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The Effects of the Replication of an Experimental Reading and Thinking Strategies Curriculum on the Reading Comprehension and Metacognitive Skills of Third Grade Students

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THE EFFECTS OF THE REPLICATION OF AN EXPERIMENTAL

READING AND THINKING STRATEGIES CURRICULUM ON

THE READING COMPREHENSION AND METACOGNITIVE SKILLS

OF THIRD GRADE STUDENTS

THESIS

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Abstract

This study investigated the effectiveness of improving the reading comprehension of third grade students through the direct instruction of metacognitive strategies by teaching an experimental curriculum of Reading and Thinking Strategies (Paris, 1989). Awareness of strategy use was also addressed.

Thirty third-grade students from a rural setting made up the control and experimental groups. The experimental group received twenty weeks of metacognitive strategy instruction taught twice a week. Cloze tests and strategy awareness tests were administered as pre and posttests to determine reading comprehension improvement. Results indicated that students instructed in metacognitive strategies improved their reading comprehension.

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Chapter I

Statement of the Problem

The purpose of this study was to determine the effect of direct instruction and modeling of an experimental curriculum of Reading and Thinking Strategies (Paris, 1989) on third-grade students' awareness, acquisition and retention of reading and thinking strategies.

Thirty-five third-grade students (mean age 8 years, 5 months) who attended a rural setting school served as subjects. One class received the training; the other class served as the control group receiving routine literature-based reading instruction taught in the school.

Questions to be Answered

This study attempted to answer the following questions:

Is there a statistically significant between the

posttest scores in reading comprehension and awareness of

metacognitive strategies for a third grade control group and an

experimental group receiving direct instruction in reading and

thinking strategies?

Need for the Study

The majority of researchers agree that metacognition

plays a role in reading and learning. The key to benefiting from

metacognition is to be aware that there is a variety of

strategies and approaches to understanding content that must

be used flexibly. The critical component is the conscious

regulation and direction of thought, which requires stepping

back and considering what we have been doing cognitively.

Reading has a cognitive component of skills required to decode, comprehend, and learn from texts. Metacognitive awareness appears to level out by the middle grades (Cross & Paris, 1988), thus it is imperative to instruct and model strategies that will allow young readers to derive more meaning and enjoyment from texts. Studies have shown the need to directly teach instructional strategies and the reasons they are used in certain situations. Teaching strategies can allow the students to enjoy their classes more, have greater control over their learning, and derive more meaning from their reading.

John Locke stated "Reading furnishes our mind only with materials of knowledge; it is thinking that makes what we read ours".

Definition of Terms

In this study the following terms are defined as follows:

Metacognition: The knowledge and control children have over their own thinking and learning activities. RTS (Reading & Thinking Strategies), (Paris 1988): A curriculum designed to teach use and awareness of reading strategies.

Evaluation: The analysis of task characteristics and personal abilities that affect comprehension.

Planning: The selection of particular strategies to reach the goals that have been set or chosen.

Regulation: The monitoring and redirection of one's activities during the course of reading to reach the desired goals.

Declarative Knowledge: An understanding of what factors (strategies) influence reading (Paris 1988).

Procedural Knowledge: An appreciation for "how" skills or

strategies operate or are applied (Paris 1988).

Conditional Knowledge: An understanding of the occasions "when" particular strategies are required and "why" they affect reading (Paris 1988).

Chapter II.

Review of the Literature

Purpose of the Study

This study was proposed to examine the relationship between achievement and awareness and use of reading strategies after direct instruction and teacher modeling of the strategies.

A review of related literature includes the following topics: describing the framework of metacognition, looking at student awareness of strategies used in reading, assessing differences between good and poor readers, and investigating how metacognition is measured.

Metacognition   Framework

Metacognition has an elusive framework making it difficult to achieve consensus in defining the elements of the theory.   Metacognition can be described as being consciously aware of our own and others' cognitive operations.   It stresses "how to learn".   Flavell(1976) referred to metacognition as "cognition about cognition"; "knowing about knowing".

