Using Metacognitive Instruction to Improve Reading Comprehension

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Abstract

The purpose of this study was to determine the effect on reading comprehension of explicitly teaching metacognitive strategies to 20 second graders who were reading on or above grade level. Participants were taught metacognitive strategies and reminded to use them with a bookmark intervention. Pre and post intervention scores on a comprehension assessment created by the researcher were compared using a t-test for dependent samples. Participants' comprehension scores increased significantly after they used the bookmark to apply explicitly taught metacognitive strategies. The increase in mean total scores of 1.6 points (pretest mean= 4.15 to posttest mean = 5.75) was significant at the $p < .000$ level and sub-scores regarding comprehension within and about the text also increased significantly. These results suggest the think-mark bookmark intervention may help improve reading comprehension in primary students by encouraging metacognitive strategy use.

CHAPTER I

INTRODUCTION

Overview

Reading comprehension is a multidimensional process.   For readers to adequately

comprehend text, they must construct meaning actively by integrating new information with their

prior knowledge. Effective readers use metacognitive skills to monitor their understanding and

reflect on what they have read.   Metacognition is an awareness that readers apply by using

different strategies to comprehend text (Channa, Nordin, Siming, Chandio, & Koondher, 2015).

Metacognition plays a significant role in reading comprehension, and studies such as that

reported by Swanson and De La Paz (1998) claim that metacognition will not develop naturally

without direct instruction of comprehension skills. Teaching metacognitive reading strategy

awareness is an effective way to facilitate students' reading comprehension (Ahmadi, Ismail, &

Abdullah, 2013). Ahmadi et al. (2013) state that metacognitive reading strategies help students

to regulate or monitor their use of cognitive strategies as well as the effectiveness of those

strategies. Self-regulated learning involves deliberate behaviors such as planning, monitoring,

and regulation of cognitive processes. Self-regulated learners use metacognitive strategies when

they are intentional in the behaviors they choose and use to aid in comprehension.   While

explicitly teaching metacognitive strategy skills has been shown by researchers such as Block

and Pressley to improve reading comprehension, more research is needed to determine the best

ways to teach and encourage use of these strategies (McTavish, 2008).

In her role as an elementary school teacher, this researcher became interested in studying

the effect of intentionally teaching metacognitive strategies to improve students' reading

comprehension when she observed that her students were able to read fluently and apply

decoding strategies and word analysis skills. They were able to recall basic information about text including story elements of setting, characters, problem and solution. However, her students struggled to make connections with the text, infer meaning, and demonstrate deeper understanding of the text. She wished to determine whether explicit instruction in metacognitive strategy use would help her students become more aware as readers and enjoy increased reading comprehension.

Statement of Problem

The problem of interest was determining what effect explicitly teaching metacognitive strategies has on second grade students' reading comprehension.

Hypothesis

The null hypothesis was that there would be no significant difference between students' reading comprehension scores before or after they were taught to apply metacognitive strategies when reading.

ho: pre-intervention reading comprehension scores = post-intervention reading comprehension scores

Operational Definitions

Comprehension skills were assessed using a teacher-created comprehension test that required students to explain what happened in a text they read independently. The student's responses to each question were scored with a rubric reflecting three components of comprehension with points ranging from 0-3. The components rated as follows:

- ***Within the text*:** in this category students were gaining the literal meaning of the text through solving the words; monitoring their own understanding and accuracy; searching for and using information; remembering information in summary form.

Students were required to provide this information in writing, telling significant events of the story in sequence, explaining the problem and solution or information learned.   For example, "Johnny was having trouble training his new dog Spot."

- *Beyond the text***:** In this category students were required to make predictions, make connections with prior knowledge and other texts, and infer what is implied but not stated. In writing students were required to share connections they made with the text and make inferences about what they have read. For example, "Giving a dog a treat helps them want to be good."

- *About the text***:** in this category students were required to think about the literary elements of the text, recognize elements of the writer's craft, think critically about the text, and analyze parts of the text to show understanding of what they have read. For example, "Johnny learned that both people and animals need rewards"

Self-regulated learning is deliberate planning, monitoring, and regulating of cognitive behaviors toward an academic task. Using **metacognitive strategies** is a form of *self-regulated learning*.

