ABSTRACT

Title of Dissertation: THE INFLUENCE OF SUPPLEMENTAL INSTRUCTIONAL APPROACHES UPON THE COMPREHENSION, METACOGNITIVE AWARENESS AND MOTIVATION OF STRUGGLING THIRD-AND FOURTH-GRADE READERS

Janice Dotterer O'Hara, Doctor of Philosophy, 2007

Dissertation directed by: Professor Mariam Jean Dreher

Department of Curriculum and Instruction

Schools are challenged with the responsibility of providing the quality of instruction necessary for all students to meet the achievement standards of "No Child Left Behind" legislation. Supplementary instruction has been used extensively to accelerate struggling readers' progress; however, schools need to consider methods that have been examined for their effectiveness.

This quasi-experimental study explored the effect of two supplementary instructional approaches, CORI-STAR and Guided Reading, on accelerating struggling

readers' growth in reading comprehension, reading motivation, and metacognitive awareness, as well as their transference of strategies to their classroom reading groups, their application of reading strategies, and their metacognitive knowledge of reading strategies. Struggling third- and fourth-grade students were invited to participate in an 8-week supplementary instructional reading group. Fifty students with parental consent were then randomly assigned by classrooms to either the CORI-STAR or Guided Reading approach.

CORI-STAR combined (a) the engaging and motivational elements of Concept-Oriented Reading Instruction (CORI) developed by John Guthrie, and (b) a metacognitive component, Strategic Thinking Applied to Reading (STAR), consisting of explicit instruction on metacognitive awareness, modeling, think-alouds, and reflective thinking. The Guided Reading approach was implemented according to Fountas and Pinnell's recommendations.

The results revealed statistically significant time (pretest, posttest) by treatment interactions with large effect sizes favoring the CORI-STAR group on (a) three comprehension measures: WRMT-PC, QRI-4 questions, and QRI-4 retelling and (b) three metacognitive awareness measures to assess students' awareness of strategies, their application of strategies, and their metacognitive awareness of the declarative, procedural, and conditional knowledge of regulating their use of reading strategies. Performance on the Motivations for Reading Questionnaire did not show a statistically significant interaction for time by treatment. However, on another measure of motivation, choosing to take home books for reading, CORI-STAR students outperformed those in the Guided Reading group. Both groups were perceived by their teachers to transfer

strategies to classroom use. Thus, students in the CORI-STAR group improved more than Guided Reading students on reading comprehension, metacognitive awareness, and their knowledge and use of reading strategies as a result of the intervention. Further, CORI-STAR students were more motivated to choose books for home reading.

THE INFLUENCE OF SUPPLEMENTAL INSTRUCTIONAL APPROACHES UPON THE COMPREHENSION, METACOGNITIVE AWARENESS, AND MOTIVATION OF STRUGGLING THIRD-AND FOURTH-GRADE READERS

By

Janice Dotterer O'Hara

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2007

Advisory Committee

Professor Mariam Jean Dreher, Chair
Professor Linda Baker
Associate Professor Marilyn Chambliss
Professor John T. Guthrie
Professor Allan Wigfield

Acknowledgements

This dissertation would not have been possible if not for faith: my faith in God, my faith in myself to pursue this task, and the faith that others have had in me.

It is with profound admiration that I thank my wonderful committee whose support led me to first imagine the possibilities, and then to examine the implications of the data.

To my advisor, Dr. Mariam Jean Dreher, I express my sincere gratitude for being a wonderful mentor and coach. I cannot imagine this experience without her encouragement, insight, advice, and genuine concern for me as a student. You believed in me, taught me to be a reflective learner, and caused me to think in ways I never thought possible. For that, I am forever appreciative.

My sincere gratitude is extended to Dr. John T. Guthrie and Dr. Allan Wigfield for introducing me to an impressive way of motivating students to be readers through Concept-Oriented Reading Instruction (CORI). You gave me the opportunity to learn about the advantages of CORI as a classroom teacher and as a reading specialist, which encouraged me to establish a motivating learning environment for my students. Your guidance and commitment to this research study challenged me to construct a supplementary intervention for struggling readers that utilizes the motivating principles of CORI within a small group instructional setting.

To Dr. Marilyn Chambliss, I appreciate your challenging questions that made me think about the possibilities of this research. Thank you for providing helpful suggestions and advice while reviewing the research. To Dr. Linda Baker, I credit you for helping me become metacognitive about what I was learning as a result of the study. Thank you for teaching me to contemplate and to realize the beauty in what I was discovering.

Many achievements in our lives are due to the coaches and cheerleaders who believe in us and who help us to believe in ourselves. I am fortunate to have a wonderful family who has been extremely supportive every step of the way, and for that I am forever grateful. A special thanks to my husband, Allen, who believed in me and encouraged me to achieve this goal. His confidence in me has sustained me to pursue my dream of learning how to help struggling readers become successful, motivated readers. Thanks so much for your constant support through this journey. Many thanks to our children, Richard, David, Steven, and Jennifer and their spouses, Shimae, Erin, Johanna, and Adam who have been my cheerleaders and encouragers throughout the process. Each of you has helped me immensely by listening to me think-aloud about my ideas and inspiring me to search for the answers to my questions. Thanks also to my parents, Robert and Naomi Dotterer, who always encouraged my thirst for knowledge and instilled in me the value of hard work in accomplishing my goals. I also extend a special thank you to my sister Barbara, who always believed in me.

This project would not have been possible without the support of the Monocacy Elementary School administrators and classroom teachers for their commitment in meeting the needs of the students. Thanks also to Mary and Shimae for their valuable assistance on this project.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

Chapter I: Introduction

Statement of the Problem

Many factors influence the variability in students' reading proficiency within a classroom (Vellutino, 2003). Students may differ in their abilities to decode, understand vocabulary, and monitor their comprehension, in addition to differences in their temperaments and motivation to read (Vellutino, 2003). Given the diverse instructional needs of readers within a classroom, it is nearly impossible to provide students with one-to-one instruction, even when students are struggling. However, recent intervention studies have shown that struggling readers may benefit from supplementary small-group instruction that addresses their instructional needs and supports them as they become engaged, motivated, independent readers (Vellutino, 2003).

Allington (2001) noted that when traditional remedial reading programs were established, the intention was to provide a second instructional period for struggling readers experiencing reading difficulties. Unfortunately, in some cases supplementary reading programs actually become a substitution for classroom instruction. Instead of benefiting from dual opportunities for instruction and reading engagement, struggling readers are often pulled out of class to receive the same amount or less instruction than that received by their peers (Allington, 2001). In order for supplementary services to foster accelerated literacy growth, classroom and remedial instruction need to be coordinated so that one instructional period does not replace or interfere with the other (Allington, 2001).

The purpose of this investigation is to explore the effects of two models of supplemental daily small-group instruction, CORI-STAR and Guided Reading, upon struggling third- and fourth-grade readers. Specifically, this study sought to determine the cognitive and motivational effects of the CORI-STAR and Guided Reading instructional models upon the students' reading comprehension, metacognitive awareness, and motivation to read.

Rationale

When students enter the classroom there already exist an "enormous range of differences" between the individuals which suggests that the quantity, quality, and intensity of instruction necessary to help all students become literate will differ among students (Allington & Walmsley, 1995, p. 6). In order to create effective schools, struggling readers need larger quantities of instruction and greater access to interesting books to achieve their potential. Allington (2001, pp. 511, 512) stated, "What all children need, and some need more of, is models, explanations, and demonstrations of how reading is accomplished. Some children will need more and better models, explanations, and demonstrations than other children if they are to learn together with their peers." Rather than schools examining student performance data and considering student differences as an estimate of what each individual student is capable of learning, they should instead think of student differences as indicators of what type of instruction is needed to accelerate their learners' literacy development so that all children can learn to read (Allington & Walmsley, 1995).

Consequently, supplemental services for struggling readers need to provide explicit, modeled instruction which includes teacher demonstrations in the use of reading strategies, in addition to increasing the amount of time students are engaged with reading (Allington, 1977, 2001). Studies confirm that struggling readers benefit from explicit instruction that includes teacher modeling and demonstrating useful reading strategies (Duffy et al., 1986; Duffy et al., 1987; Duffy, 2002). Struggling readers benefit from more time and opportunities for literacy engagement (Allington, 1977) since engaged and intrinsically motivated readers become more proficient than less-engaged readers (Guthrie, Wigfield, & VonSecker, 2000; Sweet, Guthrie, & Ng, 1998).

Schools must be knowledgeable of supplemental instruction approaches that will increase their struggling readers' ability to monitor and self-regulate their use of strategies, in addition to increasing their reading engagement. Struggling readers need an

engaging instructional program that motivates them to read while they gain strategies to take control over their learning. Without explicit instruction, struggling readers may not be aware of how to consciously control their cognitive strategies to access their background knowledge, question, or organize and interpret the text; therefore, they are likely to benefit from metacognitive awareness training to help them become aware of how to self-regulate and monitor their cognitive strategies in relation to the demands of the text (Vellutino, 2003).

The purpose of this study was to better understand two supplementary instructional approaches, CORI-STAR and Guided Reading, and their influence upon reading comprehension, metacognition, and motivation of struggling third- and fourth-grade readers. Unlike most remedial programs for struggling readers that usually emphasize lower-level skill instruction in decoding and fluency (Johnston, Allington, & Afflerbach, 1985; McGill-Frazen & Allington, 1990), the instructional approaches that are examined in this study are focused on developing strategic readers through comprehension strategy instruction.

Quite often remedial instruction emphasizes the developing of word level skills for students who are experiencing reading difficulties. Students learn decoding, phonics, and fluency skills, but little time is focused on actual reading. Throughout their years of schooling, these same students are repeatedly identified to receive additional reading assistance; however, their overall reading progress does not change substantially as a result of the effort. Without instruction which emphasizes strategic reading behaviors within the context of actual reading, most struggling readers are not able to grasp effective reading strategies, nor are they confident and experienced enough to transfer their learning from supplementary instruction to their classroom reading group. Unless students have had time to practice and develop strategies toward gaining a repertoire of strategic reading behaviors, they will not choose to use them independently (Pintrich & Zusho, 2002).

In most cases, remedial instruction does not accelerate struggling students toward helping them become independent of remedial support, but instead it gives them disjointed word-level instruction with little application to actual reading. This prevents them from understanding that the purpose of reading is to derive meaning from the text, not just decode the words. In addition, most remedial programs do not include motivating elements to support students' reading engagement. Instead of closing the literacy gap for struggling readers, remedial instruction could further disconnect readers from wanting to learn to read, or to even choose to read when given the opportunity. Remedial reading programs which emphasize repetitive "skill and drill" instruction lack the motivation found in instructional approaches which focus on the development of strategic reading behaviors within engaged reading.

This study extends supplementary instruction research beyond the examination of the programs which emphasize the development of students' word-level decoding skills to examine instructional approaches for struggling readers which emphasize both the acquisition of strategic reading behaviors toward becoming independent readers. It extends students' learning beyond simply "cracking the code" to becoming engaged strategic readers. The two reading approaches examined in this study, CORI-STAR and Guided Reading, will be explained more fully later in this chapter. However, briefly the first approach, CORI-STAR, is a small-group adaptation of Concept-Oriented Reading Instruction (CORI) (Guthrie, Wigfield, & Perencevich, 2004) which I created as a result of my involvement with CORI, both as a classroom teacher and as a reading specialist. Several years ago, along with four other third-grade teachers in my school, I participated as a part of the CORI pilot project in my county. Although I found CORI instruction to be motivating to my students, I also found that it did not adequately address the instructional needs of the struggling readers in my classroom (Sikorski, 2004).

The design for enhancing small-group instruction that I found to be most effective for my struggling readers consisted of teacher and student think-alouds, modeling, direct

explanations, and demonstrations of how and when to use reading strategies. These instructional components became known as "Strategic Thinking Applied to Reading", or STAR. STAR instruction includes explicit small-group instruction, modeling, teacher think-alouds, student think-alouds, metacognitive awareness training, and self-reflective thinking. The STAR portion of CORI-STAR is supported by extensive research which asserted that struggling readers benefit from explicit explanations about how to use mental processes to: (1) assume control over their learning, (2) become more metacognitively aware, (3) comprehend text, and (4) and to demonstrate higher reading achievement (Almasi, 2003; Clay, 1991; Duffy et al., 1986; Duffy et al., 1987; Paris, Cross, & Lipson, 1984).

The CORI-STAR approach is structured around the nine principles of CORI instruction: (1) reading instruction is integrated with a science conceptual theme with learning and knowledge goals, (2) student collaboration, (3) student autonomy, (4) real-world interactions, (5) teacher involvement, (6) engaging text, (7) rewards and praise, (8) strategy instruction, and (9) evaluation. Within the CORI instructional approach, students gain knowledge of reading strategies and science concepts through social interactions, conceptual knowledge, strategy use, and motivation during small-group, and whole-group reading (Guthrie, Wigfield, & Perencevich, 2004).

The second approach that was examined in this study was Guided Reading (Fountas & Pinnell, 1996, 2001), a small-group reading approach that uses leveled texts which are selected for the students at their reading level. In Guided Reading, the teacher guides students as they learn to attend to the text and self-monitor using visual, syntactic, and semantic cues. Teachers make decisions about their instructional points for the lesson based upon observations of their students' reading behaviors and by examining their students' running records. Running records are an informal one-on-one reading assessment that provides teachers with knowledge of the types of miscues individual students are making when reading (Fountas & Pinnell, 1996, 2001).

Struggling readers experience difficulty with comprehension, metacognition, and motivation to learn. Within the Guided Reading approach, student texts are organized according to reading levels, with specific characteristics identified for the varying text levels (Fountas & Pinnell, 1996, 2001). Even though the teacher selects and introduces texts to the students at their instructional level (Fountas & Pinnell, 1996), that may not provide enough support for the struggling readers who need explicit, modeled instruction to help them learn to apply the strategies and self-regulate their reading independently. Guided Reading does not provide explicit teaching of strategies, but strategy development is believed to occur as students' construct understandings about how reading works. Students gradually take control of their learning from their teacher as they interact with text and begin to independently apply strategies to obtain meaning from the text (Duffy, 2003).

In contrast to Guided Reading, the CORI approach provides explicit instruction in reading strategy use. However, neither Guided Reading, nor CORI instruction provides students with metacognitive awareness training to help struggling readers become aware of their ability to regulate and monitor their cognitive strategies. Although CORI has been shown to increase student engagement, conceptual knowledge, and strategy use (Guthrie, Wigfield, & Perencevich, 2004; Guthrie, Wigfield, & VonSecker, 2000), it has not been specifically examined as a small-group intervention for struggling readers.

With the understanding that students benefit from explicit instruction which is motivating, I have added STAR training to the CORI instructional approach to create CORI-STAR. CORI-STAR is an engaging interdisciplinary reading approach comprised of strategic thinking tools involving teacher modeling, think-alouds, and metacognitive awareness instruction to help students become engaged in learning comprehension strategies through the use of motivating texts and real-life experiences. Since struggling readers generally exhibit a struggling understanding of the strategic nature of reading, this study explored the development of metacognitive awareness, self-regulation of

comprehension strategies, and motivation in struggling readers using CORI-STAR and Guided Reading instructional approaches.