It has been determined that two concepts are the major components for metacognitive theory - self regulation, and the motivational beliefs associated with strategy use (Borkowski, Estrada, Milstead & Hale, 1989). Borkowski et al. (1989) state that "The function of self-regulation is to analyze and 'size up' tasks in order to select an approach to problem solving by choosing a viable strategy and monitoring the course of learning by adjusting or revising the strategy. Self-regulation is the heart of metacognition" (p.58).

Borkowski (1992) stated that his metacognitive theory

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contained two assumptions: "Every important cognitive act has

motivational consequences, and, furthermore, these

consequences potentiate future self-regulatory actions"

(p.253). He also agreed that self-regulation is the heart of

metacognition. Borkowski states that strategies need to be

modeled from a metacognitive framework using reciprocal

teaching and guided discovery .

In 1987 Hunkins explained in his article the need to

model the processes and strategies of how to learn. In order to

give control over one's own learning, strategies should be

directly taught and given rationales. "Strategies must be

modeled by the teacher first demonstrating the process. The

teacher should be very clear on telling where the strategy can

be used, giving the names of the strategies and how to ask

particular questions at each step" (Hunkins, 1987, p. 66).

Kulieke and Jones (1993) agree that there is inadequate

teacher modeling and that a more sophisticated model of

direct instruction based on research on metacognition would focus attention on being an active learner. They feel "the learner works to construct meaning, set goals strategically, and uses specific strategies in a collaborative context for learning"(p.28). Kulieke and Jones stated that there was a shift away from low-level basic skills and isolated facts. They believe that students should be directly taught strategies.

Since there has been a shift in the definition of reading from a view of a collection of isolated skills to a total process of interrelated skills and strategies, there is an ever increasing need for direct instruction in strategy use and comprehension monitoring.

McLain (1991, p. 169) stated that "good readers use metacognitive actions to extract meaning from text and use "fix-up strategies" when they encounter difficulties in comprehension". She suggested teaching comprehension

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monitoring and "fix-up strategies".

Metacognitive Awareness in Reading

An investigation was conducted as early as 1948 by

Crossen (1948) at the University of Cincinnati, who looked at

the effect of attitudes of the reader upon critical thinking and

reading ability. Ninth grade high school students were given

two topic reading passages and a critical reading test

consisting of multiple choice questions.

Results showed that a pupil's attitude toward a topic

affects his ability to be a better critical reader. Favorable

feelings showed better reading comprehension.

The role of activity and awareness during strategy

acquisition was investigated by Borkowski, Levers, and

Gruenenfelder (1976). These researchers looked at the ability

of nursery-school and first-grade children to learn and

transfer a strategy using passive observation, active

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manipulation and active manipulation paired with viewing a film showing the strategy's effectiveness. Eighty-four percent of the children who used active manipulation showed strategy transfer.

A study on metacognitive awareness of reading strategies was conducted by Meyers II and Paris (1978). The experimenters used an individual interview method on 20 eight-year-olds and 20 twelve-year-old students randomly sampled. It was concluded that the young children were relatively unaware of many important parameters of reading. The children reported few strategies or reasons for checking their own understanding or progress and were not aware of specific characteristics of proficient readers. The children focused on exact story reproduction rather than recall of the story's general meaning. The children tended to refer to external sources, such as other people to resolve unknown information and focused on decoding goals rather than

comprehension.

Palinscar (1984) showed that direct instruction of metacognitive skills increased reading comprehension of underachieving students. Awareness on how to monitor their comprehension was a critical component (Palinscar, 1984).