Students used a "think mark" **bookmark** as a metacognitive strategy to monitor their reading comprehension.   The bookmark included five symbols used as "thinking marks" for students to describe their thinking to themselves as they read. Students used small post-it notes to jot down thinking marks and place in the text as they read.

Included on the bookmark were text code stems to describe what each symbol means. The symbols on the bookmarks included a checkmark, an exclamation point, a question mark, a plus sign and a letter P.

- The **checkmark** was to indicate that the student had figured out something in the text

- The **exclamation point** was to indicate that the reader had found something interesting.

- The **question mark** was to indicate that the reader had a question about something they were reading.

- The **plus sign** indicated that new information had been learned.

- The **letter P** indicated that the reader made a prediction while reading the story.

At the top of each bookmark was a small pack of post-it's for students to use to jot down their thinking as they read the text.

CHAPTER II

REVIEW OF THE LITERATURE

This literature review investigates the history of research on metacognition with emphasis on how metacognitive instruction affects reading comprehension. This review will describe key understandings of comprehension and metacognition, discuss the history of research regarding metacognition, examine assessment of metacognition, and explore how reading development may be facilitated by metacognitive strategies.

Understanding Comprehension

Comprehension is the purpose for reading; we read to understand. Reading is an interactive process in which one applies many kinds of knowledge to make meaning (Strickland, 2011). The reader has to use his or her knowledge of the world, the language system, and the content to comprehend text (Strickland). However, knowledge is not the only factor that impacts comprehension. Frey (2011) states that researchers who have studied reading comprehension have found that it is dependent on the interaction of four sets of critical variables. The first set is reader variables that include age, ability, affect, knowledge bases, and motivation. The second set of variables involves genre, format, features, and considerateness. Educational context variables comprise the third set and include environment, task, social grouping, and purpose. The fourth set of variables, or teacher variables, encompass knowledge, experience, attitude, and pedagogical approach. All of these factors have to be considered when explaining what comprises adequate comprehension instruction (Frey, 2011). A breakdown in any one of these critical variables can affect a person's comprehension of text.

Defining reading as an interactive process highlights the importance of cognitive strategies. Researchers such as Block and Pressley have found that competent readers actively

construct meaning through a process in which they interact with and integrate new information with prior knowledge (as cited in Frey, 2011). Frey explains that competent readers develop automaticity as they acquire reading comprehension strategies and are able to deploy these strategies subconsciously and automatically. Skilled readers actively construct meaning and monitor their own comprehension by questioning, reviewing, revising, and rereading to enhance their comprehension. Competent readers use metacognitive processes to monitor, control, and advance the search for meaning (Frey, 2011). Metacognition is an awareness or an understanding of knowing what strategies need to be used in order to comprehend (Channa et al., 2015). Researchers such as Frey suggest that skilled readers use their metacognitive knowledge in an orderly way to implement a plan for understanding the text. A successful reading plan includes planning for and using strategies before, during, and after reading (Frey, 2011).

Frey (2011) suggests the following steps occur to develop such a plan. Before reading, competent readers preview the text, activate prior knowledge, and set a purpose for reading. During reading, competent readers check for understanding, monitor comprehension, integrate new concepts with existing knowledge, and obtain appropriate help. After reading, competent readers summarize what has been read, evaluate the ideas contained in the text, and apply the ideas in the text to unique situations. While readers' approaches may vary depending on the text, Frey suggests that competent readers use their metacognitive knowledge to decide how to approach the text.

History of Research regarding Metacognition

Research regarding metacognition concerns examining the process by which people self-reflect on their own cognitive and memory processes (Zelazo, Moscovitch, & Thompson, 2007). Metacognition was first introduced by John Flavell in the 1970's. In 1971 Flavell introduced the

term "metamemory" which specifically concerns the monitoring and control of one's learning and remembering (Zelazo et al., 2007). Through studying the development of memory, Flavell concluded that memory develops at two levels, the object level and the meta level (Zelazo et al.). On level one, children acquire various skills and abilities that facilitate memory and other cognitive activities. On level two, children develop an awareness of self and can engage in cognitive processes such as storing and retrieving information (Schaffer, 2006). Schaffer states that as children mature, they exhibit an increasing awareness of and knowledge about the memory system. Further, Schaffer explains that understanding of level two advanced the study of memory to other cognitive areas and metacognition became the focus of theoretical discussion and empirical research.