Research has shown that good comprehenders tend to use strategies more often than struggling readers (Palincsar & Brown, 1984; Pearson & Fielding, 1991; Pressley, 2000) and students can be taught metacognitive and cognitive strategies to help improve their reading comprehension (Paris et al., 1984; Paris, Wasik, & Turner, 1991). It is my hypothesis that struggling readers benefit from an instructional program that increases their reading engagement and metacognitive awareness toward increasing students' strategic thinking, comprehension of text, and motivation to read.

This study addressed the critical problem of developing a supplemental instructional approach for struggling readers that may be used by reading specialists, special education teachers, and instructional assistants in conjunction with regular classroom instruction. The next section will review the instructional needs of struggling readers to provide the basis for our understanding of the necessity for appropriate instructional programs for learners. After discussing the instructional needs of struggling readers, I will review research which supports instruction that increases comprehension, motivation, and metacognition as it relates to gains in reading proficiency for struggling readers. Finally, I will briefly review the literature on CORI, followed by a brief structural examination of the CORI-STAR approach, and will conclude with the research on Guided Reading. It was my hypothesis that CORI-STAR instruction would provide students with "in the head mental processes" (Clay, 1991) to help them gain significantly from this approach of instruction.

Struggling Readers

Reading has been described as a complex, interactive process involving both knowledge-based and text-based strategies that are activated by the reader to decode and interpret the message of the text (Rumelhart, 2004). Cognitive strategies are those strategies that an individual intentionally selects to achieve a desired goal (Paris, et al.,

1991). Observations of the reading behaviors of proficient readers reveal that they possess and employ a variety of cognitive strategies to aid in their comprehension and memory of texts. However, less skilled readers are either less aware or unaware that they must use cognitive effort to monitor and regulate their comprehension (Baker & Brown, 1984).

Reutzel, Camperell, and Smith (2002) described struggling readers as those students who experience difficulty in detecting inconsistencies and confusions as they read and effectively initiating strategic behaviors to help them self-monitor and repair their comprehension. Good readers are more strategic and aware of confusions in their understanding of text as they read, so they stop, reread, develop mental images, ask themselves questions, and employ strategies to establish connections with the new information (Reutzel et al., 2002). Often, when struggling readers read content that is novel or unknown to them, they either adjust the meaning of the text to align to their existing background knowledge on the subject, or they simply ignore the meaning of text information (Markman, 1979).

Unlike successful readers who are familiar with the differences between expository and narrative texts, struggling readers face obstacles to understand and make sense of the structural organization of various texts (Reutzel et al., 2002). They may also experience difficulty understanding the vocabulary or content information (Alexander & Jetton, 2000). Since expository texts are often selected for classroom instruction to help students acquire content area knowledge, struggling readers' failure to successfully navigate the structure and organization of these texts results in accumulated deficits in their knowledge base on the subject (Chambliss & Calfee, 1998). Subsequently, students with low topic knowledge contribute less and are less engaged in classroom discussions, are less able to answer questions, and recall less information after reading than students with high topic knowledge (Reutzel et al., 2002).

A report from the Rand Study Group (2001) identified several characteristics that

distinguish good readers from struggling readers. Good readers possess: positive habits and attitudes toward reading, fluent reading behaviors that allows them to focus on the meaning of what they are reading, an understanding of what they read so they can elaborate and critically evaluate the meaning of the text, a variety of effective strategies to monitor their understanding of the text, and reading engagement as shown through the variety of text they read for a variety of purposes.

Often, struggling readers encounter difficulties in understanding the structure of narrative stories, such as character's motives, story themes, problems, and resolution (Cain, 1996; Reutzel et al., 2002) which may be attributed to their limited experiences listening to, and discussing stories prior to entering school. Many times struggling readers struggle with text-based processes, like decoding, which causes such a large demand upon their working memory that they have little energy left for comprehension and meaning-making to occur (Reutzel et al., 2002).

Good and struggling readers differ in their ability to activate and use their schemata during the reading process (Anderson, 2004; Anderson & Pearson, 1984). Background knowledge is important to student reading success because it influences what students attend to during reading, the inferences they are able to make from their reading, and what they are most able to recall after reading. Unlike struggling readers, good readers use their background knowledge to help them comprehend the text (Reutzel, et al., 2002).

Struggling readers use fewer cognitive skills and are less motivated to read than engaged readers (Guthrie, Van Meter, McCann, Wigfield, Bennett, & Poundstone, et al., 1996). Motivation is critical to the development of comprehension strategy use because students must be motivated to employ strategies (Wigfield, Guthrie, Tonks, & Perencevich, 2004; Paris et al., 1983). Effective comprehenders must possess both the skill and will to read; however, strong evidence suggests that as students progress through the grade levels, they have less positive attitudes toward reading (McKenna, Ellsworth, & Kear, 1995).

By third grade, most students who are good at decoding text but have not learned to apply comprehension strategies successfully during reading will have fallen far behind the rest of their peers and have difficulty regaining their lost ground (Block, 2000). Without additional strategy instruction, struggling readers continue to experience difficulty engaging in complex, interactive thinking or employing comprehension strategies during reading, which widens the literacy and emotional gap between them and their more proficient grade-level peers (Block, Schaller, Joy, & Gaine, 2002). Within the CORI-STAR approach of this study, struggling readers in third- and fourth-grades were given explicit strategy instruction for them to gain control of their learning and lessen the literacy gap between them and their peers.

Reading Comprehension

Lipson and Wixson (1986) described comprehension as a complex process that involves interactions between the reader and the text in various contexts for various purposes. The most important goal of reading is comprehension (Gambrell, Block, & Pressley, 2002). Reading comprehension occurs when the reader can simultaneously extract and construct meaning from the text (Snow & Sweet, 2003). Reading comprehension is essential to success of reading in school, and for a lifetime of learning (Pearson, Roehler, Dole, & Duffy, 1992). Good readers possess the skill to process text, make strategic decisions, and employ numerous strategies, as they consider their purpose for reading, the author's purpose, and the relationship of new information to their background knowledge on the subject (Block et al., 2002). Skillful reading requires complex cognitive, metacognitive, attentional, and emotional processes; however, these processes may be difficult for young or struggling readers who have possible deficits in background knowledge, decoding, vocabulary, quality of past instruction, emotional burdens, or attention issues (Paris et al., 1984).

Reading theorists have attempted to explain comprehension as based upon the cognitive schematic approach which has its roots in Piagetian theory as well as schema-

driven reading theories (Anderson & Pearson, 1984). When readers comprehend, they assimilate new information into their previous understanding. During the reading process, readers encounter new knowledge that they must interpret and connect to their previous knowledge base, or schemata, in order for them to comprehend the text (Anderson & Pearson). Readers sort the information stored in their memory, known as their schemata, so that they can accommodate the new information as it becomes a part of the readers' modified schemata. A reader's schemata is an abstract knowledge structure that helps him or her organize information, interrelate it, make inferences, retrieve information for later recall, and access memories of past experiences (Anderson & Pearson).

Often struggling readers have difficulty making connections between their background knowledge and the topic they are reading about. Individual differences in students' reading comprehension abilities may be the result of their limited knowledge about a particular topic or it may suggest an overload for working memory to perform a series of complex tasks necessary during reading, such as decoding, holding in memory what has been read up to a particular point, and making connections to the text- all for the purpose of comprehending what is read. Daneman (1991, p. 530) stated, "A reader understands what he or she is reading only in relationship to what he or she already knows."

Daneman and Carpenter (1980) hypothesized that skilled readers have larger functional working memory capacities than less-skilled readers. They attributed these differences to skilled readers' greater capacity for both processing and storing information as influenced by their fluency in performing the component parts of reading, such as encoding, lexical access, and higher-level semantic and syntactic processing. Readers who are efficient at many of the reading processes have a larger functional temporary storage of information from the text in their working memories because less capacity is consumed in the reading process (Daneman, 1991). Since there exist considerable evidence that the working memory capacity plays an important role in the

readers' ability to connect successive ideas in the text, students need metacognitive training to help them self-regulate and monitor cognitive functions during reading to increase their reading comprehension (Paris et al., 1991).

Comprehension relies on the readers' use of a variety of strategies, such as activating background knowledge, questioning, summarizing, organizing information, identifying main ideas, predicting, self-monitoring, and inferring (Dole, Duffy, Roehler, & Pearson, 1991; Duffy, 2003; Lipson, & Wixson, 1986; National Institute of Child Health and Human Development, 2000; Paris et al., 1983). By the intermediate elementary grades, some readers begin to exhibit difficulties with reading comprehension. Even though students may receive some level of strategy instruction during reading groups, they may lack understanding about what the strategies are, how they are performed, or even when and why to perform these tasks. Students need opportunities to see the strategies modeled and to practice them with teacher support before being held accountable for independently assimilating these tools into their reading toolbox. Therefore, even though reading strategies may be "taught" by the teachers, they are not necessarily "caught" by all the students to the point of independent application.

Motivation to Read

Motivation to read and reading achievement are linked together (Dweck, 1986; Guthrie, McGough, Bennett, & Rice, 1996). Motivated readers internally choose to activate their use of strategies and engage in the reading process to acquire knowledge, enjoy the aesthetic experience, perform a particular task, or share ideas from the reading with others through discussions. Reading involves both the skill and will to read; therefore, student motivation is crucial in the development of comprehension (Gambrell et al., 2002; Paris & Winograd, 1990).

Reading Self-efficacy

Often, students' reading difficulties are associated with their lack of motivation to read. Self-efficacy, an aspect of motivation, is described by Bandura (1986, p. 391) as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances." Students' reading self-efficacy, or feeling of reading competency is highly correlated with their use and self-regulation of cognitive strategies when reading (Pintrich & De Groot, 1990). Pintrich and De Groot found that students' self–efficacy may determine whether readers are motivated to choose to use cognitive strategies to read, or even whether they choose to engage in reading at all. Truly, both the "skill" and "will" to read influence students' reading engagement (Paris & Winograd, 1990).

As students make the conscious decision to select and implement reading strategies, they are demonstrating their desire to become efficacious readers. Students implement various cognitive strategies to become engaged readers. When readers judge that they can improve their reading performance by using reading strategies, they begin to take control over their cognitive actions to become successful readers. Schunk and Zimmerman (1997) claimed that students' self-efficacy is increased as a result of strategy instruction. Guthrie and Wigfield (2000) identified several strategies that may help to increase student self-efficacy: activating background knowledge (Anderson & Pearson, 1984), searching for information (Guthrie et al., 1996), comprehending informational text (Dole et al., 1991), interpreting literary text, and self-monitoring (Baker & Brown, 1984).

Intrinsic Motivation

Intrinsic motivation describes the state of engaging in an activity for its own sake (Pintrich & Schunk, 2002). When people are intrinsically motivated they participate in an activity for the enjoyment they get from the experience. When individuals' enjoy a particular task, they become more engaged in the task, which in turn increases their motivation to continue to pursue the task. Unlike extrinsically motivated individuals who

participate in a task with the expectation of some desirable outcome or reward, intrinsically motivated individuals are stimulated from within themselves to participate in the activity or task. Pintrich and Schunk (2002, p. 246-247) stated, "Working on a task for intrinsic reasons is not only more enjoyable, there also is evidence that across grade levels, intrinsic motivation relates positively to learning, achievement, and perceptions of competence, and negatively to anxiety."

Guthrie and Wigfield (2000) identified three dimensions of intrinsic motivation: involvement, curiosity, and reading challenge, which are also examined in this study along with self-efficacy and strategies for self-efficacy. Involvement is described as the readers' enjoyment and immersion in the text (Guthrie & Wigfield). Curiosity refers to the readers' desire to learn about a particular topic of interest or to participate in activities that fulfill a desire to learn and understand the world around them (Guthrie & Wigfield). Reading challenge is identified as the satisfaction that one receives upon mastering or assimilating complex ideas in text (Wigfield & Guthrie, 1997), or the desire to figure out complicated tasks (Guthrie & Wigfield, 2000). Guthrie, Wigfield, Metsala, and Cox (1999, p. 250) found that reading motivation was "both antecedent and predictor of reading amount," even when statistically controlling for past comprehension, prior knowledge, and reading efficacy.

Guthrie, Van Meter et al. (1996) found that intrinsically motivated students read a variety of books on a wide range of topics, and used a variety of strategies for locating and understanding books. Students who value literacy and view themselves as competent readers will become more cognitively engaged in reading, resulting in more success in literacy pursuits than students with low self-efficacy (Oldfather & Wigfield, 1996). When students have a sense of control over their learning, they achieve more, are more intrinsically motivated, and are more active in school than other learners (Paris et al., 1991).

The CORI instructional approach has been shown to increase students' motivation

to read through real-world interactions, student choices, engaging texts, concept development, strategy instruction, collaboration support, and learning goals (Guthrie, Wigfield, & Perencevich, 2004). The motivation dimensions of self-efficacy, strategies for self-efficacy, challenge, curiosity, and involvement are explained more fully in chapter two. Since students need both the "skill" and "will" to learn, this study focused on motivation dimensions that were related to students' views of themselves as readers, their conscious implementation of cognitive reading strategies, and their intrinsic desire to read texts which may: be challenging to them, the result of their own curiosity and desire to know more, or even their desire to "get lost" in a book through their involvement.

Metacognitive Awareness for Struggling Readers

Reading proficiency is largely determined by the readers' ability to monitor their reading as they detect and repair comprehension difficulties that may interfere with their understanding of text (Dole et al., 1991). Unfortunately, struggling readers and beginning readers are unaware of how and when to use strategies for self-correction and strategic reading. Unlike more skilled readers, they may not be aware of the procedure or purpose of skimming, rereading, integrating information, planning ahead, taking notes, or making inferences (Paris et al., 1983). This study sought to examine the impact of two instructional approaches upon struggling students' awareness of how, when, and why to use reading strategies and their ability to self-regulate their use of strategies.

Importance of Metacognitive Awareness Instruction

Why is it important to teach metacognitive awareness to struggling readers? Metacognitive awareness refers to the inner awareness, knowledge, management and control that readers' have over the reading process (Cross & Paris, 1988). Metacognitive strategies are conscious tools that are derived from the readers' awareness of the cognitive demands of text, their purpose or goals for reading, and their ability to access cognitive strategies to achieve their reading goals (Vellutino, 2003). Baker and Brown

(1984) suggested that there is a strong relationship between students' metacognition and their reading comprehension. Development of metacognitive theory and research has led to greater success in designing instructional programs aimed at improving study skills and comprehension. Interventions which include metacognitive training to assist students in understanding different reading strategies and their control over using those strategies have proven quite successful (Baker & Brown, 1984).

Brown and Campione (1990) asserted that a great deal of research indicates that struggling readers do not acquire a variety of cognitive and metacognitive strategies unless they are given detailed explicit instruction. Struggling readers need explicit instruction in understanding each step in performing a strategy, and even more explicit instruction in breaking down the components of more complex strategies. For struggling readers, explicit instruction and structure are necessary components; however, these do not equate to isolated skill instruction decontextualized learning of subskills, passive learning, and the teaching of gradually accruing basic skills (Dole, Duffy, Roehler, & Pearson, 1991).

Reading is a purposeful activity that goes beyond the cognitive skills of decoding to more complex strategies involved in comprehending text. Metacognitive strategies include mental acts in which readers take control of their learning as they monitor comprehension, actively use learning strategies, and reread text. When students are metacognitive, they are aware of their strategies and they shift strategy use to fit the demands of the reading experience. Researchers have identified that students with learning problems require more extensive, structured, and explicit instruction to learn skills and processes that other students learn more easily (Palincsar & Brown, 1987).

