education classroom were used as the subjects for this study. The *Jerry Johns' Basic Reading Inventory* was used to pre-test and post-test students. The class was split into two halves. One half of the class received Forms A and D as a pre-test and Forms B and C as a post-test. The other half of the class received Forms B and C as a pre-test and Forms A and D as a post-test. Twelve weeks of intervention were given using explicit and systematic measures to implement the think-aloud strategy.

Previous research in area of reading comprehension has also focused on the impact of teaching specific strategies in order to improve levels of comprehension. According to Payne and Manning (1992), students who participated in a experimental group receiving direct instruction on self-monitoring techniques to be employed when reading basals obtained significantly higher reading comprehension scores than those in the control group. Another concurring study is that of Baumann, Seifert-Kessell, and Jones (1992). Their experiment also measured effects of think-aloud instruction on students' comprehension monitoring abilities. Their results indicate that students with exposure to strategies actually demonstrate greater use of them when reading independently. Not only did those students in the experimental group demonstrate more behaviors related to what proficient readers do, but they also exhibited a greater range of behaviors and strategies.

Comments:

Limitations associated with this study should be taken into account when analyzing the data presented. One limitation is that subjects were not assessed for comprehension strategies they typically implement when reading prior to instruction in this intervention. An analysis of strategies recruited when there is a breakdown in comprehension would be helpful in the determination of the effectiveness of instruction in this metacognitive think-aloud strategy. That additional information would be beneficial in determining whether the growth presented was due to the actual implementation of the strategy or normal school progress and/or maturation.

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