In 1977 a more elaborate analysis of metacognition was introduced by Flavell and Wellman which focused on three areas in which metacognitive knowledge plays a part (Schaffer, 2006). The three areas include a) the person category, which includes the knowledge children acquire about others as cognitive processors; b) the task category, which contains all those characteristics of a task that children must take into account when tackling it; and c) the strategy category, which concerns the child's awareness of the various possible techniques that can be used to accomplish a given cognitive end. After reviewing work done on metacognition in the 1970's, other researchers identified developmental trends. Although some concerns and misunderstandings about metacognition and its components, knowledge and regulation remain, Schaffer observes that researchers acknowledge that metacognitive processes are central to children's learning. Most current research appears to focus either on the knowledge component of metacognition or the regulation component, but the term metacognition continues to be used when referring to both knowledge and regulation.

Assessment of Metacognition

A major issue within metacognition research is how to assess metacognitive knowledge in younger children. Berk (2012) explains that most metacognition research has focused on metacognitive processes in older children and adults, perhaps due to the supposition that children are cognitively unable to complete certain tasks or exhibit certain behaviors. The challenge is that metacognition is not considered to be an observable skill. However, there may be ways to assess children's ability to use metacognition to improve comprehension. For instance, children can be interviewed or given a questionnaire to gain understanding of their metacognitive knowledge. Still with only being able to interview students, the challenge becomes age range. Children have to be able to verbalize their techniques, which excludes younger children from the process. Often abilities of young children are underestimated (Berk). Hence, additional information is needed regarding both knowledge and regulation components of metacognition in younger children.

Other issues regarding the assessment of metacognition concern the relationship between metacognition and performance. Researchers want to understand if knowledge and understanding of memory processes improve actual memory capability or performance in children (Schaffer, 2006). If they do, then teaching metacognitive skills might be a viable way to help students become more proficient readers. Research outcomes related to teaching students to use these skills has produced mixed results, suggesting there is an inconsistent connection between metacognition and performance on outcome measures (Schaffer). In spite of mixed results of studies of metacognition in past years, enhancing understanding of humans' ability to

think about thinking and how that relates to reading continues to be of interest and practical value to educators today.

Developing Reading through Metacognitive Strategies

As stated above, metacognition is an awareness or an understanding of knowing what strategies need to be used in order to comprehend. Metacognitive strategies are based on planning, monitoring, and evaluation (Channa et al., 2015).

Metacognitive reading strategies are strategies that help students to regulate or monitor cognitive strategies as they read (Ahmadi et al., 2013). Metacognitive reading strategy awareness plays a significant role in reading comprehension and the educational process (Ahmadi et al.). The term "thinking about thinking" is defined as planned, intentional, goal directed, and future-oriented mental processing (Ahmadi et al.). When students are able to reflect on the strategies they are using, they are able to navigate their own learning and make decisions that help them to be successful.

Proficient readers are able to select effective strategies to use and determine whether a given strategy is appropriate for a particular task at hand. Although all metacognitive strategies are not "new" strategies, readers who can apply metacognitive skills are able to think about how and why they are using particular strategies and evaluate their effectiveness. In addition, these readers are able to monitor comprehension, recognize when comprehension fails and adjust their strategy selection and use accordingly. Strategies that have been found to aid comprehension include self-questioning, summarizing, clarifying, and predicting (Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007). More remains to be learned about the effectiveness of these strategies as they are not always explicitly taught and it is not yet clear at what age or grade level teachers should implement this type of instruction (Boulware-Gooden et al.).

Research such as that reported by Ahmadi et al. (2013) suggests there is a positive relationship between metacognitive reading strategies and reading comprehension. Flavell's reading strategy awareness theory posited that self-monitoring and regulation are important factors in reading comprehension (Ahmadi et al.). "The purpose of metacognitive instruction is to help readers become more aware of their own thinking during the reading process" (McTavish, 2008, p. 408). McTavish discusses research findings suggesting that explicit instruction regarding metacognitive strategies can lead to significantly strengthened reading comprehension.