Strategic reading requires readers to plan, monitor, and evaluate their reading so they may meet their goal of comprehending the text (Paris et al., 1983). Planning occurs as readers consciously plan when to select and apply specific strategies that would optimally help them achieve their reading goal. Monitoring occurs as readers redirect

their reading to make meaning toward accomplishing their reading goal. Evaluating occurs as readers analyze the demands of the task as related to their reading performance (Cross & Paris, 1988).

Types of Metacognitive Knowledge

Paris et al. (1983) described metacognitive knowledge in terms of three types of cognitive knowledge; declarative, procedural, and conditional knowledge. Declarative knowledge refers to knowing what the task or strategy entails in addition to knowing one's abilities; therefore, it covers both task characteristics and beliefs about ones' abilities. Procedural knowledge refers to knowing how to use various actions or strategies. Conditional knowledge refers to knowing when and why to execute particular strategies. Through their conditional knowledge, readers are aware of specific strategies, how to perform them, and the circumstances surrounding when and why to apply them during reading. Readers are more strategic when they are aware of, and use all three types of cognitive knowledge to attain their reading goals (Paris et al., 1983).

Two aspects of metacognition: self-management and self-appraisal of thinking, known respectively as the "skill" and the "will" to learn, represent metacognition as a psychological construct within a dimension of learning (Paris & Winograd, 1990). *Self-management* identifies the learners' awareness and executive management of their own learning and thinking as they monitor and revise their ongoing thinking. Cognitive self-management has direct implications on students' performance as it relates to students' actual "skill" of strategic thinking. *Self-appraisal* identifies what learners think about their knowledge, cognitive strategies, performance, and individual abilities to meet a cognitive goal. Through self-appraisal, students' perceptions of their own ability to perform the challenge of a particular task will influence their "will" to put forth effort to accomplish the task.

Metacognitive Beliefs

Metacognitive beliefs are the expectations that students have concerning their performance in regard to thinking and learning (Paris & Winograd, 1990). Metacognitive beliefs affect students' self-perceptions of themselves and their interpretations of success and failure in academic situations (Paris & Winograd, 1990). Metacognitive strategies are closely related to students' cognitive knowledge and their motivation to learn. Through metacognitive self-appraisals, students reflect on their successes and failures as learners, which may range from self-assurance and confidence to shame and helplessness; therefore, metacognitive awareness impacts struggling readers' "skill" and "will" to become proficient readers (Paris et al., 1983; Paris & Winograd, 1990).

Development of Metacognition

Good readers use metacognitive strategies to think about and control their use of strategies before, during, and after reading texts. Before reading, readers may examine the text and identify the text structure, become acquainted with the format of the text, the writing style and any text supports, as well as activate their background knowledge to the topic they are about to read about. During reading, readers monitor their understanding of text by implementing strategic decoding and comprehending behaviors. Students may read to answer questions or confirm their predictions, but effective readers engage in metacognitive processes whenever they come to difficulties in the text that limit their understanding. Good readers also use metacognitive strategies after reading by checking their understanding of what they read and reflecting on whether they met their purpose for reading.

When do children become metacognitively awareness? Researchers have examined the development of metacognitive awareness in children and in relation to their ability to perform cognitive tasks. Baker and Brown (1984) found that one of the best ways to assess what children and adults know about their thinking was to ask them. The practice of interviewing people concerning their metacognitive processes has been very

informative in understanding the development of metacognitive awareness within different grade, age, or ability levels.

In their study involving student interviews, Myers and Paris (1978) found that second-grade students were less able to understand the cognitive components of the reading process than sixth-grade students. They suggested that direct instruction may be needed to alter young children's limited understanding that reading is a cognitive process rather than the ability to decode words, and that the goal of reading is to comprehend the text. Also, younger and less- skilled readers were not as aware as older, more-skilled readers of the detrimental effects of poor reading habits, such as watching television while reading (Paris & Myers, 1981).In Kreutzer, Leonard, and Flavell's (1975) study involving students in kindergarten, first-, third-, and fifth-grade, they found that third- and fifth-grade children were more cognitive than the younger children in knowing about their own memory performance and use of remembering strategies. Older students' reports revealed that they were more aware of strategic behaviors such as knowing that it is more efficient to learn the gist of the information rather than to memorize all of it verbatim (Kreutzer, Leonard, & Flavell, 1975). Markman (1977, 1979) found that younger children were less able to detect inconsistencies in text than older readers.

Brown (1984) acknowledged that young children are less informed and metacognitive than older children, probably due to their limited opportunities to decontextualize cognitive activities for further study. Research has shown that younger, less proficient readers are not as resourceful or knowledgeable in performing reading and studying tasks as older, more proficient readers. Young children and poor readers have more difficulty planning and regulating their reading behaviors, as well as monitoring their cognitive activity compared to older readers, adults, and good readers.

Research has shown that younger readers and struggling readers have more difficulty than older readers and proficient readers in using metacognitive awareness when performing cognitive tasks. This study examined the impact of two instructional

approaches, CORI-STAR and Guided Reading on the development of metacognitive awareness in struggling third- and fourth-grade students who were working below grade level according to standardized tests and classroom reading performance.

Examining Instructional Programs

This study examined the influence of two instructional programs CORI-STAR and Guided Reading upon students' comprehension, metacognitive awareness, and motivation. This section begins with an overview of the Concept-Oriented Reading (CORI), followed by an explanation of the metacognitive component, known as Strategic Thinking as Applied to Reading, or STAR (CORI-STAR), and Guided Reading approaches.

CORI Instruction

CORI instruction involves components of reading, science, and motivation as the teacher models and scaffolds student learning within explicit reading strategy instruction to better assist the students' understanding of science content through motivational support within the classroom (Guthrie, Wigfield, & Perencevich, 2004). Students are given opportunities to explore science concepts while learning to use reading strategies such as activating background knowledge, questioning, searching for information, graphically organizing the information, summarizing, and communicating information to others. Students are motivated to read texts that help them develop conceptual understanding. Their curiosity guides their reading to answer questions that they want to know and that may be stimulated by their real-world observations and interactions. In CORI, teachers model instructional strategies and scaffold student learning as students gradually take more responsibility for their learning (Vygotsky, 1978). Students have opportunities to practice reading strategies and to transfer strategy use to different texts and science concepts (Guthrie, Wigfield, & Perencevich, 2004).

CORI was developed to increase reading interest and motivation, expand high-order reading strategies, broaden conceptual understanding, and enhance the social

processes of literacy (Grant, Guthrie, Bennett, Rice, & McGough, 1994). The framework of CORI synthesizes nine research-based principles that influence high amounts of reading engagement among students which are: learning and knowledge goals, real-world interactions, autonomy support, interesting texts, strategy instruction, collaboration support, rewards and praise, evaluation, and teacher involvement (Guthrie, 2004a).

CORI-STAR Instruction

CORI instruction is typically implemented as a whole-class instructional model in which students interact with one another within a collaborative learning community. Although CORI instruction has been shown to be an effective approach in developing strategy use, reading engagement, and reading motivation within intermediate grade-level classrooms (Guthrie, Cox, Anderson, Harris, Mazzoni, & Rach, 1998; Guthrie, Anderson, Alao, & Rinehart, 1999; Guthrie, Van Meter, Hancock, McCann, Anderson, & Alao, 1998), it has not been examined as a small-group supplementary instruction model for struggling readers. Also, CORI instruction does not include a metacognitive strategy component that has been shown to develop students' self-regulation of reading strategies (Baker & Brown, 1984).

CORI-STAR, the acronym for *Concept-Oriented Reading Instruction* (CORI) with *Strategic Thinking Applied to Reading* (STAR), was designed to provide explicit small-group metacognitive instruction for struggling readers using the CORI approach as its framework. CORI-STAR, based on the principles of CORI, uses real-life experiences, collaborative support, interesting text, strategy instruction, autonomy support, learning and knowledge goals, in addition to a metacognitive instructional component which includes think-alouds, modeling, and metacognitive awareness. The STAR component of CORI-STAR provides explicitly modeled instruction to help struggling readers become metacognitively aware of their strategy-use and thinking as they begin to self-regulate their learning within a motivating instructional model.

Guided Reading Instruction

Guided Reading is a teaching approach designed to help individual students learn how to process a variety of increasingly challenging leveled expository and narrative texts within small-group reading instruction (Fountas & Pinnell, 1996, 2001). Guided Reading instruction is based on sociocultural theory which suggests that learning is constructed as readers interact with texts and receive the support of more knowledgeable peers in their environment (Vygotsky, 1978). Readers discover the principles of reading through the guidance of others (Clay, 1991). The teachers provide students with scaffolded support that is specific to the instructional needs of the students. Teachers use observational information concerning students' reading behaviors while attending to visual, semantic, and syntactic cues during reading to help them design mini-lessons that specifically address what students need to know to be successful readers. Pinnell (2002, p. 107) stated, "Instruction within guided reading varies from the teacher's direct demonstration and explanation of effective reading strategies to his or her prompting, guiding, and reinforcing students' use of strategies as they read."

In Guided Reading, daily informal teacher observations and assessments are valuable in planning appropriate instruction, determining the level of scaffolding necessary for the lesson, matching the text to the instructional needs of the student, and providing specific teaching points that are directly connected to the observed student behaviors. The central activity of Guided Reading is the students' independent reading of the text (Fountas & Pinnell, 1996, 2001). Teachers monitor students' reading performance, encourage them to use problem-solving efforts, and provides students with assistance as needed. Teachers are cautioned to only give quick help when it is really necessary as students read so as to not interrupt the students' construction of the meaning from the text.

Guided Reading has been selected for classroom reading instruction for students from kindergarten through grade five in the county in which the current study was

conducted; therefore, all students who were involved in this study were already familiar with this instructional approach. Classroom teachers in every grade use leveled little books for instruction, progressing from level 1 texts to level 30 texts. The county provided Guided Reading staff development for primary teachers about nine years ago, and for intermediate teachers about four years ago. Primary-grade teachers within the school are using the *Guided Reading: Good First Teaching for all children* (Fountas & Pinnell, 1996) to inform their instruction, and the intermediate-grade teachers are using the text *Guided Readers and Writers Grades 3-6* (Fountas & Pinnell, 2001).

The school where this study was conducted has also provided staff development to teachers in using Guided Reading instruction within their classrooms. Teachers were also given opportunities to observe me as I modeled Guided Reading lessons as a part of the fidelity of treatment teacher observations that were integrated into this study.

Purpose

As a reading specialist, I am cognizant of the increasing number of students in elementary schools who are performing below grade-level expectations in reading as assessed by high-stakes tests. Schools are challenged with the responsibility of providing the quality of instruction necessary for all students to meet the achievement standards of "No Child Left Behind". Intermediate-grade teachers report that struggling readers in their classrooms are those students who lack comprehension strategies, even though they can decode the text. According to the RAND Reading Study Report (2002), students need to be able to read and comprehend well if they are to learn the increasingly difficult content area material beyond grade three. Good comprehenders get involved in what they read, critically evaluate the text, and use their knowledge to solve reading problems; however, some students have not yet acquired comprehension strategies by the intermediate grades (RAND, 2002). The RAND Reading Study (2002, pp. 2, 33) report stated, "Many (students) will need explicit, well-designed instruction in reading comprehension to continue making progress…The explicitness with which teachers teach

comprehension strategies makes a difference in learner outcomes, especially for low-achieving students."

This study springs from the quandary of many educators in determining appropriate instruction to effectively assist less proficient readers. Many teachers question how to assist their learners' development of the strategies necessary to become metacognitive and to self-regulate their learning. Proficient readers are more metacognitive and self-regulative during the reading process than unskilled readers (Baker & Brown, 1984; Paris et al., 1991). Metacognition is a key element to strategic processing because it enables readers to monitor and regulate their reading processes as they become aware of their cognitive strategies (Flavell, 1979). Yet, metacognitive awareness instruction is not usually included as a component of classroom reading instruction for elementary school students.

Struggling readers are identified in classrooms across the country every year by their inability to acquire knowledge through reading. Even though several models of instruction have been substantiated through empirical research, extensive gaps still exist between proficient readers and non-proficient or basic readers in classrooms. Good instruction is the most powerful means to develop proficient comprehenders and to prevent reading comprehension problems. This investigation explored the effectiveness of two instructional approaches, CORI-STAR and Guided Reading, in developing strategic reading behaviors in struggling third-and fourth-grade readers.

Research Questions

Several questions arose as the foundation to the study. Among struggling third- and fourth-grade readers: (1) What influence will each reading approach, CORI-STAR and Guided Reading, have on increasing reading comprehension, metacognitive awareness, and motivation?, (2) What impact will CORI-STAR and Guided Reading

have on student transference of strategies to their classroom reading group?, (3) What impact will CORI-STAR and Guided Reading instruction have on struggling readers' ability to regulate their use of reading strategies when reading independently?, and (4) How will instruction using self-regulation strategies in relation to declarative, procedural, and conditional knowledge impact students' ability to remember what, how, when and why to apply strategies to specific situations?

Definitions of Key Terms

Concept-Oriented Reading Instruction (CORI)

CORI is a classroom instructional approach that integrates reading strategy instruction with science content knowledge as students gain conceptual knowledge of science through their reading (Guthrie, 2004a; Guthrie & Wigfield, 1997; Guthrie, Wigfield, & Perencevich, 2004). CORI involves components of reading, science, and motivation; whereby, students collaborate with one another to become engaged, motivated readers through whole-group instruction, working as a team, and individual learning experiences. CORI instruction includes motivational elements of students' choice, collaboration with others, real-world experiences, interesting texts, and learning goals. Students learn reading strategies while developing conceptual understanding of science through reading. Students search texts for information to satisfy their own curiosities and they set new challenges for their learning. The goal of CORI instruction is to increase student reading engagement and motivation to read (Guthrie & Wigfield, 1997; Wigfield & Guthrie, 1997).

CORI-STAR Instruction

Concept-Oriented Reading Instruction (CORI) with Strategic Thinking Applied to

Reading (STAR), known as CORI-STAR was designed to provide explicit small-group metacognitive instruction for struggling readers using the CORI approach as its framework. CORI-STAR includes an instructional triad which includes explicit teaching (Duffy, Roehler, & Mason, 1984) using think-alouds (Baumann, Seifert-Kessell, & Jones, 1992; Pressley & Afflerbach, 1995), modeling (Bandura, 1986), and metacognitive awareness (Baker & Brown, 1984; Flavell, 1979). The use of metacognitive awareness instruction has been shown to benefit struggling readers as they learn to self-regulate their strategy use during reading.

The CORI approach was selected as the foundation for CORI-STAR, primarily because of the highly motivating aspects of this model. CORI-STAR helps readers develop metacognitive awareness to support their development of self-regulatory reading behaviors. In each lesson, the teacher scaffolds the development of students' reading comprehension, beginning with teacher modeling, and supporting student practice and independence in reading strategy use. The teacher identifies the declarative, procedural, and conditional knowledge needed to perform the reading strategy, models the strategy through teacher think-alouds, and guides students as they practice using the strategies during reading. Students verbalize their learning and use of strategies through their think-alouds, graphic organizers, and reflections in their journals.

Guided Reading Instruction

Guided Reading is an approach in which students of similar reading ability meet together in small groups for instruction, using leveled text chosen at their instructional level. The teacher introduces the text to be read, sets the purpose for reading, reviews the vocabulary, and guides students as they read the text. Teachers use running records to

assess students and determine their instructional needs. Students' instructional needs and reading behaviors determine the teaching point that the teacher uses for a mini-lesson that follows the reading. The teacher helps students monitor their use of strategies before, during, and after reading (Pinnell, 2002).