Similar results in lack of awareness were noted on a study by Owings and Peterson (1980) that investigated metacognitive knowledge carried out by the least successful and the most successful students in a typical fifth-grade class in the Nashville public school system. The experiment examined whether the students spontaneously monitored how much material they mastered, what they were asked to learn and whether they regulated their study behavior. The students were asked to read and study stories in which the degree to which they made sense varied. Results determined that successful students spontaneously monitored as they read and studied. These students were aware that they were having

difficulty learning the less sensible stories and could explain why they were having trouble. With prompting the less successful students were able to distinguish between stories, but never spontaneously. This suggested that low performing students perform below their potential partly because they do not know how to monitor and regulate their learning.

Yussen and Bird (1979) conducted one of the first studies that provided empirical support for the existence of common metacognitions that children hold for different cognitive activities. This investigation assessed cognitive awareness on four and six-year-old middle class children in private schools in Madison, Wisconsin (half from preschool, half from first grade.) The children were given hypothetical situation questions in which the child was to perform one of three cognitive activities: 1. to remember something, 2. to communicate a message, and 3. to attend to a visual array. Three 25-minute sessions were carried out.

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Results reported the children's understanding of length, noise, age, and time on performance were very similar across the three cognitive domains of memory, communication, and attention for both 4 and 6-year olds. Six year olds were more accurate in overall performance than the 4-year-olds.

Awareness of realizing you don't understand text was investigated by Markman (1979). She investigated elementary school (grade three through grade six) children's awareness of their own comprehension failure when presented with inconsistent information. Results suggest that processing requirements can be complex, but children have a greater capacity for meeting these requirements than their spontaneous performance reveals. Simply informing the older children that there was a problem improved their performance fostering the idea that self-monitoring skills should be directly modeled and taught.

Nolen (1991) hypothesized that if below grade-level

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students used two cognitive strategies - self-questioning and prediction, comprehension would improve. Forty-two students in grades 6, 7, and 8 whose reading comprehension ranged from 0.6 to 3.9 years below grade level were randomly assigned to one of three groups: self-questioning with prediction (SQWP), self-questioning and control vocabulary intervention (SQ), and control vocabulary intervention (CVI). Instruction, modeling, rationale for the techniques and application of the techniques were provided by the examiner for the SQWP group and the SQ group. The CVI group received instruction and application that emphasized vocabulary development. Each group received three 1-hour training sessions on the same day of the week for 3 weeks. After the final session the students were given a 30-minute rest break before reading comprehension was assessed. Results showed that students who used the combined strategy scored higher on the comprehension test (M=30.00) than students who used just the SQ strategy (M=26.93). A one-way

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ANOVA was used to assess the main effect of the experimental treatment, which yielded a significant main effect ($p < .05$). Two months after the treatment students were randomly selected to obtain anecdotal feedback. Students said "It really helps me in class - I ask myself questions when I read" (Nolen p. 136). The students were becoming aware of monitoring their reading. They felt they could do it because they knew how.

A study conducted by Krinsky (1990) reported that adolescent students were able to assess their "feeling of knowing" that they knew the answer to a given question. Activation of background knowledge was a substantial factor.

The question of "why do the same children remain poor readers year after year?" - "What skills do they lack?" was investigated in a longitudinal study of 54 children in Austin, Texas by Juel (1988). The children were in first through fourth grades, from low socioeconomic backgrounds and from

mostly military parents. Reading tests were administered in October and April at each grade level.

Results concluded that the probability that a child would remain a poor reader at the end of fourth grade, if the child was a poor reader at the end of first grade was .88. Children who became poor readers entered first grade lacking phonemic awareness skills, which related to inadequate decoding skills. The good readers read more in and out of school, which appeared to contribute to the good reader's growth in reading. The good readers said they like to read because "you get to picture things in your mind and use your imagination" (Juel, 1988, p. 442).

Metalinguistic awareness in first grade was used to predict reading achievement in third and fifth grades by Dreher and Zenge (1990). Interviews were conducted with 98 randomly selected first grade students to evaluate (a) ability to isolate letter, words, sounds (b) understanding of reading as

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a meaning-gathering process, (c) understanding terms used in reading instruction. Results indicated that awareness at this first grade level was a statistically significant predictor of students' reading comprehension performance in third and fifth grade. These results lead for the need for further research.