Metacognitive reading strategies have been found to help children with learning disabilities, English language learners, and students of any age who have not achieved success in reading become more proficient readers. Students who struggle with reading do not acquire strategic reading behavior by themselves. They need to be taught how, where, and when to use strategies and procedures (Swanson & De La Paz, 1998). Poor readers often use strategies that are inappropriate due to lack of understanding that different assignments pose different kinds of questions (Swanson & De La Paz). For students to become more aware of their own thinking during reading, research such as that reported by McTavish, 2008 suggests that teachers must provide explicit instruction on how to use appropriate metacognitive strategies that students can employ during reading. As the research presented by McTavish suggests, explicitly teaching comprehension strategies allows the teacher to clearly explain and model how and when to use the various strategies. Time must be provided for discussion about how and when to apply each strategy while reading, and most importantly, students must be able to practice using the strategies while reading with scaffolded, or teacher supported practice.

Summary

Reading is an interactive process in which the reader constructs meaning from text. Metacognition is an integral part of that process. Metacognitive strategies such as monitoring, thinking aloud, questioning and predicting have been shown to facilitate students' reading comprehension (Channa et al., 2008). Teaching students how to utilize metacognitive strategies improves readers' ability to self-regulate and monitor their thinking. Learning how to apply effective metacognitive strategies will empower students to choose and apply strategies to aid their comprehension. The frequently used definition of metacognition as "thinking about thinking" is a simplification of the concept of metacognition. Much remains to be learned about how metacognitive processes, including those related to knowledge and regulation, develop and can be applied to foster reading comprehension. Given the importance of comprehension, further study appears warranted.

CHAPTER III

METHODS

The purpose of this study was to determine what effect explicitly teaching metacognitive strategies has on second grade students' reading comprehension. The null hypothesis for the study was that there would be no significant difference between students' reading comprehension scores before or after they were taught to apply metacognitive strategies when reading.

Design

The study followed a single group pre-test post-test design. The study was conducted using a convenience sample of all students in a second grade English/Language Arts class. The independent variable was the use of metacognitive strategies while reading. The dependent variable was the students' performance on a reading comprehension test after using the directly taught metacognitive strategies.

Participants

Participants included 20 second graders, 12 girls and 8 boys, enrolled in one classroom in a small public school located in a suburban area in the Mid-Atlantic region. The enrollment of the school consisted of 522 students and the school housed students from pre-kindergarten to fifth grade. The demographic makeup of the school was approximately 69% white, 14 % African American, 10% two or more races, and 6% Hispanic. The participants' reading levels ranged from on to above grade level before the study.

Instrument

The instrument used in the study was a teacher-created comprehension assessment. The test was modeled after the comprehension conversation portion of the Fountas and Pinnell

running record assessment (Fountas & Pinnell, 2011). The test was divided into three sections for students to show key understandings within, beyond, and about the text in order to reflect their comprehension of the text. Students answered all items in written form and the test was administered to the whole group at the same time. The pre-test and posttest were parallel and copies are located in Appendix A.

Procedure

The action research took place over a period of three weeks. During the pre-test students were given one of two texts of equal difficulty to read independently without additional instructions.   The texts were written at a second grade level. The class was divided in half by means of random selection. One group of students read one text and the other group read the other text.

 After reading the text, students were given the initial comprehension assessment as an entire group and were required to answer questions in writing to demonstrate their understanding of the text. A copy of the pretest is located in Appendix A.   The think marks bookmark had not been introduced prior to administration of the pre-test. The rubric was visible to students on the comprehension assessment. After students completed the pre-test, their responses were scored based on the rubric and students were given a copy of their scored rubric.

Following administration of the pre-test, the researcher implemented direct instruction during reading time, explaining and demonstrating effective use of the think marks bookmark, placing emphasis on self-regulation. Students previously had been introduced to metacognition but had not used think marks before. The researcher explained to students that good readers self-regulate while reading to monitor their thinking. During this discussion the teacher modeled fake and real reading through a read aloud exercise. Fake reading was described as occurring

when a student is reading text but is thinking about-things other than the text they are reading. For example, students may be reading but their minds may be thinking about how they are going to friend's house after school. The students and researcher created an anchor chart describing characteristics of fake and real reading for the purpose of showing that self-regulation is a deliberate behavior that good readers employ to monitor their thinking.