Metacognition

Metacognition refers to persons' awareness of their own thinking as they reflect on what they already know as they regulate their problem-solving strategies, thoughts, and behaviors to accomplish their goal (Baker & Brown, 1984; Spring, 1985). Metacognition involves both the learners' ability to plan, monitor and regulate their behavior toward learning, as well as the learners' conscious evaluation of their own performance (Brown, 1980). Metacognition focuses on the self-regulated thinking of readers as they know and apply the appropriate knowledge necessary to complete a task (Jacobs & Paris, 1987). According to Flavell (1979), metacognition refers to persons' knowledge concerning their own cognitive processes. He asserted that knowledge, motivation, and affect are all involved in metacognition. Metacognition involves three kinds of cognitive knowledge: declarative knowledge, which involves knowing *that* or knowing *what* strategies are needed to accomplish a task; procedural knowledge, which involves knowing *how* to perform cognitive activities; and conditional knowledge, which involves knowing *when* and *why* to use specific strategies (Paris et al., 1984).

Modeling

Humans learn a great deal by watching the behaviors of others. Teachers use modeling to explain and demonstrate specific strategies to students. Through modeled lessons students are shown the step-by-step processes for performing various task

procedures. The teacher's modeled actions are used to inform observers of cognitive, behavioral, and affective responses to various reading stimuli. Students are more likely to understand how to perform specific tasks after having observed the sequential steps and behaviors modeled by others as they accomplish the procedure (Bandura, 1986; Bandura, 1999; Schunk, 1991).

Motivation

Motivation consists of an individual's goals and intentions (Corno & Kanfer, 1993). Guthrie, Wigfield, Metsala, and Cox (1999, p. 233) defined motivation as the "characteristics of individuals, such as their goals, competence-related beliefs and needs, that influence their achievement and activities." Motivation is concerned with human behavior and how individuals make choices between different activities that are available to them.

Self-efficacy is defined as peoples' judgments of their capabilities to organize and perform different kinds of tasks or activities, such as reading a book. A student's self-efficacy beliefs may be formed as a result of past attempts at a particular task and feedback that was received from that experience. Students with high self-efficacy are more inclined to try difficult tasks and persist with tasks they are performing (Wigfield et al., 2004). Schunk and Zimmerman (1997) asserted that self-efficacy within reading is associated with the use of reading strategies, self-regulation, and comprehension of texts.

Within different contexts and experiences, persons may be either extrinsically or intrinsically motivated. Students may be extrinsically motivated to accomplish a goal when they are working for grades, prizes, rewards, or personal acclaim. Extrinsic motivation comes from outside the learner, such as when learners comply in order to

please the teacher, or get a sticker for recognition. In such cases, the student is motivated to perform the task in order to receive the extrinsic reward.

However, students are intrinsically motivated when they set their own learning goals and have a personal desire to participate in a given task to achieve a particular goal. This study examined three dimensions of intrinsic motivation: curiosity, challenge, and involvement, in addition reading self-efficacy and self-efficacy strategy use. Students are motivated by curiosity when they choose to read about topics that interests them. Readers are challenged to read more difficult texts when they want to understand more complex ideas. They are motivated by the challenge of reading what interests them. Students exhibit involvement when they are immersed in books, displaying their enjoyment of literary or expository texts (Guthrie & Wigfield, 2000). Students use strategies more effectively when they are intrinsically motivated than when they are motivated by extrinsic goals (Pintrich & De Groot, 1990).

Reading Comprehension

Duffy (2003) described comprehension as the essence of reading. Reading comprehension is the process of understanding and constructing meaning from text. Reading comprehension may be affected by the reader's background knowledge, text vocabulary, text level, decoding difficulties, among other things. Comprehension involves the match between the reader, the text, and the activity of the reading (Alvermann & Eakle, 2003). Reading comprehension is considered to be the most important academic skill to be learned in school (Pressley, 2002). Reading comprehension is a meaning-making process; whereby, readers interact with print and make sense from the message as they acquire, confirm, and create meaning (Gambrell,

Block, & Pressley, 2002). When readers comprehend text they are (1) actively thinking and constantly monitoring for meaning, (2) making and changing predictions, (3) using prior knowledge to interpret text, (4) thinking about and analyzing the clues the author provides, (5) inferring from the author's information and their prior knowledge to gain meaning, (6) making mental images while reading, and (7) reflecting and evaluating what they have read (Duffy, 2003).

Reading Strategies

Reading strategies are those behaviors that lead to accomplishing a reading goal such as the techniques that readers use to process text (Spring, 1985). A reading strategy consists of a sequence of cognitive steps used to accomplish a specific goal (Collins, 1998). Readers use strategies when they plan, evaluate, and regulate their own reading behaviors to make sense of the text before, during and after reading. When readers use strategies, they are making a problem-solving plan to help them construct meaning from the text. Unlike skills which are automatic and unconsciously performed, strategies are deliberate, conscious actions of the reader that are specific to a particular situation, or context, and rely upon the demands of the text (Duffy, 1993). According to Pressley, Forrest-Pressley, Elliot-Faust, and Miller (1985, p. 4), "Strategies are composed of cognitive operations over and above the processes that are a natural consequence of carrying out a task ranging from one such operation to a sequence of interdependent operations." Strategies help readers achieve cognitive purposes and are potentially conscious and controllable activities. Readers coordinate their use of reading strategies to appropriate circumstances to help them alter, adjust, and construct meaning as they read. Reading strategies are learned procedures to be used for specific reading situations when

readers self-regulate and monitor their reading processes (Borkowski, Chan, & Muthukrishna, 2000).

Self-regulation

Self-regulation includes three components: students' metacognitive strategies for planning, monitoring, and modifying their cognition, students' management and control of their effort in completing classroom tasks, and the students' actual cognitive strategies that they employ to learn the material (Pintrich & De Groot, 1990). Self-regulated learners are described as those students who are metacognitively aware and skilled in the use of cognitive strategies. They are also described as students who are motivated to engage in, and persist in academic tasks; therefore, they tend to be highly self-efficacious students who view learning to be valuable and interesting (Wolters, 2003). Self-regulated learners are those learners who possess high levels of cognitive strategies and they have the ability to select, monitor, and regulate those strategies in academic tasks (Pintrich & Schunk, 2002). Self-regulated learning involves choosing to engage in "self-directed metacognitive, cognitive, affective, and behavioral processes and skills" (McCombs & Marzano, 1990, p. 52).

Struggling Readers

Struggling readers are identified as those students who experience difficulty comprehending text at their grade level. They are readers who have not found learning to read easy (Allington & Walmsley, 1995), which has impacted their motivation and reading engagement. Struggling readers may experience difficulty with various components of the reading process such as understanding vocabulary, decoding words, reading fluently, or comprehending the text. In this study, struggling readers are

identified as those students who have performed below grade level standards on state and county reading assessments and have been identified as those students who are working below their peers in their grade-level classrooms.

Think-alouds

Think-alouds refers to the practice of students or teachers talking through the reading process as they verbally share the strategies they used, the thoughts and connections they made as they read or prepared to read, their understandings and questions about the text, or the way they felt as they read the text or portion of text (Ericsson & Simon, 1980; Pressley & Afflerbach, 1995). Think-alouds are a metacognitive process where readers verbally express their ideas and connections. Teachers use think-alouds to model their invisible thinking processes so that their students may observe, understand, and practice the various strategies that they need to process the text (Spring, 1985).

Significance of the Study

This study is significant for several reasons. First, since educators are frequently examining instructional programs to accelerate the learning of struggling readers, this study may inform others of the impact of CORI-STAR and Guided Reading upon the literacy and motivation development of small-groups of struggling readers. Second, this study may further contribute to research concerned with struggling readers and their development of metacognitive skills and self-reflective behaviors. Third, the information gained from this research may inform further research concerned with helping other student subgroups develop self-regulating reading strategies. Fourth, the study may provide information concerning students' use of metacognitive strategies to strengthen

their thinking in other content areas, such as social studies or math. Fifth, this study may document the importance of using think-alouds during small-group instruction to assist students in developing higher order thinking and learning as they share their interpretations and ideas with others.

This research study may advance theory by extending our existing knowledge concerning remedial instruction that may motivate students to learn, in addition to providing them with an understanding of how to regulate their use of strategies toward becoming independent learners. Unfortunately, there is often little movement of students out of remedial programs because they have not developed the conditional knowledge necessary to self-regulate their reading behaviors. This study may lead to other studies that examine the long-range effects of supplementary CORI-STAR instruction on students' reading improvement, possibly extending this work to track students' progress over time in a longitudinal study. It may also provide data concerning the effects of explicit metacognitive awareness training on struggling readers which may further inform metacognitive theory.

Limitations of the Study

Participants who were identified for the study were those students who scored below grade level expectations on the Stanford Achievement Test- 10th edition (SAT-10) (Case, 2003, Stanford Achievement Test Series- Tenth Edition, 2006), or the Maryland School Assessment (MSA) (Maryland State Department of Education, 2003) administered in the spring of 2005 to the 2005-2006 classes of third- and fourth-grade students. Due to the nature of the study, all eligible participants in the study were those students who were enrolled in regular classroom instruction and who were not receiving

pullout services which required a large proportion of instructional time, such as special education or the Learning Language Support Program. Within the period of this study, all below grade level students in the third-grade and fourth-grade not receiving either of those two services were included in this study.

A limitation of the study was the lack of total randomness in assigning eligible students into a particular condition. Students were randomly assigned to a group by their homeroom classroom instead of individually assigning students to a particular group All identified students within a particular class were randomly assigned to one condition - either CORI-STAR or Guided Reading- as a class in order to allow for smoother coordination with the grade-level classrooms' reading group schedules. I collaborated with classroom teachers to coordinate their reading group schedules with the supplementary instruction times for students participating in the study. Fortunately, most students identified for the study from a particular classroom were also in the same reading group, so supplemental instruction times for Session 1 and Session 2 were adjusted to work with the classroom reading schedules.

Due to the nature of small-group supplementary services, the study was limited to small groups of six to seven students within each condition at both the third- and fourth-grade levels. The number of participants in the study was limited for two reasons: (1) the only students in the study were struggling readers who were working below grade level in third- and fourth-grade and were not receiving pull-out services for special education or Learning Language Support, and (2) all instruction for both conditions was provided by me, the researcher, so there was a time constraint due to my responsibilities as reading specialist.

Basic Assumptions

One basic assumption of the research was that third- and fourth-grade students in both the CORI-STAR and Guided Reading groups would receive comparable classroom reading instruction using texts at the students' reading levels. The county and school-wide instructional reading approach that is currently used from kindergarten through grade five is Guided Reading. It was assumed that all students receiving supplementary services in either condition would be familiar with Guided Reading instruction from their classroom reading groups.

Since this intervention addressed comprehension monitoring in intermediate-level struggling readers, it was assumed that the identified students who were recommended for this program are those who were experiencing difficulty with comprehension and were reading below grade level.

Another assumption of the study was that none of the students in the study had been exposed to CORI-STAR instruction within their own classrooms. The only students receiving the CORI-STAR approach to supplemental instruction at the school this year were those involved in this study.

Chapter II: Review of the Literature

Introduction

Supplementary instruction has been used extensively throughout schools to accelerate reading growth for struggling readers. With the signing of "No Child Left Behind" (NCLB) Public Law 107-110 by President George W. Bush on January 8, 2002, American schools have been challenged to improve the reading programs so that all students are reading at the proficient level by 2014 (U. S. Department of Education, 2003). Under this law, states must describe how they will close the achievement gap for struggling students based on practices that have been proven through rigorous scientific research. Research has shown that students need critical skills to become good readers (National Institute of Child Health and Human Development, 2000). It is our national goal to provide instruction for all students so that they may be successful readers. Snow, Burns and Griffin (1998) reported that those students who fall behind their classmates may often stay behind; however, those students who read well in early grades continue to achieve academic success.

The 2001 National Assessment of Educational Progress (NAEP) reported that overall reading achievement has not improved in the past two decades. Unfortunately, less than one-third of the fourth-graders can read at the proficient level, with about 55% of low-income fourth-graders lacking the functional skills to read and understand a story at the basic level. By twelfth grade, when formal public education ends, only 36% of our students are proficient readers (U. S. Department of Education, 2003).

The purpose of the present study was to work toward closing the achievement gap by determining an effective supplementary instructional program that would serve as a

research-based intervention for struggling readers at the intermediate elementary level. Two reading approaches, CORI-STAR and Guided Reading, were examined to determine which program generated a greater impact toward improving reading comprehension, metacognitive awareness, and motivation in struggling readers. Chapter 1 defined the problem to be explored in this study and established the significance of developing an understanding of instructional approaches that may accelerate reading growth and motivation in struggling readers.

This chapter reviews the research literature concerned with several key components of this study that impact student achievement and reading gains: (1) the type of instruction regularly provided to remediate struggling readers, (2) a comparison of the strategy-use of good and struggling readers, (3) the theoretical base for this study, (4) instructional strategies, tools and procedures for developing comprehension and metacognition in readers, (5) the effect of motivation on student learning, and (6) the empirical research related to CORI-STAR and Guided Reading, which were the instructional approaches that were compared and evaluated in this quasi-experimental study.

Instruction for Remediating Struggling Readers

The first section examines the quality and frequency of instruction for struggling readers, either in the classroom or in supplementary reading programs in the school. Struggling readers have been identified as students who have failed to acquire proficient reading abilities in accordance with grade-specific criteria determined through assessments (Johnston & Allington, 1991). In the past, students who have exhibited difficulties learning to read have been placed in either special education programs or

remedial services, in conjunction to the degree of their learning difficulty. Students whose learning disabilities severely interfere with their progress and ability to learn successfully within the general education setting are generally recommended for testing; whereby, they may require additional instruction or support either within their classroom or as a pull-out service in a resource room by a special education teacher. However, it could be determined that students with less severe achievement deficits may benefit from either short-term or extended supplementary remedial reading intervention. At the elementary level, supplementary reading instruction is often provided by either the reading specialists, ESL teachers, or another instructor within the school (Allington & Walmsley, 1995).

Throughout the school year, struggling readers are identified by their teachers as a result of their consistently low performance on classroom assignments, high-stakes testing, and daily assessments, compared to their grade-level peers. Allington and Walmsley (1995) claimed the importance of increasing both the quantity and quality of reading instruction was to accelerate reading development in struggling readers; therefore, in this chapter I examined the empirical research and the educational practices that are integral to understanding the components of a supplementary instructional approach for struggling elementary-level readers. Within this study, I explored the influence of two approaches of supplementary reading instruction, CORI-STAR and Guided Reading, upon students' reading comprehension, metacognitive awareness, and motivation to read. Students who participated in this study were identified through their low scores on high-stakes tests and their below-grade level classroom performance. This

section examines the instructional practices that are often used to remediate struggling readers.

The addition of supplementary instruction to the school schedule often negatively impacts the quantity of time struggling readers spend reading or receiving instruction (Johnson & Allington, 1991). Many difficulties stem from poor management decisions and interferences such as: accrual of lost time during transitions between the classroom and the intervention room, misjudgment in the selection of reading texts which are not within the students' instructional reading level, an over-emphasized use of skill and drill worksheets, un-motivating instructional methods or procedures, and a large emphasis placed on skill-based reading instruction (Johnston & Allington, 1991).