The effect of background knowledge and metacognition on the acquisition of a reading comprehension strategy was investigated on low to middle class fourth and fifth-grade boys in a North Carolina public school by Gaultney (1995). The study was conducted on boys who were placed in the Focus Reading or Dropout Prevention program. The purpose was to determine the effect of expert and metacognitive knowledge on learning a strategy. The experimental group was trained in the use of a reading strategy (asking why questions) using baseball stories (the boys had a high level of baseball knowledge). The control group was trained with nonbaseball stories.

Results showed that boys trained using baseball stories

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demonstrated greater strategy use than boys trained using the nonbaseball stories. Benefits of expertise may have relevance for poor readers, which supports the need for strategy instruction.

Differences Between Good and Poor Readers

Several studies have been conducted to investigate differences between good and poor readers including strategies employed by good readers. It has been reported that good readers consistently use strategies to enhance their comprehension and poor readers expend too much energy on decoding instead of semantics.

The responses of good and poor readers when asked to read for different purposes was explored by Helen K. Smith at the University of Chicago (1967). High school seniors were asked to read for two different purposes: details and general impressions. In intensive structured individual interviews

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conducted on two consecutive days fifteen good readers and fifteen poor readers were asked to read passages and answer questions as they were being tape recorded.

Data revealed that good readers read for both purposes with equal success. Good readers adjusted their reading procedures to the two purposes and were much more successful than poor readers in reading for details. Poor readers only slightly varied their reading approach. The quality of responses of good readers was superior to the poor readers.

A study carried out by Paris and Meyers II (1981) examined differences in comprehension monitoring between good and poor readers during oral reading. Thirty-two fourth graders from rural Indiana schools served as subjects - two groups of 16 good and 16 poor readers. Reading tasks consisted of altered passages of two third and two fifth grade level stories with questions administered to individual

students in a quiet room for 25 minutes with student orally

reading. Students were told to underline words or phrases

they didn't understand.

Results indicated "poor readers did hesitate, repeat, and

self-correct while reading, but they did not evaluate the

anomalous (not normal) information to the same degree as good

readers. They failed to monitor exactly the information that

most required comprehension checking" (Paris & Meyers II,

1981, p. 10). Good readers recognized 70% of the

incomprehensible phrases while poor readers only noticed 35%

- (p < .01). Poor readers made more errors on comprehension

questions than good readers. Good readers recalled more than

poor readers. The experimenters felt that it may be that poor

readers focused on decoding goals and did not attend to the

meaningfulness of sentences.

In 1988 an instructional study investigating the relation

between children's metacognition and reading comprehension

was conducted by Cross, Paris and Lipson (1984) on 87 third graders and 83 fourth graders using an experimental curriculum called "Informed Strategies for Learning." The experimenters designed this curriculum to increase learner awareness and use of effective reading strategies. The goal was to teach children about the existence and use of effective reading strategies.

The experimental group was taught through direct instruction about using strategies through three kinds of knowledge - declarative (knowing that something is a strategy, procedural (knowing how to use the strategy), and conditional (knowing when to use the strategy and why). The experimental group was also taught how to evaluate, plan, and regulate their own comprehension in strategic ways. There was a high level of student involvement and frequent practice with immediate feedback. There was a gradual release of responsibility from the teacher to the student through

modeling of the target strategies, guided practice and independent application of the target strategies. Rationales were provided for each of the strategies so that the students would be motivated to use then independently and selectively.

Results showed significant correlations (p <.01) between comprehension and reading awareness for both third graders and fifth graders. Students in the experimental classrooms gained significant improvements in their reading skill as measured from pretest to posttest due to more awareness and monitoring of their own learning.

A study was conducted on the effects of metacognitive strategies on reading comprehension by Tregaskes (1989). Sixth-grade students from a rural setting in Arizona were trained for twelve weeks in the instruction of five metacognitive strategies. Pre- and posttests were administered using cloze and error detection tests.