To teach use of the think marks bookmark/post-it strategy, the researcher introduced each symbol on the bookmark and explained to the students what it symbolized. The researcher then modeled how to stop and jot notes on the post-it notes using the symbols as she read aloud. After reading through a sample text and using the think marks, the researcher demonstrated for the students how the think marks can be used to recall information from a text and summarize events in a story. After modeling, the researcher guided students as they began to apply the strategy. When students demonstrated they understood how to use the bookmark, the researcher released them to use the bookmark independently. A copy of the think marks bookmark is located in Appendix B.

After using the bookmark independently with two different texts over a period of two weeks for up to 30 minutes per day, each student was given 20 minutes to read a text independently and was encouraged to apply the think marks bookmark while doing so. The same two texts were used but their assignment was counterbalanced for this pre-test post-test design to reduce effects from any inadvertent differences in the texts. After reading the second text, students were given the post-test comprehension assessment which was parallel to the pre-test and scored with the same rubric. As noted previously, a copy of the post test is located in Appendix A.

CHAPTER IV

RESULTS

The purpose of this study was to determine what effect explicitly teaching metacognitive strategies has on second grade students' reading comprehension. The null hypothesis was that there would be no significant difference between students' reading comprehension scores before or after they were taught to apply metacognitive strategies when reading using a bookmark intervention.

ho: pre-intervention reading comprehension scores = post-intervention reading comprehension scores

Descriptive statistics were calculated for the comprehension scores obtained from each student before and after the intervention.   Results follow in Table 1 and indicated that each mean sub-score and the mean total score increased from before to after the intervention.

Table 1

Descriptive Statistics for Pre and Post-Intervention Reading Comprehension Scores

Item Type	*Mean*	*s.d.*	*SEM*
Within text			
Pre	1.90	1.07	.24
Post	2.75	.44	.10
Beyond text			
Pre	1.30	.47	.11
Post	1.35	.75	.17
About text			
Pre	.95	.51	.11
Post	1.5	.69	.15
Additional Understanding			
Pre	.05	.22	.05
Post	.15	.37	.08
TOTAL			
Pre (range 2-6)	4.15	1.23	.27
Post (range 3-9)	5.75	1.37	.31

T-tests for dependent samples then were computed to determine whether the changes in scores from before to after the intervention were statistically significant. The results, which follow in Table 2, indicated that the increase in mean total scores of 1.6 points (from 4.15 to 5.75

out of 11 possible) was significant at the p < .000 level.   Therefore, the original null hypothesis

was rejected. Comparisons of the sub-scores indicated that the increases in the mean scores on

the Within the Text and About the Text items also were statistically significant (p < .003 and p <

.008, respectively.) As mentioned, the sub-scores for Beyond the Text items and Additional

Understanding were higher on the post-test than the pre-test; however, these increases were not

large enough to be determined statistically significant.

Table 2

Results of t-tests Comparing Pre and Post-intervention Reading Comprehension Scores

Comparison (Post-Pre Scores)	Mean	s.d.	SEM	Confidence Interval	t	df	Significance (2 tailed)
Within	.85	1.14	.25	.34-1.38	3.34	19	.003
Beyond	.05	.89	.20	-.37-.47	.25	19	.804
About	.55	.83	.18	.16-.94	2.98	19	.008
Additional	.10	.45	.10	-.11-.31	1.00	19	.330
TOTAL	1.60	1.64	.37	.83-2.37	4.38	19	.000

CHAPTER V

DISCUSSION

The purpose of this study was to investigate the effect of applying metacognitive strategies to the reading comprehension of second grade students. A bookmark intervention was used to determine whether students' comprehension improved after using it to remind them of metacognitive strategies they had been taught.

Implications of Results

The results of the study revealed that students' comprehension scores increased after using the bookmark intervention and that the gains were statistically significant on assessments of Within and About the Text items and for overall scores. Thus, the null hypothesis that there would be no significant difference between students' reading comprehension scores before or after they were taught to apply metacognitive strategies using the bookmark intervention was rejected.