Often remedial services lack the instructional component that struggling readers need to accelerate their reading. Instead of providing instruction that contains explanation, modeling, or strategy instruction, remedial teachers may often be observed in a more passive role of monitoring students as they work, followed by misusing valuable instructional time to correct students' work for accuracy (Johnston & Allington, 1991).

Unfortunately, the misdirected instructional goals of many remedial programs are aimed toward obtaining student products or evidence that specific curricular indicators have been instructed, as noted through the repetitive tasks of asking students to name a character in the story, circle words with a particular sound, or complete skill worksheets (Johnston & Allington, 1991). This type of instruction impacts students' comprehension at the lower levels of Bloom's taxonomy (Bloom, 1976). Contrast this to the classroom where instruction is a process that encourages learners to think about, and discuss what

they read, and where students are motivated to read about topics that interest them. Cognitive growth and language development are evident in classrooms where instruction guides students to actively participate in the process of comprehending and interacting with texts at higher levels of Bloom's taxonomy. However, these learning opportunities are rarely found in remedial programs (Johnston & Allington). Relatively few remediation programs actually alleviate students' reading deficits; therefore, struggling readers benefit little for the effort (Johnston & Allington).

Cognitive theory recognizes that readers are active participants in constructing the meaning of the text through their problem-solving processes. Students become metacognitively aware when they receive strategy instruction that helps them learn to think about how, when, and why to apply strategies to gain meaning from text (Duffy & Roehler, 1987). Comprehension strategy instruction helps students obtain specific learned procedures to become active, competent self-regulated readers (Trabasso & Bouchard, 2002).

Many remedial instruction programs provide less stimulating instruction for struggling students who are targeted because they need to acquire individualized skills for reading (Johnston, Allington, & Afflerbach, 1985). Skills are described as procedures that students practice and over-learn through constant repetition so that they will automatically use them when needed. Strategies are described as mental tools that readers flexibly select to problem-solve during a particular reading situation (Duffy & Roehler, 1987).

Unlike skill instruction which emphasizes students' accuracy on repetitive drill and practice activities or worksheets, strategy instruction produces knowledgeable, conscious

thinkers who flexibly apply strategies when encountering a variety of situations as engaged readers reading authentic text (Johnston et al., 1985). Often, remedial students receive instructional specialization. Even though that may sound enriching, it means nothing more than the fact that the different types of worksheets were individualized according to the academic needs of the students within the group. Unfortunately, it does not imply that instructional time is used for teaching, or explaining the strategies that the students need for performing the reading task (McGill-Frazen & Allington, 1990).

Eighty years ago, the objectives of a remedial instructional model were described as including a rich and varied reading experience, motivation to read, and the development of desirable attitudes and efficient reading skills (Whipple, 1925). Research has shown that successful readers spend more time engaged in reading than struggling readers (Anderson, Wilson, & Fielding, 1988; Guthrie, Cox, Anderson et al., 1998; Ivey, 2000; Stanovich, 1986). In addition to uninterrupted reading blocks in school, many good readers have opportunities to engage in reading outside of school, through community and home libraries, and book clubs (Anderson et al., 1988; Baker & Wigfield, 1999). However, the reading instruction given to struggling readers consist primarily of fragmented skill instruction, little time engaged in actual reading in school, (Allington, 1983; Allington and McGill-Franzen, 1989; Johnston & Allington, 1991; Quirk, Trisman, Nalin, & Weinberg, 1975), fewer available books at home, and less motivation to read (Anderson et al., 1988).

Students learn what they are taught, but unfortunately struggling readers are usually not provided with the same amount or level of instruction as good readers (Allington, 1983). Yet, even if equivalent amounts of instruction were allotted for both groups,

struggling readers still would not receive enough remediation to accelerate their reading progress to the same level as their peers. The achievement deficit for struggling readers cannot be corrected unless schools increase the amount of instruction for struggling readers beyond the amount received by good readers. In order to narrow or eradicate the achievement differences between good and struggling readers, additional reading instruction time needs to be allocated for struggling readers (Allington, 1983; Bloom, 1976).

Teachers often differentiate reading instruction for struggling readers by slowing down the pace of instruction, resulting in less instruction and less time to engage in actual reading experiences (Allington, 1994). Teachers' decisions concerning instructional methods such as "round robin reading" add to deficits for struggling readers by limiting important attributes of reading such as: reading enjoyment, opportunities to practice reading strategies, and engaged time in actual reading (Ivey, 2000).

The type and pace of instruction that teachers select may often impede the progress of struggling readers (Allington, 1983). Compared to the quality of engaged reading instruction experienced by good readers, struggling readers tolerate a larger ratio of their reading time allocated to preparation for reading, rather than actual reading. Struggling readers receive less time engaged in reading than good readers during reading instruction time (Allington, 1983; Gambrell, Wilson, and Gantt, 1981). In contrast to good readers who enjoy reading texts at their instructional level, struggling readers are often given text for instruction that is at their frustration level (Clay, 1972; Gambrell et al., 1981; Ivey, 2000).

In his 1982 study of 21 first-grade classrooms, Allington found that good readers read about three times as many words per day in reading group as struggling readers and about 70% of their reading is done silently compared to the oral reading by struggling readers. Allington explored this further in his 1984 study where he examined teacher logs containing 600 reading group sessions for students in grades 1, 3, and 5 to determine whether the amount and type of contextual reading differed between reading groups. This study involved collecting the instructional records of 60 volunteer teacher participants' two reading groups for five days. Teachers were asked to record the grade level of the students, the group level as either good or struggling readers, the date of each of the five consecutive lessons, the title of the material read, the publisher, and the date of copyright. Teachers were also asked to record the beginning and ending page numbers of the text read and to indicate whether students read silently, or orally.

The teacher logs were used to identify and collect the texts used for instruction and the numbers of words that appeared on the identified pages were calculated. Allington (1984) found that the pace and volume of reading varied between reading groups. Good reader groups read one or more complete stories in a session compared to struggling readers who read only pages. Calculations revealed that good reader groups read significantly more words silently than struggling reader groups within all three grade levels. The teacher plans for good reader groups emphasized silent reading and comprehension while instruction for struggling readers emphasized decoding skills and reading aloud. Similar amounts of instruction were noted between younger good readers and older struggling readers, with the exception that younger good readers read more silently, more often. Compared to older struggling readers, younger good readers read

silently and read more words. This study revealed differences in reading instruction provided for good and struggling readers (Allington, 1984).

Allington (1980) continued to better understand differences in reading instruction between good and struggling readers as he studied the interruption patterns of twenty first- and second-grade teachers responding to the miscues of good and struggling readers during classroom oral reading sessions. His study sought to determine whether teachers reacted differently toward student miscues in the two groups. The teachers' verbal behaviors were cued according to the point of interruption and the direction of interruption. The point of interruption dealt with the timing of the interruption as either no interruption, interruption at the time of error, or interruption after the error. The direction of interruption referred to the type of error such as graphemic, phonemic, semantic and syntactic, teacher pronunciation of word, or other.

An analysis of the audiotapes from the instructional sessions of both low- and high-group readers revealed significant teacher interruption differences for struggling readers (68% of the errors to 24% of the errors) over the high group. The struggling readers were also most often interrupted at the point of error compared to good readers who were allowed to read and self-correct their own errors. Allington (1980) concluded that differential treatment of good and struggling readers may be a contributing factor to student reading success.

Hoffman and Clements (1984) further explored the relationship between students' miscues and the teacher's verbal responses during second-grade oral reading sessions. By analyzing and coding the video-tapes of reading sessions, they found that struggling readers had less teacher contact during reading groups, less engaged time in instruction,

and less task success than better readers during guided oral reading instruction. Hoffman and Clements' observations also confirmed Allington's (1980) observations of the high degree of teachers' correction rates for reading miscues made by struggling readers, compared to those of good readers who were given opportunities to self-correct and make attempts at new words when reading.

Teachers often neglect to prepare struggling readers to take on the reading behaviors modeled by good readers in the class (Hoffman & Clements, 1984). In their study, Hoffman and Clements video-taped and examined eight second-grade teachers' reading groups and found that the teachers' lack of judgment in planning explicit reading strategy instruction, selecting appropriate texts, and providing verbal feedback were inhibitors to their struggling students' reading growth during guided oral reading groups. The teachers' misjudgment by selecting difficult text for struggling readers and easy text for good readers resulted in slightly more than 10% miscues for struggling readers, compared to 5% for the good readers. They also observed that when students made substitution miscues during reading, high readers received no feedback 75% of the time versus low readers who received the correct word 57% of the time. Good readers made miscues that affected the meaning of the text 27% of the time, compared to 67 % for struggling readers. Teachers more frequently interrupted struggling readers when they paused during reading to tell them a word, or correct their errors, compared to good readers who were given the opportunity to continue reading and self-correct the miscue on their own (Hoffman & Clements, 1984).

Hoffman, O'Neal, Kastler, Clements, Segel, and Nash (1984) were also interested in teacher-student interactions for good and struggling readers. Twenty-two second grade

teachers and their students, who were either assigned to the highest reading groups (N= 152) or the lowest reading groups (N= 157), participated in a 10-week study where audio-tapes of reading group lessons were collected bi-weekly to analyze the type of miscues during reading and the timing between miscue and teacher interruption good and struggling readers. Confirming Allington's (1980, 1984) studies, Hoffman, et al. (1984) observed that good readers experienced less miscues, higher success rates, and more actual reading accomplished during their reading group than struggling readers who were not able to use their strategies because of frequent teacher interruptions. They concluded that the long term effects of these established teacher feedback behaviors may be "debilitating to the less skilled reader" in terms of reading achievement (Hoffman, et al., p. 382).

The coordination and communication between the classroom teacher and the remedial teacher is vital to achieving growth for struggling readers (Allington & Shake, 1986). Since both the classroom and remedial teacher are responsible for the underachievers' instruction, they need to combine their efforts to provide a connected instructional program for them. Struggling readers do not benefit from supplemental instruction that clashes with the classroom curriculum. Students need to see the connection between what they are taught in both instructional settings in order for them to understand how to use what they have learned. Conflicts may exist in determining common instructional objectives for the students, or in selecting compatible reading methods and materials between the two locations to accelerate struggling students' growth. Even though past remedial programs existed primarily to remedy the failures of classroom instruction, the vision of remedial instruction needs to change to view reading

failure as the failure to design an effective instructional program for its readers (Allington & Shake, 1986).

Students who struggle with reading in the early grades most often remain behind their peers throughout school. Reading First was initiated as a component of No Child Left Behind Act (NCLB) in response to the increased number of students experiencing difficulty reading at grade level. Reading First, which has guided curriculum development in many states and school districts, has also required that students who are not progressing within the classroom should receive supplemental small-group instruction in addition to their regular classroom instruction for the purpose of accelerating these students. Supplemental instruction programs have been established in many schools to provide support for students who are in risk of failure, however, they these programs vary in their instructional focus and in their duration.

Regardless of the complaints and debates over the lost of local control of curriculum, researchers and educators are aware that it is time for provisions to be established for struggling readers. The International Reading Association (2000) has issued a position statement concerning children's rights for reading instruction which states, "Children who are struggling as learners have a right to receive supplemental instruction from professionals specifically prepared to teach reading". With the growing need to provide supplemental instruction, reading programs now include supplementary components that can be purchased by school districts to "remediate" their struggling readers. However, the question remains as to what type of instruction is appropriate for accelerating struggling readers?

Several supplementary programs focus on students' acquisition of letter knowledge, word recognition, syllables, phonics, phonemic awareness, and fluency in their attempts to accelerate students' reading (Fuchs, Fuchs, Thompson, et al., 2001; Fuchs, Fuchs, Yen et al., 2001; Lovett, Lacerenza, & Borden, 2000; Vaughn, Mathes, Linan-Thompson, Linan-Thompson, & Francis, 2005).

Vaughn, Linan-Thompson, et al. (2003) provided supplementary intervention to second-grade students which focused on five elements: fluency reading, phonological awareness, word study, instructional-level reading, and progress monitoring to determine the importance of teacher-student ratio in supporting students' progress. They found that one-to-one instruction was not any more beneficial to student progress than a one-to-three ratio. This supplemental program had a stronger emphasis on word-level skills rather than teaching comprehension and higher-level literacy strategies for developing independent readers.

The PHAST remedial reading program (Lovett, Lacerenza, & Borden, 2000) emphasizes overcoming obstacles students usually face with word identification and decoding of words. The PHAST program, which was first tested in laboratory classroom settings, involves 70 hours of intervention in remediation of basic phonological awareness and letter-sound learning deficits of disabled readers, and specific training in five word identification strategies that help students to decode unfamiliar words.

Supplemental programs that focus too heavily on word-level skills may not be enough to accelerate struggling readers toward closing the achievement gap. When Johnston and Allington (1991) reviewed remedial reading programs fifteen years ago, they found that students with reading difficulties were more likely to get instruction that

focused on decoding, rather than meaning of text. Since NCLB, high stakes testing has identified struggling readers within schools who are not meeting grade-level standards. In order to "fix" the problem these students are usually recommended to receive instruction in a commercial reading program that emphasizes phonics. Smolkin and Donovan (2002) asserted that, "Early reading instruction that stresses decoding but that fails to attend in some substantive fashion to children's concurrent growth in the comprehension of a range of texts may unintentionally put children in peril." Morrison, Griffith, and Frazier suggested that instruction in decoding does not naturally help students understand vocabulary skills and general knowledge needed to understand text.

Supplementary instruction programs need to prepare the student for the tasks that they will be required to do in their grade-level class. How will supplemental instruction at the word level help students develop the reading strategies needed to engage in the same literacy tasks as their peers? Struggling readers need opportunities to interact with text, read, think, and discuss texts with other students while they are still learning more about words (Ivey, 2002). Struggling readers need rich, motivating instruction that teaches them the comprehension strategies that they need to be successful at meeting grade-level standards.

Prior research indicates that often instructional programs for struggling readers have not been found to be effective in increasing engaged reading instruction time and opportunities for strategy instruction. Allington (2006, p. 20) identified that, "Struggling readers need larger amounts of more expert, more personalized, and more intensive reading instruction…the quality of that instruction is critical, and high-quality instruction for struggling readers cannot be boxed up and shipped to a site." Unlike interventions

which emphasize decoding and phonics, this study examined interventions which emphasized strategy instruction for struggling readers within the context of engaged reading. Neither supplementary approach is a boxed program, but rather CORI-STAR and Guided Reading are approaches that were used to teach students to use comprehension strategies during the reading process. Unlike most supplementary reading approaches, CORI-STAR included explicit strategy instruction, metacognitive awareness training, and motivating elements to increase student reading engagement and self-efficacy.

Comparison of Strategy-Use of Good and Struggling Readers

The second goal of the literature review seeks to gain an understanding of how good and struggling readers differ from one another in the classroom. An understanding of the differences between good and struggling readers may have pedagogical implications toward designing comprehension and metacognitive awareness instruction for readers requiring remediation.

Within each grade-level classroom, children differ in their reading abilities. The type of instruction given to good readers and struggling readers may also be quite diverse. According to Stanovich (1986) differences exist between good and struggling students' phonemic awareness, phonic analysis, concepts about print, feelings of self-efficacy, comprehension, metacognitive awareness, reading fluency, amount of time spent reading, motivation to read, and more. Stanovich recognized how discrepancies in students' abilities impact their learning success. The term "Matthew Effects" in reading is used to identify the theory of the "rich-get-richer" and "poor-get-poorer"; whereby, students who read well, read more, have larger vocabularies, and will be more successful

than those students who struggle with reading, read less, and have smaller vocabularies. Stanovich questioned whether the differences in reading instruction for struggling readers may indeed be synonymous to the same factors that create the Matthew effect; whereby, the students who experience reading difficulties or delays as a result of poor instruction continue to get poor instruction, which further inhibits their learning to read.