Results indicated that students, who were instructed in

the use of metacognitive strategies increased reading comprehension more than students who didn't receive training. A significant difference of 0.0031 was found between the mean gains of the experimental and control groups as measured by the Cloze Test and 0.0027 as measured by the Error Detection Test.

A two part investigation by Reynolds, Shepard, Lapan, Kreek, and Goetz, (1990) substantiated an earlier study by Paris and Meyers II (1981), which concluded that good readers actively monitored their comprehension and learned and recalled more important information.

In experiment 1 of this study 45 tenth-grade students (25 more successful readers and 20 less successful readers) were told that the experiment was being done "to see how they read and understand text from computers". The subjects read the 36-page experimental passage answering questions at the end of each zone. Two paper/pencil tests were completed

after reading the experimental passage. Then the subjects were individually interviewed to assess their awareness of using a strategy to help them learn. Results revealed three findings - both successful and less successful readers employed the SAS in an attempt to learn the information. The interview revealed that successful readers recognized the task posed by the questions using the SAS quicker and efficiently, and the more successful readers showed a causal relationship among importance, attention, and learning.

In experiment 2 of their study perceptual attention (used in accurately decoding words) and conceptual attention (used to get meaning from the text) were measured with 67 tenth grade student volunteers (39 more successful readers and 28 less successful readers) listening or reading words or story passages. Results established that more successful readers used significantly more conceptual attention while reading than did less successful readers (Reynolds et al., 1990).

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A study by Kletzien (1991) compared the comprehension of good and poor U.S. high school readers by having them read three expository passages of increasing difficulty and then having the subjects explain their reasoning processes for the cloze responses. Results showed good comprehenders using key vocabulary, rereading, making inferences, and using previous experiences to construct their responses. These strategies were used consistently from the easiest passages to the most difficult. Poor comprehenders used some of the same strategies on the easiest passages, but strategy use declined as the passages got more difficult.

Research by Fehrenback (1991) compared reading process strategies of gifted readers with those of average readers from a population of 300 eighth, tenth, and twelfth-grade students in 14 Pittsburgh schools. Eight effective reading process strategies were identified as being used significantly more by gifted readers. These strategies were

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rereading, inferring, summarizing, using visual imagery, analyzing structure and content, identifying personally, predicting, and evaluating (making a judgment statement about the information).

Meta memory differences between good and poor learners was researched using college students at Loyola University by Cull and Zechmeister (1994). This study looked at the ability of students to judge whether an item they had studied had been learned well enough to be recalled on a later test. Forty-one introductory psychology students, tested individually were given five minutes to study a stack of flash cards containing associative word pairs then given a written test. Next a second list was presented on a computer then subjects were given a written test of recall. Results showed the mean proportion recall was .83 for good learners and .33 for poor learners.

Measuring Metacognition

Mayer- McLain, Gridley, and McIntosh, (1989) proposed that a reliable and valid scale to measure metacognitive strategy use in reading comprehension was needed. He tested the Index of Reading Awareness Scale developed by Jacobs and Paris in 1987.

The procedure involved 145 students in the third, fourth, and fifth grades from a laboratory school affiliated with a public university in the Midwest, which included all levels of socioeconomic, race, and achievement levels. The Index of Reading Awareness was administered to groups of 6-10 students and the test was scripted to control for differences in reading abilities. The students recorded their answers and the test was computer scored. The Woodcock Reading Mastery Test-Revised was individually administered. Half of the students were given Form G and half Form H.

Results concluded that means and standard deviations for

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the IRA total score and for the WRMT-R showed that this sample scored above average. (p <.05). Item total and internal consistency reliability were acceptable. Mayer concluded that the IRA sould be used cautiously if only relying on that one score.