One practical implication of the research is that the bookmark appeared useful for reminding students to monitor their thinking as they read. Supporting this observation are the statements of participants, including that having the bookmark and using it to "stop and jot" reminded them to think about what they were reading as they read. At the beginning of the study, the researcher noticed that the students were using only two of the symbols on the bookmark: the question mark for asking questions about the text, and the letter "P" for making predictions about the text as they read. These were skills that the students appeared to be confident in using. However, as the study progressed and the teacher continued to model how to use the symbols on the bookmark to track their thinking, the students began to use the other symbols more frequently. This change in students' reading behavior suggested that with practice

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using these strategies, students became better able to use them and make connections and inferences about what was happening in the text. Participants took their time reading and applying the bookmark strategy during independent and buddy reading. The researcher observed students having conversations about what was happening in the text and sharing questions as they read with each other, as well as sharing connections that they made as they read.

The study results and this researcher's observations suggest that if students are failing to think about the text as they read, teachers should consider using a bookmark or similar intervention to remind students to use metacognitive strategies in their classrooms. Instituting the think-mark bookmark and providing explicit instruction on how to use the bookmark to monitor thinking appeared to benefit students and help them comprehend text more fully. Providing a physical reminder to think while reading appeared to help students hold themselves accountable for monitoring their comprehension as they read. A clear benefit of learning how to use the think-mark bookmark and applying it to their reading during the study was that students were able to verbally discuss texts and answer questions about texts in writing with more detail.

Implementing the bookmark intervention was not difficult and appeared beneficial for students. Given the positive results of this brief intervention, the researcher wondered if starting the strategy at the beginning of the school year, or using it for a longer interval would result in even greater increases in comprehension scores or affect other skills related to comprehension.

Theoretical Consequences

This study supports the theory that explicitly teaching metacognitive strategies can improve students' reading comprehension. The purpose of metacognitive instruction is to help students become more aware of their own thinking during the reading process (McTavish, 2008). After the researcher modeled how to use the bookmark as a strategy to track their thinking,

students employed the same behavior during their reading. After they were taught to use the think mark bookmarks, students appeared more engaged in the text and appeared to demonstrate a boost in confidence when answering questions and discussing stories orally. Consequently, these results support the theory that metacognitive strategies are effective learning tools.

Threats to Validity

The sample size and characteristics were threats to the validity of the study as the sample size was small and not very diverse. Participants consisted of 20 homogeneously grouped students reading on or above grade level in a school located in a middle class area. This is a threat to external validity in that it limits the ability of the results to be generalized to different demographic groups such as students in lower income areas or groups consisting of struggling readers. In addition, the researcher had a pre-existing relationship with the students because she was their current reading teacher. The researcher was instructing and scoring the rubrics, so there is a possibility that she could have been biased as she expected certain outcomes or could have failed to be objective when scoring the assessments because of pre-existing relationships with students. Rubrics were used to reduce this possibility and provide objective scoring guides for all participants.

A threat to internal validity, which refers to the ability of the researcher to conclude that the treatment caused the differences observed in the dependent variable as opposed to some other uncontrolled variable, was that there was only one experimental group which acted as their own control group as the study used a one group pretest-posttest design. To help reduce problems associated with the limited controls included in this design, the texts read were counterbalanced across pre and post interventions, and the students were randomly selected and assigned to each

comparison group. Each group also took a parallel assessment based on different texts for the pre and post assessments.

An additional threat to internal validity is that the study occurred over a relatively brief three-week period. This implementation period may not have been long enough to demonstrate the full extent or all variants of changes in reading comprehension which the bookmark intervention may have yielded over a longer period.

Connections to Previous Studies/Existing Literature

Prior studies have indicated that explicitly teaching metacognitive strategies can affect reading comprehension. For example, Boulware-Gooden et al., (2007) found that explicitly teaching metacognitive strategies during reading comprehension instruction significantly improved academic achievement in the domains of reading comprehension and vocabulary for third grade students and also found positive effects for students' understanding of written text.