Pearson and Gallagher (1983) summarized that good readers are (1) more effective at assessing and engaging their background knowledge, (2) have better general and specific vocabularies, (3) are better at drawing inferences, (4) have better summarization skills, (5) have a better understanding of text structure to assist them in recalling information, (6) know more about the strategies they employ to answer questions, and (7) are better at monitoring and adjusting the strategies they use. Twenty years later, Almasi (2003) identified the five characteristics of experts in almost any domain, including reading, as those who (1) possess an extensive knowledge base, (2) are motivated to use strategies, (3) are metacognitively aware, (4) possess the ability to analyze the task, and (5) possess a variety of strategies. Many of these expert strategies are further discussed within this research review. Research studies have also examined the differences between skilled and novice readers (August, Flavell, & Clift, 1984; Gambrell, Wilson, & Gantt, 1981; Golinkoff, 1975; Lipson, 1982; Markman, 1979; Pearson, Hansen, and Gordon, 1979) also revealed that novice readers (1) focus on decoding individual words, (2) have difficulty adjusting their reading rate, (3) are not aware of comprehension strategies, and (4) are unable to monitor their comprehension.

Background Knowledge

Background or prior knowledge is an important factor in reading comprehension that is actualized when readers integrate their textual knowledge with their existing knowledge (Anderson & Pearson, 1984). Reading is a constructive process where readers construct the meaning of text by integrating the text information with information existing in their memory. Schema theory explains how people's existing knowledge affects their comprehension (Anderson & Pearson). Readers comprehend a message when they are able to activate or construct a schema for the topic. The information that readers have available in their schema prior to reading affects what they comprehend (Anderson, Reynolds, Schallert, and Goetz, 1977). Background knowledge not only impacts the readers' ability to comprehend, but also their interpretation of what they read. The readers' schema organizes what is known about a particular subject into a slot in the brain where other pieces of information about the same subject are stored. These pieces of information, or schema, help readers understand what they are reading about in the text (Anderson & Pearson, 1984). Several researchers examined the effects of background knowledge on good and struggling readers' comprehension (Lipson, 1982; Lipson, 1984; Pearson, Hanson, & Gordon, 1979).

Lipson (1982) compared the effects of prior knowledge on the inferential comprehension of expository text of 28 good and struggling third-grade readers within two sessions. During the first session, students' prior knowledge was assessed on eight different topics as students freely recalled what they knew. During the second session, about one week later, the students read eight expository passages that were chosen based on the grade-level science and social studies units. Immediately after reading the

passages, students answered questions and told the researcher everything they remembered from reading the texts.

Students had more difficulty recalling inferred information than explicit information in the text (Lipson, 1982). The students also structured their recall of information to accommodate information that they had in their prior knowledge, rather than referring to the text; however, the students referred more to text information when they had no prior knowledge on the subject. For many students knowing nothing on a topic was preferable to incomplete or inaccurate prior knowledge, as was noted during free recall of the passages when students manipulated information to fit their existing schema on that topic. The study revealed that both good and struggling readers were better at acquiring new knowledge than correcting incorrect old information (Lipson, 1982).

Both the quality and quantity of students' background knowledge impacts their ability to comprehend and learn new information from text (Lipson, 1984). Younger and struggling readers are more likely to distort their comprehension of the text to align with their previously obtained inaccurate knowledge, rather than adjusting their schema to accommodate new information. Lipson (1984) emphasized the value of prereading instruction to address both the quantity and quality of students' prior knowledge to help them monitor the new information they gained during reading.

Researchers are concerned about the impact of students' background knowledge in their ability to process explicit or inferred information in text. Pearson, Hansen, and Gordon (1979) examined the relationship between the prior knowledge of 20 good- and struggling second-grade readers. Students read a passage about spiders and answered

questions requiring them to use both explicit and inferred textual information. Students with well-developed schemata on the topic were more able to answer questions about the passage than those students lacking sufficient schemata, confirming that prior knowledge facilitates comprehension, especially inferential comprehension. Students in the study were better able to comprehend explicitly stated information than inferential information that required them to integrate textual information with prior knowledge (Pearson, Hansen, & Gordon, 1979).

Hansen & Pearson (1983) examined the inferential comprehension of 20 good- and 20 struggling fourth-grade readers. Students in both performance levels were randomly assigned to either the experimental group which received instruction emphasizing the activation of background knowledge or to the control group which received regular basal instruction with concluding questions at the end. The experimental group received instruction that emphasized modeling the inferential processes of understanding new information by relating it to the existing schema. The control group received instruction which followed the procedures of the teacher's manual with only a few suggestions of how to teach comprehension strategies.

After ten weeks of instruction, the students read text at their reading level and answered sixteen open-ended questions, eight literal and eight inferential. The mean for answering inferential questions was slightly higher for the struggling readers in the experimental group than the mean for the good readers in the control group. This study revealed the influence of inferential comprehension instruction in helping intermediate-level students activate their background knowledge to improve text comprehension (Hansen & Pearson, 1983).

Comprehension Monitoring

Comprehension monitoring requires readers to evaluate and regulate their ongoing cognitive processes during reading (Baker & Brown, 1984). Evaluating involves the readers' ability to keep track of their success in understanding the meaning of the text; however, regulating involves the readers' attention to take remedial action to correct any misunderstandings or break-downs in comprehension during reading (Baker, 1979). Comprehension monitoring has a crucial role in readers' ability to make meaning of text. Several studies revealed that younger and poorer readers have more difficulty with comprehension monitoring (August et al., 1984; Baker, 1979; Baker, 1983; Markman, 1977; Markman, 1979; Markman & Gorin, 1981).

In determining whether children attend to inconsistencies in text, Markman (1977) examined the comprehension monitoring behaviors of 12 children from each of grades one to three. Students were asked to help the researcher determine whether the directions to play a game and perform a magic trick contained adequate information for someone to perform. Markman met with each child individually, read the steps to each task, and asked whether any information was unclear or omitted from the directions. In both the game and the trick, the instructions for completing the tasks were incomplete. In scoring responses, Markman prompted children with probing questions to get them to think about the steps in the task. When a child asked a clearly appropriate question or responded to finding errors, the procedure was terminated. Markman found that younger children had more difficulty than older children at detecting incomplete information, revealing that more probing was necessary for first-graders than third-graders. She also found that

students were more successful in finding errors when they attempted to play the game or perform the magic trick.

Even though Markman's (1977) study assessed students' monitoring of their listening comprehension, rather than reading comprehension, it also revealed that younger children had a lack of awareness of how to execute the appropriate mental processing necessary for comprehension monitoring. Younger students interpreted the directions at a superficial level without attending to thinking through the directions or determining the relationship between the instructions and the goal of the task; therefore, revealing that they were unable to detect their faulty comprehension in situations where obvious information was omitted (Markman, 1977).

Markman (1979) performed three studies to examine the comprehension monitoring of elementary-aged students. In the first study she examined the comprehension monitoring of 20 students from each of grades three, five, and six who were presented text that contained both inconsistent explicit and implicit information. Markman told the students that she was writing shorts stories and essays for children and she needed help in determining whether the stories were comprehensible. The students' job was to make suggestions as to how the stories could be improved so that they were easier to understand. Students were assigned to one of two conditions, with each group equated for grade and sex. The conditions differed in whether the problematic information was explicitly stated in the text or whether it was implied.

Markman (1979) read short essays to individual students that contained either explicitly-stated inconsistencies or implied inconsistencies. Students were encouraged to ask questions or make suggestions concerning how to improve the text. The researcher

prompted students with questioning probes to try to elicit responses concerning any detection of inconsistencies. She found that not only were students unaware of implicit inconsistencies, they hardly seemed to notice the explicit-stated inconsistencies. The study revealed that even though students were able to remember relevant information from the text, they were unable to maintain and compare conflicting propositions in their working memories, resulting in insufficient processing to detect inaccuracies and incompleteness in text.

In Markman's (1979) second study, 32 third- and sixth-grade students' awareness of text inconsistencies was examined as students listened to text that contained implied inconsistencies. They also listened to pairs of contradictory sentences that contained explicit inconsistencies. The students accurately repeated the explicit inconsistencies without realizing that there was any inconsistency, indicating that even though propositions are brought to working memory, students may still fail to compare them. This study found that sixth-grade students were better at locating explicitly-stated inconsistencies than third-graders. She also found that 50% of the students were better at spotting explicitly-stated inconsistencies compared to 19% of the students finding implied inconsistencies.

In her third study, Markman (1979) attempted to better define the limits of students' spontaneous ability to locate inconsistencies in text without prior training. Thirty-two students in both the third- and sixth-grades were randomly assigned to one of four groups. The first group of students was divided with half the students using text that contained either explicitly- or implicitly-stated inconsistencies. Next, within each of the two text-selected groups, students were further grouped to either the condition where

students were alerted to textual problems they needed to locate or the condition where students were not given any further directions. Markman found that sixth-grade students were better able to locate both explicit and implicitly stated inconsistencies when they were informed of inconsistencies. Third-graders who were informed of inconsistencies still failed to locate them in text. She found that students who were informed of text inconsistencies were better at locating the errors than those students who were not. The overall performance of sixth-grade was better than third-graders.

Older readers are more able to detect inconsistencies in text than younger readers (Markman, 1979). Comprehension monitoring requires the reader to construct meaning of the text and to judge whether they have comprehended the message of the text. Even though in Markman's study the passages were read to students to lessen the strain put on short term memory, students still failed to notice inconsistencies in text. Comprehension monitoring may be difficult for younger or struggling readers when they are reading or studying, however, it is optimistic to find that older readers and perhaps those readers with more experience become more capable of monitoring for inconsistencies as they develop self-monitoring strategies.

Markman and Gorin (1981) examined the ability of 72 students in both third- and fifth-grade to adjust their standards for critically comprehending and evaluating text when they listened to seventeen short stories, which contained either falsehoods or inconsistencies. The group that was given prompts or assistance was more efficient at evaluating text to find inconsistencies compared to the group that was not given directions. Since text evaluation was a new area of comprehension for many students, Markman and Gorin (1981) concluded that students need explicit instruction and practice

in this area to improve their ability to read critically and use inference to locate problems while reading.

Comprehension monitoring requires students to actively construct meaning from the text as they read. Garner (1980) examined comprehension monitoring abilities of 15 good and 15 struggling sixth- or seventh-grade readers. Students were asked to be editors as they read two expository texts that contained inconsistencies. After reading each small chunk of altered text, the students were asked to rate the chunk as "very easy to understand", "okay", or "difficult to understand." Good readers were able to not only distinguish almost all "easy to understand" text but they could also distinguish disruptive or altered text. Struggling readers made little distinction between the incomprehensible or comprehensible text. Garner speculates that poor monitoring ability may either be a cause or a result of poor comprehension in struggling readers. If poor monitoring is identified as a cause, it could be due to failure to adjust processing strategies; however, if it is identified as a result, it could be due to the readers' failure to recognize that text must make sense.

Baker (1984) examined the comprehension monitoring ability of a total of 53 children, ages five, seven, and nine. The students were asked to listen to some stories that had mistakes in them because the writers were not very careful. The children were informed about the three types of mistakes that they might find in the text, such as nonsense words, prior knowledge violations, and internal consistencies and they were given examples of each type. After listening to the story the first time, the students were encouraged to report any inconsistencies. If they did not identify both problems that were present, students were encouraged to listen to the story again and interrupt whenever they

heard the error so they would not have to remember it until the end of the story. After the second reading, the experimenter provided explicit feedback by identifying the text problems that the student did not report. The results of the study confirmed that older children were more successful at identifying all types of textual inconsistencies than younger children. Students were better able to detect errors when given a second opportunity to listen to the text and when given explicit feedback from the teacher. This study revealed the importance of including explicit feedback with the instructional component to help children at all age groups develop standards of evaluating their own understanding (Baker, 1984).

Unlike previous studies that focused on the comprehension monitoring of elementary-level students, Baker (1979) examined comprehension monitoring in college students. Baker's (1979) study revealed how readers with knowledge and expertise monitor text inconsistencies in one of three instances: (1) the main ideas and details from one sentence to another, (2) unclear references where the context does not connect with previously stated information, and (3) inappropriate logical connectives between thoughts and ideas. Students identified inconsistencies in locating main idea problems 62% of the time, compared to 14% for detail confusions. As the college students confronted difficult text that contained inconsistencies they used their expertise to implement a variety of strategies available to them, such as rereading the text, accessing their prior knowledge, making a mental note of the confusion while reading, and deliberately omitting or transforming confusing information (Baker, 1979). Even though the students had difficulty locating textual inconsistencies unless they were prompted, they, like more

experienced readers, demonstrated knowledge of a variety of strategies to help them interpret the text.

Baker (1979) asserted that many students have the unquestioning belief that assigned texts have already been examined by teachers for their comprehensibility; therefore, the assumption exist that teachers have taken responsibility for selecting and evaluating texts that would be within the grasp of the students' cognitive monitoring. Thus this study revealed that as students relegate their learning to their teachers, they lose control for understanding what they know, and what they do not know, even at the high school and college levels. Although this study examined the comprehension monitoring of college students it is evident that teachers of students at all levels must make students aware of their responsibility for comprehension monitoring when reading.

August, Flavell, and Clift (1984) examined the comprehension monitoring differences between 16 good and 16 struggling fifth-graders in detecting inconsistencies during reading. Students were given instruction and practice time as they used the computer to read five stories. They were instructed to determine whether they thought a page of the story was missing. After reading each story, students recalled the story in their own words and were asked whether they thought a page of text was missing. In both good and struggling readers, inferring accounted for more failure to report than any other variable. Good readers missed reporting missing pages 55% of the instances compared to struggling readers failure to report missing pages 62% of the instances, suggesting that struggling readers were less able to detect missing information, report that there was a missing page, or repair understanding (August et al., 1984).

Questioning. Garner, Wagoner, and Smith (1983) examined the question-answering strategies of 30 good and struggling sixth-grade comprehenders who were each paired with on-grade fourth-grade readers. Equal numbers of good and struggling sixth-grade readers were paired with on-grade fourth-grade readers. Teams worked together using an expository text to answer five questions. Pairs were assigned to one of three "blind" investigators who were unaware of the students' reading ability. Student pairs were observed by the investigator for about 15 minutes. The fourth-grade student was asked to a complete a filler task while the sixth-grade student was asked to be a tutor to the fourth-grade student. The sixth-grader received training on how present the paragraph reading assignment and questions. The sixth grader was asked to determine whether the on-grade fourth-grader needed any help and to offer assistance. The tutoring sessions were tape-recorded and observed by an investigator who noted verbal and nonverbal strategic indicators.

Garner, Wagoner, and Smith (1983) found that good comprehenders spontaneously demonstrated an understanding of the strategic behaviors used in answering questions using their conditional knowledge related to why, when, and where to use lookbacks to find information in the text. They found that good sixth-grade readers employed active processing styles to help them acquire information when answering questions in text, compared to struggling comprehenders who did not demonstrate strategic behaviors.