Schmitt (1990) developed a Metacomprehension Strategy Index (MSI) to evaluate elementary students' awareness of prereading, during reading, and postreading metacomprehension strategies for reading narrative texts. The scale consisted of 25 multiple-choice items which asked students about the strategies they could use before, during and after reading a narrative selection. Strategies measured by the MSI were predicting and verifying, previewing, purpose setting, self questioning, drawing from background knowledge, and summarizing and applying fix-up strategies. Schmitt compared the MSI to the Index of Reading Awareness (IRA) and found a statistically significant correlation between the MSI

and IRA (r=.48, p <.001).

Chapter III

Design of the Study

Purpose of the Study

This study was proposed to examine the relationship between reading achievement and use of metacognitive strategies after direct instruction and teacher modeling of the strategies. Awareness of reading strategies was also investigated.

Research Questions

The following were the research questions:

Is there a statistically significant difference between the posttest reading comprehension scores for a third grade control group and an experimental group receiving direct instruction in reading and thinking strategies?

Is there statistically significant difference between the posttest awareness of metacognitive strategies scores for a third grade control group and an experimental group receiving direct instruction in reading and thinking strategies?

Methodology

Subjects

This study involved 40 third graders (mean age = 8 years, 5 months) from two third -grade classes. One class received direct taught training and the other third grade class served as the control group taught by the classroom teacher in literature-based instruction. Each classroom was hetergeneously grouped with a nearly equal number of boys and girls and the demographics are similar (mostly Caucasian).

Measures

Assessment included tasks designed to assess reading comprehension and awareness about reading. Reading comprehension was measured using the cloze passages section of the Stanford Achievement Test (SAT, 5/95) as a pretest, and the Pupil Evaluation Program in Reading (PEP, 5/96) as a posttest.

Awareness of reading strategies used in the reading process was assessed by administering the Index of Reading Awareness (Paris, 1987) in November 1995 as a pretest and the Strategy Awareness test included in the Reading & Thinking Strategies curriculum (Paris, 1989).

Procedure

All tasks were administered to the children in their classrooms as a complete group. A pretest in metacomprehension strategies was given in November to both

the experimental and control groups using the Index of Reading

Awareness (Paris, 1987). The Cloze Passage Reading

Comprehension section of the Stanford Achievement Test was

used as a pretest in reading comprehension. This had been

administered to both the experimental and control group in May

1995.

Instruction in metacognitive reading strategies was

given to the experimental group for a period of twenty

consecutive weeks. The instruction consisted of a Reading &

Thinking Strategies curriculum (Paris, 1987) taught twice a

week (30 - 45 minutes each session).

Direct questions, dialogues, analogies, modeling, and

group discussions stimulated children to think about reading

strategies. Each lesson also included worksheets, which

required the children to read high-interest material and to

apply the instructed strategy. Discussion followed the

worksheets providing feedback about options for selecting and

using strategies.

A bulletin board accompanied each lesson to make the lessons more concrete. Metaphors were used to represent each strategy or concept. The metaphors were illustrated on the bulletin board and included several questions that directed children to think about how, why, and when to apply the strategy. The metaphors were incorporated into the worksheets and daily lessons.

After students in the experimental classes had received twenty weeks of instruction and practice using metacognitive reading strategies, students in both experimental and control classes were given posttests in both awareness of strategies and reading comprehension. The Pupil Evaluation Program in reading was used to assess improvement in reading comprehension. The Strategy Awareness Test included in the Reading & Thinking Strategies curriculum was used to assess strategy awareness in the control and experimental group.

Analysis of Data

The statistical test of Analysis of Variance was used to analyze the results to see if there was a statistically significant difference between the reading comprehension scores and awareness of metacognitive strategies scores of students taught the metacognitive reading strategies versus those students in the control group, who had been instructed with the regular literature based instruction taught in the elementary reading program.

Chapter IV.

Analysis of Data

Purpose of the Study

This study investigated the question of whether direct instruction in metacognitive strategies can be effective in answering the need for improved reading comprehension skills among elementary aged students.