Other studies have been conducted using participants with learning and or reading disabilities. Explicitly teaching strategies such as self- monitoring, generated questioning, and summarizing text has been found to help improve such students' understanding of the text (Swanson & De La Paz, 1998). However, many of these studies have been conducted with students who have learning disabilities and who are in third grade or a higher grade level.   This study's review of literature indicated that few studies have been conducted with primary age students to conclusively determine if teaching them metacognitive strategies affects their reading comprehension.

Implications of Future Research

Future studies examining the effectiveness of teaching metacognitive strategies should specify what skills are being taught explicitly and how they are being taught in order to

determine more specifically how particular strategies affect reading comprehension for particular populations. In reference to using bookmarks as reminders, researchers could extend the number of symbols on the bookmark to include additional skills to apply when using the bookmark to think about their thinking if they conducted longer studies or conducted the studies with older students. Future studies also could be extended beyond three weeks to discover the long- term effects of using bookmark-type interventions when reading. Another suggestion for further research is to study diverse samples so that the results may be generalized more confidently to more groups, including students of varied socio-economic backgrounds, reading levels, and ages.

Conclusion/Summary

The results of the study indicated that explicitly teaching metacognitive strategies and using a bookmark intervention over a three-week period to encourage and reinforce these strategies significantly appeared to increase reading comprehension for a sample of second grade students. Although there were limitations to the study and the results are considered preliminary, these results and the researcher's observations suggest that the think-mark bookmark intervention was an effective strategy for improving reading comprehension in primary students through enhancing their use and understanding of metacognitive skills. Further study is warranted to learn more about the effectiveness of similar interventions with primary students.

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Name_____ Date_____

<u>Comprehension Test: The Wednesday Surprise by: Eve Bunting</u>

Within the Text
Write a summary including beginning, middle, and end.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Beyond the Text
What is something you can figure out about the story that the author didn't tell you?

_____

_____

_____

_____

_____

Look on page 30. It said "he's grinning, but his eyes are brimming over with tears" How is Dad feeling?

_____

_____

_____

_____

_____

_____

_____

_____

_____

About the Text

Is this is a good title for this story? Why or why not?

_____

_____

_____

_____

What message does the author want the reader to know?

_____

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Within the Text Score	Beyond the Text Score	About the Text Score
0 1 2 3	0 1 2 3	0 1 2 3

Comprehension Scoring Key

0 Reflects **unsatisfactory** understanding of the text. Either does not respond or talks off topic.

1 Reflects **limited** understanding of the text. Mentions 1 key understanding but does not express the important information or ideas from the text in their response.

2 Reflects **satisfactory** understanding of the text. Includes 2 key understandings from the text in their response but neglects other key understandings.

3 Reflects **excellent** understanding of the text. Includes 3 or more key understandings from the text in their response.

Name_____ Date_____

<u>**Comprehension Test: Tom by Tomie DePaola**</u>

Write a summary including beginning, middle, and end.

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Beyond the Text
What is something you can figure out about the story that the author didn't tell you?

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Look on the page 14. Tom says "If you plant it in the garden and don't disturb it for three weeks, you'll have a chicken bush." Do you think this could happen? Explain why or why not.

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About the Text

Look at the last page. Why do you think the author said "And Tom gave Tommy a big wink"?

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What message does the author want the reader to know?

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Within the Text Score	Beyond the Text Score	About the Text Score
0 1 2 3	0 1 2 3	0 1 2 3

Comprehension Scoring Key

    0 Reflects **unsatisfactory** understanding of the text. Either does not respond or talks off topic.

    1 Reflects **limited** understanding of the text. Mentions 1 key understanding but does not express the important information or ideas from the text in their response.

    2 Reflects **satisfactory** understanding of the text. Includes 2 key understandings from the text in their response but neglects other key understandings.

    3 Reflects **excellent** understanding of the text. Includes 3 or more key understandings from the text in their response.

Student Name_____ **Date**_____

Comprehension Test Rubric: The Wednesday Surprise by Eve Bunting

Comprehension Scoring Key

0   Reflects **unsatisfactory** understanding of the text. Either does not respond or talks off topic.

1   Reflects **limited** understanding of the text. Mentions 1 key understanding but does not express the important information or ideas from the text in their response.