Reading is a process that requires active and attentive readers to construct meaning. Inadequate comprehension implies the readers' failure to extract information from the text. Golinkoff (1975) asserted that skillful comprehension relies on the readers' access to many reading subskills. The reader must be able to decode words and

understand the meaning of single words, combinations of words, and ideas in sentences and longer portions of text. Reading comprehension instruction involves helping the learner construct an understanding of the textual knowledge through their interaction and involvement with the text (Guthrie, 2003). Even though empirical research has shown differences in the knowledge and expertise of good readers and struggling readers, it has also revealed that struggling readers demonstrate stronger comprehension monitoring ability when given appropriate instruction. This study examines the comprehension strategy instruction that has been shown to benefit good and struggling readers.

Theoretical Base of this Study

The third goal of the literature review examines the three theoretical foundations of this study, (1) sociocultural theory (Vygotsky, 1978), and (2) social cognitive theory (Bandura, 1986), and (3) metacognitive theory (Baker & Brown, 1984).

Sociocultural Theory

Literacy learning is facilitated and grounded in the social interactions within a culture (Vygotsky, 1978). Children acquire spoken language through their interactions with others in the environment. Children gain knowledge from their exposure to rich-language experiences. As students become readers and writers they develop and construct meaning in language-oriented events (Wertsch, 1991). Through the social interactions of the classroom, students learn to read text, discuss their learning with others, write responses about their learning, and listen to others' ideas as they learn to represent their knowledge in a variety of meaningful ways (Lenski & Nierstheimer, 2002).

Vygotsky theorized that language experiences are important in enabling children to become aware of their own thinking by linking their ideas to the ideas of others, and

expanding their thoughts and learning. Vygotsky viewed language and self-speech as vital to the child's gradual development of self-regulation. As children grow and develop they use private speech to verbalize their understanding of what they know and what they are learning. When children work in their "zone of proximal development" with more competent others, the adult facilitates the transfer of self-regulated learning to the child (Harris, 1990). Vygotsky viewed children's self-verbalizations as an interindividual process that is dependent on the child's interactions with others. Yet Vygotsky's student, Luria, who studied under him and continued his work after his death, emphasized the intraindividual process of childrens' verbalization that was the result of their neurophysiological and central nervous system processing (Harris, 1990). Luria's studies, which continued to seek explanations for children's development of verbal self-regulation, have impacted instruction. Several tenets of his studies included: (1) the speech of others controls and affects the child, (2) the child's own overt speech begins to regulate his, or her behavior, and (3) the content and meaning of a child's outward and inner speech effectively regulates his or her behavior (Harris, 1990).

Vygotskian sociocultural theory is based on three principles: (1) higher psychological functions are social and cultural in nature, (2) knowledge is constructed through social interactions with others, and (3) learning is achieved through the support of more knowledgeable others in the culture (Boyd, 2002). Sociocultural theory describes how children acquire literacy through social interactions with peers and adults. According to Vygotsky (1978), children are able to perform tasks beyond their own independent knowledge and capability with the guidance of more skilled partners. Students become apprentices within their "zone of proximal development," as they internalize the tools for

thinking and acquire the skills within their culture for higher-order intellectual activity, such as speech, writing, literacy, and mathematics. Students develop cognitive tools through social interactions with the teacher and peers, teacher modeling, shared thinking, and guided participation as problem-solvers (Rogoff, 1990).

The essence of socio-cultural development supports that through others we become ourselves (Vygotsky, 1978). Vygotsky asserted that an individual's development arises through interrelationships with other people in the social world. Children develop higher mental processes and become more knowledgeable when they are assisted by a teacher or expert in their environment. With teacher assistance, a child can accomplish tasks above their independent or actual level of development. The distance between the child's independent level of performance and the level of performance he can reach through the teacher's guidance is known as the child's "zone of proximal development" (Vygotsky, 1978).

Children work in their 'zone of proximal development' as they first experience new cognitive activities in the presence of experts or knowledgeable others and they gradually are able to perform these tasks by themselves. An expert, parent, teacher, or peer can guide a student's learning from his or her beginning level as a spectator observing the task, then as a novice performing a task, and later as the experienced learner performing the task independently (Rogoff, 1990). From the sociocognitive perspective, a teacher or knowledgeable peer acts as the more knowledgeable other in the classroom that helps students focus on content information or strategies within their zone of proximal development. Wertsch (1991) referred to the type of learning that occurs within a child zone of proximal development as mediated learning. Mediated learning requires that a

more knowledgeable other or teacher needs to provide the learner with the knowledge or skills needed to facilitate learning (Lenski & Nierstheimer, 2002) The teacher directs the child's attention to a skill or strategy that the student may have not learned otherwise.

Vygotsky believed that schools were important in mediating how children think. Students need encouragement to become "consciously aware" of themselves, their language, and their relationships with others in the sociocultural world. Schooling served an important role in helping children become aware of their thinking as they learned new concepts (Tudge & Scrimsher, 2003). Student learning is scaffolded as the teacher determines what is to be taught and determines the types of skills and strategies that the learner will need to be successful. Through scaffolding, the teacher assesses the student's knowledge and provides the level of teacher support needed for the student to acquire the skills to perform a task that they would not have been able to do independently (Wood, Bruner, & Ross, 1976). Through ongoing observations and assessments the teacher becomes aware of the students' growing competence and gradually releases the level of instructional support provided so that students take more responsibility for performing the task independently. Palincsar (1998) emphasized that scaffolding may also be accomplished through components of instruction other than the teacher, such as the selection of texts used for instruction, the instructional methods used, and activities that are chosen to support student learning.

Vygotsky (1962) proposed that cognitive processes occur first on the social plane as students interact with others in the environment. Then, students internalize and transform the shared processes to form their individual plane of understanding. Vygotsky asserted that speech serves as a self-regulating function to guide students' thoughts and

actions. Within the present study, students in the CORI-STAR approach received instruction that included teacher modeling, teacher think alouds to support student awareness of metacognitive processes, and scaffolded support in developing reading strategies. Students first learn to acquire reading strategies as they are introduced on the social plane through interactions with other students. Through their discussions, think-alouds, and reflections, students begin to internalize their strategy use. The students' speech also guides students' actions through their deliberate attention to verbalizing their thinking processes and use of strategies during reading.

Socio-cognitive Theory

Bandura's theory (1986), known of as social cognitive theory, combines principles of behavioral learning theory, such as reinforcement and punishment, with the processes of cognitive theory, known as attentional processes, retention processes, motor reproduction processes, and motivational processes (McCormick & Pressley, 1996). The tenets of social cognitive theory support that we learn many things from our direct and indirect interaction with others people in a social environment. People acquire knowledge, rules, skills, strategies, beliefs, and attitudes through their experience of observing others who serve as their behavioral models (Schunk, 1991).

Social cognitive theory also maintains that students learn through their vicarious experiences. People learn by observing the positive and negative behaviors of others in their environment. When people view others successfully performing a particular task, their own expectations about performing that task are reinforced. However, if they view others experiencing difficulty or being punished for doing something, their expectations about performing that task are inhibited. According to social cognitive theory, students

learn the functions and appropriateness of various behaviors by observing them as modeled by others (McCormick & Pressley, 1996).

Bandura (1977) argued that human behavior is primarily self-regulated behavior. Through direct and observational learning, humans control their behavior to conform to the standards of others in society. Sometimes the observation provides information that affects learners by teaching them a lesson that helps them solve a problem or an error. When someone is observed engaging in a forbidden situation, others learn vicariously that this activity warrants punishment. When someone's behavior is admired by the observer, the likelihood that the observer will have a similar response increases (Hergenhahn & Olson, 1997). Bandura asserted that the media and entertainment industry act as powerful models that influence aggressive, violent, and criminal behavior. When children are exposed to these images on television, in magazines, or by viewing movies they form distorted and false beliefs about appropriate behavior in society (Hergenhahn & Olson, 1997).

Social cognitive theory stresses not only impact of behavioral learning theory, such as reinforcement and punishment on behavior, but it also includes four other aspects of social cognitive theory: attentional processes, retention processes, motor reproduction processes, and motivational processes. Through attentional processes, the learner observes and assimilates the characteristics of the people within their environment. Since people have some control over their environments, they also control the social models that affect their behavior. Retention processes refer to the observers' ability to attend to the behavior of others and retain it through memory, imagery or rehearsal so that it may be imitated. Motor reproduction processes are the learners' ability to perceive and

remember sequences of event so that they may be acquired and imitated, as in learning to swim, or in performing a handstand. Motivational processes determine human performance. Even though a particular behavior is observed in others, it will not be imitated unless the learner values the reward of performing the behavior. Motivation becomes the driving force behind the learner's push to achieve a particular goal (McCormick & Pressley, 1996).

Metacognitive Theory

Metacognitive theory involves the learners' ability to reflect on their own cognitive processes and to be aware of the control that they have over their thinking and learning processes while reading and solving problems (Baker & Brown, 1984). Flavell (1979, p. 907) defined metacognitive knowledge as "knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprises." Metacognition involves two components: (1) the learners' knowledge of their cognitive resources and their feelings about their ability to accomplish the task, and (2) the learners' self-regulation abilities to plan, monitor, and evaluate their strategies for learning (Baker & Brown, 1984). Paris and Winograd (1990) referred to these aspects of metacognition as the learners' self-appraisal and self-management of their learning. Self-appraisal referred to the learners' conscious awareness and reflection of their knowledge state and ability to accomplish the task, and self-management referred to the learners' control of the executive components of planning, regulating and evaluating their performance.

Baker (2002) described metacognition as knowledge and control the child has over his or her own thinking and learning activities. Metacognitive activities require the

learner to be aware of the application of declarative knowledge (what), procedural knowledge (how), and conditional knowledge (when and why) of strategy-use in accomplishing reading goals (Paris & Winograd, 1990). Comprehension monitoring activities that students use require them to check their level of understanding, predict outcomes, evaluate the effectiveness of their efforts, plan their activities, budget their time, and recognize other activities or strategies that can be used to overcome difficulties.

According to metacognitive theory, good readers are more metacognitively aware and have a larger repertoire of comprehension strategies (Walczyk, 2000). Metacognitive awareness and use of strategies have been positively related to students' superior reading comprehension and successful learning (Alexander & Jetton, 200, Pressley, 2000). Older and skilled readers are better at comprehension monitoring than are younger and less-skilled readers (Baker & Brown, 1984). Good readers must have metacognitive awareness to control their cognitive activities as they implement various strategies when needed (Baker & Brown, 1984). Brown (1980) found that reading requires readers to use their metacognitive skills to clarify the purpose of reading, identify the message of the text, focus on the main idea, monitor their ongoing progress, self-question to determine whether the goal of the reading is achieved, and to apply fix-up strategies when comprehension failure occurs.

Metacognitive theory is concerned with how learners use metacognitive knowledge to plan, monitor, and evaluate to comprehend. Similar to other reading processes, students become more efficient and metacognitively aware with practice (Pressley & Afflerbach, 1995). Good comprehenders are more metacognitively aware and use more reading strategies than struggling readers. Research has shown that struggling readers

who receive metacognitive strategy instruction improve in reading performance (Palincsar & Brown, 1984; Paris et al., 1984).

This study was based on tenets of sociocultural theory, social cognitive theory, and metacognitive theory. Sociocultural theory recognizes that students learn from more knowledgeable others in a supportive environment. Vygotsky also believed that schooling was important in mediating how children think; therefore, supporting the use of metacognitive awareness training as a part of remedial instruction to help students become consciously aware of their own thinking so they can learn to strategically control their reading processes.

The study was also supported by social cognitive theory which stresses that behaviors are learned by observing the behaviors of others within the environment. Within the CORI-STAR approach, teacher modeling of strategic reading behaviors using think-alouds supports students as they gain knowledge and reinforcement for implementing positive reading strategy behaviors. Through attentional processes, students observed models using strategies to interact with the text. The students used their retention processes to remember, rehearse, and imitate what they observed during instruction and repeated the think-aloud as they practiced the strategy during reading. Students used motor reproduction processes to retain the sequences of the strategic processes as they learned new strategies. Afterwards, students used think-alouds to verbalize to others what strategies they used when interacting with text. Students' reflections affected their recall of their strategic behaviors and also initiated self-regulation of comprehension monitoring and motivation to learn.

Students receiving the CORI-STAR approach received metacognitive awareness training to help them self-regulate their reading behaviors and become aware of what, how, when, and why to use a strategy when reading (Baker & Brown, 1984) and their self-management abilities to plan, monitor and evaluate their strategies for learning (Paris & Winograd, 1990). The students' knowledge of their cognitive resources supports their learning as they monitor their reading tasks with the scaffolded support of the teacher.

Instruction for Developing Good Readers

The fourth goal of the literature review was to examine studies related to instructional methods that were implemented as the metacognitive component of CORI-STAR. This section examines: comprehension instruction, explicit or direct explanation, modeling, think-alouds, metacognitive awareness training, text structure instruction, and strategy instruction for activating background knowledge, questioning, searching texts, graphically organizing information and summarizing text.

Comprehension Instruction

Comprehension strategies are specific procedures that readers use to become aware of the meaning of text as they read and write. Explicit or direct instruction using comprehension strategies has been shown to be effective in increasing readers' ability to construct meaning from text (National Institute of Child Health and Human Development, 2000). Teachers prepare students to be strategic readers through strategy instruction that demonstrates, models, explains the strategic processes, which is followed by teacher guidance as students practice using them. Readers become proficient as they practice various cognitive and metacognitive strategies, while learning to self-regulate their learning behaviors. The National Reading Panel (2000, p. 4-40) report stated,

"Explicit or formal instruction on these strategies is believed to lead to improvement in text understanding and information use...Readers who are not explicitly taught these procedures are unlikely to learn, develop, or use them spontaneously."

Literacy goals have been refined over the past decades to reflect a more rigorous curriculum. Prior to the 1920's, reading instruction was limited to the reading of prescribed religious text with lessened emphasis on comprehension (Resnick & Resnick, 1977). However, the demands of the culture changed and so did the demand for producing proficient readers who could outperform outdated minimum competency levels Reading and writing began to be recognized as valuable tools used by students to facilitate their learning in a variety of events; therefore, literacy goals actually become defined by the nature of the culture and context of the learning (Palincsar, David, Winn, & Stevens, 1991, p. 43). Palincsar et al. stated, "The goal of literacy instruction is to teach reading and writing as tools to facilitate thinking and reasoning in a broad array of literacy events." Dewey (1933) asserted that knowledge can be used as a tool to help students learn more, not just about what it is, but how and when to use it.

Students' reading success is dependent upon reading instruction. In many classrooms it is generally recognized that reading instruction involves more than providing texts and giving students the directions to complete activities, worksheets, and other assignments, but it also requires the instruction of comprehension strategies. Durkin (1978) examined reading in fourth-grade classrooms and found almost a complete lack of comprehension instruction. After 17,997 minutes of observing 40 intermediate grade teachers during reading and social studies instruction, Durkin identified only 50 minutes of comprehension instruction, accounting for 0.25% of the total. Instead of helping

students comprehend text, the teacher behavior most commonly observed was their assessment of students' comprehension (17.65%), followed by giving students assistance with assigned worksheets (14.35%). However, the application of comprehension instruction was not observed within the classroom (Durkin, 1978).

As Durkin observed no comprehension instruction during the 2,775 minutes of social studies, it became evident that the primary instructional focus was either on covering content or mastering facts or trivia, depending upon what was in the book. During the social studies period no teacher was observed helping students with reading tasks. Struggling readers in the class who could not read the text were expected to gain knowledge through listening to others read during round robin reading and from watching films and filmstrips. Durkin observed that even though very little was done to help struggling readers with reading tasks, it was also evident that stronger students were not challenged. A large portion of social studies time was spent with students working independently on writing assignments and ditto sheets, which proved to be difficult for struggling readers to complete.