The statistical test of Analysis of Variance was used to analyze the results to see if there was a statistically significant difference between the reading comprehension scores and awareness of metacognitive strategies scores of students taught the metacognitive reading strategies versus those students in the control group, who had been instructed with the regular literature based instruction taught in the elementary program.

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Findings and Interpretations of Data

Research was focused on the effects of the use of metacognitive strategies on the the reading comprehension of third grade students. It was hypothesized that there would be a statistically significant difference in the reading comprehension of those students who had been instructed in metacognitive strategies and that of students who had not received this instruction. If this hypothesis could be proven, it would be evident that the reading comprehension of students this age could be improved by instruction in metacognitive strategies.

This study was designed according to a pretest-posttest control group model, using pre-established existing classrooms. Classroom placement in the school in which the study was implemented was made by random selection. A One-Way ANOVA was employed for a analysis of the data.

Students in both the experimental and control groups

were given strategy awareness and cloze tests at the beginning and at the conclusion of the study as a measure of improvement in reading comprehension. An analysis of covariance was used to determine the statistical significance of differences in mean scores between the groups.

Table 1 reflects a synthesis of the data provided from the Index of Reading Awareness (Paris, 1987) and the strategy awareness test included in the Reading & Thinking Strategies curriculum (Paris, 1989) and the reading comprehension tests, which included the Reading Comprehension (cloze passages) section of the Stanford Achievement Test (5/95) and the Pupil Evaluation Program in reading (5/96).

Table 1

Mean Gains of Third Grade Students Who Received Instruction
in the Use of Metacognitive Strategies (Reading &
ThinkingStrategies curriculum, (Paris, 1989) As Compared to
Students Who Did Not Receive Instruction

	Reading Comprehension Test (S.A.T. and P.E.P)		Awareness Test (I.R.A. and Strategy Test-curriculum)	
	Control Group	Experi-mental Group	Control Group	Experi-mental Group
Pretest Mean	.2466	.47	7.6	8.2
Posttest Mean	.598	.7133	8.3	13.86
Mean Gain	.3514	.2433	0.7	5.66
Difference				
Between Groups	0.1081		5.59	
Significance	0.026		0.496	

Results of the data revealed a significant difference of F
(1,28) = 5.55. p = 0.026 between the mean posttest scores of
the experimental and control groups as measured by the Pupil
Evaluation Program in reading.   F (1,28) = 0.49, p = 0.496 as
measured by the strategy awareness test (Curriculum Strategy
test, Paris, 1989).   Thus the hypothesis that the difference
would be significant was sustained at the .05 level for
comprehension only.   There was no statistically significant
difference between the two groups and their posttest
awareness of metacognitive strategies scores (0.496).

Limitations

The limitations of this study were as follows:

The study did not control for students with learning
disabilities or those who received remedial reading services.

The study did not provide for longitudinal value of its
merit.

The study did not control for students who may have already had training in metacognitive awareness.

Chapter V

Conclusions and Implications

Purpose of the Study

This study investigated the effectiveness of improving

the reading comprehension of third grade students through the

direct instruction and modeling of metacognitive strategies by

teaching an experimental curriculum of Reading & Thinking

Strategies (Paris, 1989).

Conclusions

Third grade students in this study were generally

unaware of many important parameters for reading prior to

training. They were not sensitive for the need to perform

special strategies for different text materials or goals. They

tended to refer to outside sources such as other people to

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resolve unknown information due to their lack of knowledge of strategies to use for different purposes. Generally, students did not realize prior to training the need for decision-making before, during and after reading.

This project demonstrated verification of the hypothesis that there would be significant improvement in the reading comprehension of students who received metcognitive strategy instruction. These findings support the findings of Paris (1984) and Palinscar (1984).