2   Reflects **satisfactory** understanding of the text. Includes 2 key understandings from the text in their response but neglects other key understandings.

3   Reflects **excellent** understanding of the text. Includes 3 or more key understandings from the text in their response.

Key Understandings	Prompts	Score
Within the Text Tells significant events of the story in sequence, such as: Anna and her grandma are planning a surprise for her Dad's birthday. On Wednesday nights Grandma comes over to watch Anna and her brother Sam and they practice her surprise. When Anna's dad comes home they plan a birthday dinner. Grandma and Anna present their surprise. Grandma reads to her son for the first time. Anna taught her grandma how to read. *Note any Additional Understandings:*	Write a summary including the beginning, middle, and end.	**0 1 2 3**
Beyond the Text Grandma and Anna are very close. Anna is proud of her grandmother. Sam thinks Grandma doesn't know he can read. Dad is crying because he is so happy that his mom learned to read. *Note any Additional Understandings:*	What is something you can figure out about the story that the author didn't tell you? Look on page 30. It said "he's grinning, but his eyes are brimming over with tears" How is Dad feeling?	**0 1 2 3**

About the Text The story is about a surprise Grandma and Anna practice on Wednesdays You're never too old to learn something new. Young people can be teachers to. *Note any additional understandings:*	Is this is a good title for this story? Why or why not? What message does the author want the reader to know?	**0 1 2 3**

Subtotal Score: _____/9
Add 1 for any additional understandings: _____/1
Total Score: _____/10

Student Name_____ **Date**_____

Comprehension Test Rubric: Tom By: Tomie DePaola

Comprehension Scoring Key
0   Reflects **unsatisfactory** understanding of the text. Either does not respond or talks off topic.

1   Reflects **limited** understanding of the text. Mentions 1 key understanding but does not express the important information or ideas from the text in their response.

2   Reflects **satisfactory** understanding of the text. Includes 2 key understandings from the text in their response but neglects other key understandings.

3   Reflects **excellent** understanding of the text. Includes 3 or more key understandings from the text in their response.

Key Understandings	Prompts	Score
Within the Text Tells significant events of the story in sequence, such as: Tommy has the same name as his grandfather; Tommy calls his grandfather Tom; Tommy visits his nana and Tom every Sunday; Tommy helps Tom and Nana at their grocery store; Tom gave Tommy chicken feet; Tommy used the chicken feet to school to scare his friends; Tommy was sent to the principal's office *Note Any Additional understandings:*	Write a summary including the beginning, middle, and end.	**0 1 2 3**
Beyond the Text Tommy and Tom are best friends. Tommy makes Tom feel young again and reminds him of when he was a boy. Tom loves Tommy very much and likes spending time with him. Chickens do not grow on bushes Plants come from seeds	What is something you can figure out about the story that the author didn't tell you? Look on the page 14. Tom says "If you plant it in the garden and don't disturb it for three weeks, you'll have a chicken	**0 1 2 3**

	bush." Do you think this could happen? Explain why or why not.	
Note any additional understandings:		
About the Text Tom was letting Tommy know it would be okay. Tom was thinking of another fun thing for Tommy and him to do. Family is important. We can have fun learning from our grandparents. *Note any additional understandings:*	Look at the last page. Why do you think the author said "And Tom gave Tommy a big wink"? What message does the author want the reader to know?	**0 1 2 3**

Subtotal Score: _____/9
Add 1 for any additional understandings: _____/1
Total Score: _____/10

Guide to Total Score
9-10 Excellent Comprehension
7-8 Satisfactory Comprehension
5-6 Limited Comprehension
0-4 Unsatisfactory Comprehension

Appendix B

A) Bookmark-

Think~Marks		Think~Marks	
STOP and JOT		STOP and JOT	
Post-its go here!		Post-its go here!	
Symbols	**Text code Stem**	**Symbols**	**Text code stem**
✔	**I figured out…**	✔	**I figured out…**
!	**Important Part or Detail**	**!**	**Important Part or Detail**
?	**I wonder…?**	**?**	**I wonder…?**
✚	**I learned something new**	**✚**	**I learned something new**

| P | I predict… | P | I predict… |