The critical features of this project were the methods of direct modeling and naming of strategies, group discussion and the concrete metaphors for cognitive skills. This kind of functional learning fused motivation with cognitive skill. The students began to become self-controlled learners. Improved strategy awareness increased motivational will, and practice improved confidence in their ability to use the strategies flexibly. Awareness of the goal of a specific reading was a

key factor. As readers increased their awareness of processes involved in understanding text, and used strategies when comprehension failure occurred, comprehension improved.

There was not a significant difference in awareness of metacognitive strategy scores even though comprehension improved significantly. Perhaps the awareness tests designed by Paris were not sensitive enough to detect learning differences. Verbalization of a concept is still in the developing stages at this age. This initial exposure to instruction in metacognitive reading strategies with strategy names and steps may be in the process of being internalized by the children and they need more reinforcement and practice to see significant results in awareness tests. Teacher observation showed that the children were enjoying reading more and feeling more confident in their ability to tackle various readings.

Implications for Research

The use of interviews could have provided valuable information about children's perceptions of the reading process. Investigating how attitudes influence children's use of metacognitive strategies would be beneficial in acquiring precise information about methods of sustaining student motivation.

Learning styles was an area not addressed in this study. Additional research focusing on teaching children according to their perceived strengths in order to determine an effect on their reading achievement could have a significant influence.

A clearer picture of how readers use and allocate attention to reading tasks could provide interesting data correlating to metacognition.

The results suggest the need for additional longitudinal research to examine the effects of metacognitive strategy instruction on reading comprehension - will these

metacognitive monitoring strategies be maintained?

Research on the role of metacognition in math and writing

would be beneficial to students at all grade levels.

Implications for Classroom Practice

The value of this study lies in the knowledge that a

metacognitive strategy program (Reading & Thinking

Strategies, Paris 1989) is a flexible, economical program that

can be used as a supplement to the reading curriculum in

elementary grades. The program is available from D.C. Heath

Publishing Company, Lexington, MA.

The findings of this study show that metacognitive

knowledge about reading is critical for acquiring consistent

reading skills. Many children do not discover reading

strategies on their own and teachers rarely directly model

reading and thinking strategies and traditional materials such

as basal stories and worksheets usually don't provide explicit focus on strategic reading. Teachers can devise working cognitive models by being more specific in modeling their own metacognitive decision-making processes, promoting interaction in decisions about reading and hypothesizing about how a student is processing information at any given time and modifying the teaching strategy to alter the cognition and learning of the student. Teachers need to emphasize what the strategies are, how they operate, why they are effective, and when a particular strategy is used. Strategic readers are flexible and selective.

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Appendices

Appendix 1

Comparison of Pretest Experimental vs. Pretest Control in Cloz Test

```
LEVEL  1    MEAN =   .47           0.47 :   x
              s =   .292135              :   x
LEVEL  2    MEAN =   .2466667            :   x
                =   .2285878             :   x
BETWEEN :                               :   x
    df  = 1                   AVE DV    :   x
    SS  = .3740833                      : • x
    MS  = .3740833                      :   x
                                        :   x
                                        :   x
WITHIN :                                :   x
    df  = 28                    0.25 :   x                        x
    SS  = 1.926333                  ------:----------------------------------:-------
    MS  = 6.879763E-02                    1                        2
                                                     LEVEL OF IV
```

$$F\,(1.28) = 5.44, \ p = 0.026, \ \text{Eta sqr} = .16$$

Appendix 2

Comparison of Pretest Experimental vs. Pretest Control in Strategy Awareness

```
LEVEL  2    MEAN =   7.6                    :   x
                s =   2.797958              :   x
BETWEEN :                                   :   x
      df  = 1              AVE DV           :   x
      SS  = 2.699995                        :   x
      MS  = 2.699995                        :   x
                                            : • x
WITHIN :                                    :   x
      df  = 28                   7.60 :     x                              x
      SS  = 154                       -----:-----------------------------:----
      MS  = 5.5                            1                             2
                                                          LEVEL OF IV
```

$$F(1.28) = 0.49, \quad p = 0.496$$