Durkin's (1978) research revealed the harsh reality that there was nothing instructive about the comprehension instruction she observed. Social studies instruction also neglected the needs of the struggling readers who were placed in a one-text-fits-all literacy environment. Classroom content area instruction was taught as a whole group, with no attention to the diverse needs of students within the class. The complex nature of many content-area texts posed problems which created additional barriers to struggling readers: difficulties with vocabulary and decoding, lack of familiarity or background

knowledge with the topic, lack of engagement and motivation to read the text, and difficulty understanding the high-level of conceptual knowledge presented in the text.

Reading comprehension must be taught to be caught by the students. As Pearson and Dole (1987) reported, Durkin's research stated that a lot of time was spent in mentioning skills that students were supposed to be practicing, and then assessing students, but little time was spent modeling what the skill or strategy was, or how to use it to comprehend text. Struggling readers need as much, if not more reading instruction as on-grade readers to help them acquire the necessary literacy skills (Allington, 2001).

In order to accelerate struggling readers' progress, Reutzel and Smith (2004) compiled a comparative analysis of what expert opinions revealed about how to accelerate the progress of struggling readers. According to their report, ineffective instruction that made the process of learning to read difficult for struggling readers consisted of: isolated skill instruction, increased emphasis on 'skill and drill' mastery of letters and words rather than reading comprehension, a high degree of teacher control and controlled text, competition between students, implicit instruction that avoided modeling the reading process, communication of negative reading attitudes and lowered expectations to students, students grouped into inflexible reading groups, the use of rote pencil-paper tasks for student accountability, increased expectations for exactness of students' responses, and the use of "round robin" oral reading.

Researchers and teacher educators have the dual responsibility of helping teachers understand both the methods of instruction and the importance of teaching comprehension strategies to intermediate level students. Pressley, Wharton-McDonald, Mistretta-Hampston, and Echevarria (1998) examined comprehension instruction of six

fourth-grade and four fifth-grade classrooms to identify commonalities among the classrooms in the areas of reading instruction, writing instruction, instructional materials, instructional goals, management, and classroom motivational orientation. Within this balanced literacy structure, they found that students in all classes benefited from explicit skills instruction that covered higher-order, authentic literacy tasks and the lower order skills instruction. Pressley et al. (1998) found that little progress had been made in advancing comprehension instruction in the American classrooms since Durkin's (1978-1979) study.

Even though the plethora of research studies in the past two decades have supported the increasing necessity for emphasizing comprehension instruction in elementary reading programs, Pressley et al. (1998) found only rare instances of explicit comprehension instruction, and little to no evidence that students were being taught to self-regulate comprehension processes as they read. Observations revealed that even though students had opportunities to practice using comprehension strategies and their comprehension was assessed, but they were not actually taught the strategies or the utility of applying strategies when reading.

Pressley and his colleagues (1998) observed students engaged in the classroom routine of uninterrupted sustained silent reading. Teachers asserted that they expected students to use strategies when reading, however, they did not provide direct strategy or comprehension instruction. Students' comprehension was assessed in a variety of ways: by their responses to short-answer questions, by their ability to identify the confusing points in the text, and by students' questions and predictions. Instead of teaching strategies, teachers mentioned strategies and compiled test questions that required

students to use those untaught strategies. Classroom teachers who were observed for this study stated that comprehension was one of the primary goals of their language arts instruction and that they routinely taught comprehension strategies (Pressley et al., 1998).

Unfortunately, the type of instruction delivered by many intermediate level teachers reflects their belief that by upper elementary school students have already acquired the necessary reading strategies from strategy instruction provided in previous grade levels. They also asserted that students acquire and understand how to use various reading strategies as a result of regular classroom discussions and teachers' questions (Pressley et al., 1998). A common elementary school fallacy insists that primary grade teachers emphasize instruction that helps students 'learn to read', compared to intermediate grade teachers who provide instruction that helps students 'read to learn'.

Contrary to Durkin's (1978) and Pressley et al.'s (1998) dismal observations that revealed the lack of comprehension instruction, Palincsar and Brown (1984) designed a small-group reading intervention, known as Reciprocal teaching, that instructs students to use a repertoire of four comprehension strategies: prediction, questioning, clarification, and summarization as they take turns being the teacher. The reciprocal teaching intervention includes components of teacher modeling and strategy instruction, which supports students' awareness and use of comprehension monitoring. Students receive explicit instruction on how to use predicting, questioning, clarifying, and summarizing to increase text comprehension.

In the reciprocal teaching approach, the teacher guides students to participate in making predictions before they begin reading the text silently. The students are taught to make predictions about the passages based on their related background knowledge on the

topic. Responsibility is rotated among the students in the group as each student takes on the role of 'teacher' and he or she poses questions about the reading, models how to summarize, and then asks other students to predict upcoming content in the passage. The student teacher also helps students clarify any misunderstandings or confusions that they have with the reading. The teacher supports and prompts the student teacher as he or she takes the active role of student teacher. The students' responses inform the teacher of their level of understanding.

According to Palincsar and Brown (1984, p. 169), "The reciprocal teaching procedure involves continuous trial and error on part of the student, married to continuous adjustment on the part of the teacher to their current competence." This coincides with the work of Vygotsky which asserted the importance of providing instruction in the "zone of proximal development", whereby the students' understanding is constantly examined to determine the next level of instruction necessary for the child's literacy development. Students are explicitly informed that questioning, predicting, clarifying, and summarizing are also the strategies that they should use on their own when reading. They are also taught that these same strategies help them to question, summarize, and predict the questions when reading tests or assessing what they understand from their reading. Reciprocal teaching positively impacted comprehension, both in Palincsar and Brown's (1984) study, and in the subsequent work by Rosenshine and Meister (1994).

Good readers possess a variety of skills that differentiate them from less-skillful readers. Pressley and Wharton-McDonald (1997) asserted that before reading good readers identify the purpose or the conditional knowledge of why they are reading the

text and what they want to get from the reading. Good readers know the value in previewing the text to determine if the text is relevant to their goal. During reading, good readers look for information relative to their goal, identify the organization of the text, clarify confusing points, explain ideas to themselves, relate important points in the text to one another, construct hypothesis and conclusions, make inferences, and monitor their reading. After reading, good readers may reread sections of the text, mentally summarize what they read, make notes, or reflect on the text. Good readers are highly metacognitive, strategic, and motivated (Pressley & Wharton-McDonald). As indicated by the analysis of 11 research studies involving 11 verbal protocol analyses, each successfully documented a positive relationship between active verbal protocol reports and reading performance (Pressley & Afflerbach, 1995).

Ineffective instruction hinders students' progress (Flippo, 1998). If struggling readers receive ineffective instruction for even one year, how can we expect them to make the necessary gains set forth in "No Child Left Behind" (U. S. Department of Education, 2003)? All students need instruction that adhere to research-based exemplary practices to assure their literacy success. Using the principles set forth in Flippo's (1998) "Expert Study", Reutzel and Smith (2004) compiled a list of research-supported principles of effective instruction. The ten principles included: teacher modeling and scaffolding, academic time on task, increased volume of reading, student choice, discussion and dialog, integration of language arts within the content areas, print-rich classrooms, mode of reading as silent reading, access to a variety of reading materials, and encouragement for students to become engaged in reading.

Reutzel and Smith (2004) compared their list of expert-recommended instructional practices with three other sources of influential reading research: *The Report of the National Reading Panel* (National Institute of Child Health and Human Development, 2000), *Preventing Reading Difficulties in Young Children* (Snow, Burns, & Griffin, 1998), and *Every Child a Reader* (Hiebert, Pearson, Taylor, Richardson, & Paris, 1998). The synthesis of expert opinions and the reading research reports resulted in the compilation of instructional recommendations for accelerating struggling readers' progress. As articulated at the federal level, there must be "*No Child Left Behind*" (U. S. Department of Education, 2003); therefore, educators, administrators, and policy-makers must attend to the recommendations and guidance of reading experts and the reading research concerning effective instructional contexts and practices for helping struggling readers become achievers (Reutzel & Smith, 2004).

Reutzel and Smith (2004) identified several commonalities between their list of effective teaching behaviors and the research recommendations from current publications. Of the nine listed reading behaviors, seven were teaching behaviors that are included in the CORI-STAR instructional approach. They included: teacher modeling strategic behaviors, scaffolding instructional processes to make processes visible and accessible to the learners, explicitly teaching students a variety of strategies and when to apply the strategies, using both silent and oral reading practice at the students' appropriate reading level, discussing and talking about text, reading aloud to students, and providing language development through books and explored vocabulary. Reutzel and Smith (2004) included additional recommendations for effective reading instruction for struggling readers which included other CORI-STAR components of encouraging

positive attitudes toward reading, providing students opportunities to choose their reading materials, providing opportunities for students to work with a wide variety of genre or type of text, and providing additional time for reading instruction and engaged reading.

The CORI-STAR approach includes explicit strategy instruction in activating background knowledge, questioning, searching for information, organizing information, and summarizing. Research has shown that differences exist between good readers and struggling readers in their ability to select and flexibly use a variety of strategies to reach their instructional goal (Lenski & Nierstheimer, 2002) and in metacognitive awareness (Baker & Brown, 1984). The empirical research on the principle components of CORI-STAR instruction: explicit instruction, modeling, think-alouds, metacognitive awareness training, and text structure training were further explored, followed by a description of each of the five strategies that were focused on during instruction: activating background knowledge, questioning, searching for information, organizing information, and summarizing.

Explicit Instruction

Explicit instruction has been shown to increase student learning, metacognitive awareness, and strategy use in struggling readers (Duffy et al., 1987). Even though teachers can be trained to be more explicit in comprehension instruction (Dole et al., 1991; Duffy et al., 1986); little evidence can be found in many classrooms that comprehension instruction is explicitly taught (Durkin, 1979; Pearson & Dole, 1987; Pearson & Fielding, 1991; Pearson & Gallagher, 1983). Good readers are more aware of how to use comprehension strategies than struggling readers (Baker & Brown, 1984); therefore, as a part of regular instruction, struggling readers need explicit instruction to

teach them to become aware of how to use reading skills strategically (Lenski & Nierstheimer, 2002).

Direct explanation is a form of instruction where the teacher explicitly teaches the reading process through activating the students background knowledge, modeling, think-alouds, explaining the process, checking student understanding, student practice, and summarizing when and how to use the reasoning process (Herrmann, 1988). Duffy et al., (1986) found that explicit teacher explanation had a positive impact upon student achievement and awareness of the lesson content. Explicit teacher explanations help struggling readers understand the mental processing involved in reading (Duffy et al., 1987). When effective teachers model and explain their mental processes, they are assisting students in understanding the complexity of reasoning behind the strategy (Duffy & Roehler, 1987).

In direct explanation instruction the teacher begins by activating the students' background knowledge, followed by sharing the reasoning process that was taught in the lesson. Students are told at the beginning of the lesson what strategy they will learn, how they will perform the strategy, when they will use it, and why it is important (Herrmann, 1988). The teacher provides explicit step-by step strategy instruction while modeling before, during, and after reading strategies. The students observe as the teacher models the strategy while reading the text aloud to the students, stopping occasionally to think aloud concerning the mental processes of how and when to use the strategy to better understand the meaning of the text.

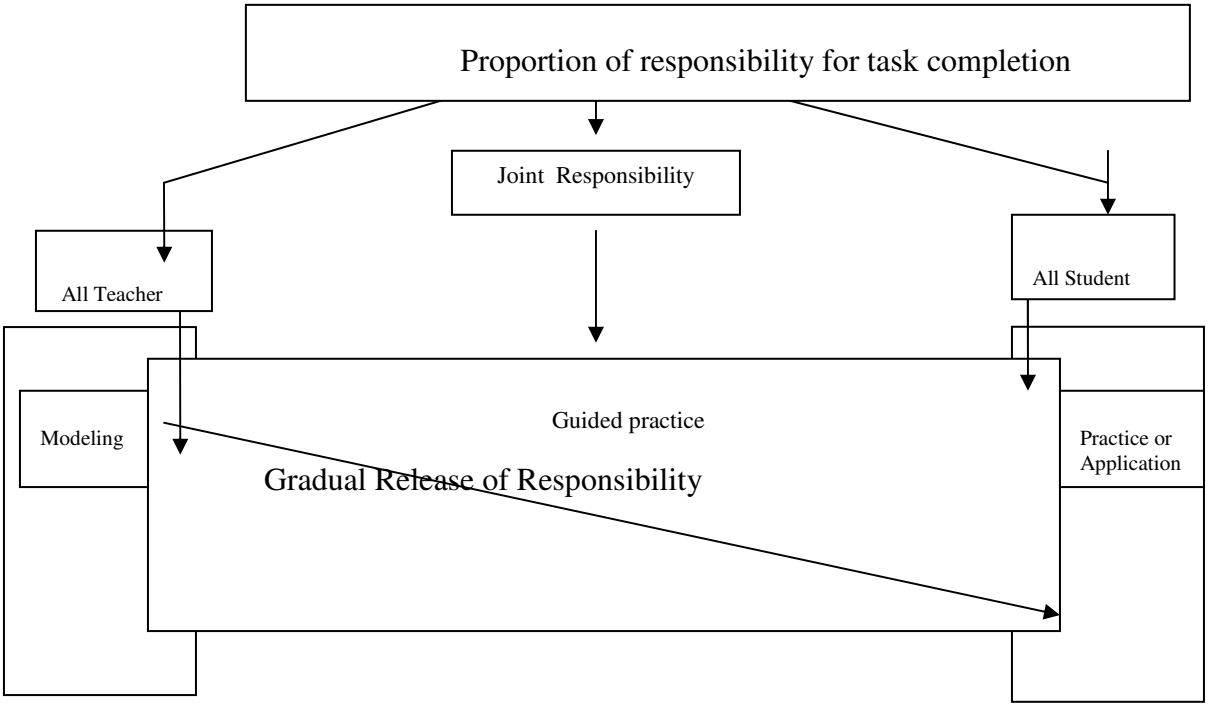
After modeling and thinking-aloud about a portion of text, the teacher checks with the students to determine any misunderstandings or questions that they may have about

the modeled strategy. The teacher asks the students to recall when, why, and how to use the strategy. This is followed with students practicing the modeled strategy while the teacher provides individual assistance to students who were experiencing difficulty. The final step includes the group summarizing the content of the text read, along with stating when and how to use the reasoning process or strategies (Herrmann, 1988).

Taylor, Harris, Pearson, and Garcia (1995) identified six recursive steps of explicit instruction where the teacher: (1) explains what the strategy consist of, (2) explains why the strategy is important, (3) explains when to us the strategy, (4) models how to perform the strategy in context, (5) guides learner during practice, and (6) the learner uses the strategy independently. This model coincides with the gradual release model recommended by Pearson and Gallagher; (1983, p. 337) (see Figure 1) whereby, the proportion of the responsibility for accomplishing the task moves from the teacher assuming total responsibility during instruction, to both the teacher and student sharing responsibility, and then progressing toward the student assuming total responsibility during practice or application of the strategies and skills.

When using direct explanation (Duffy et al., 1986; Duffy et al., 1987) both the teacher and the students' focus is on using skills or strategies as tools to make sense of the text (Palincsar et al., 1991). This instructional approach requires teachers to model the types of knowledge required to understand the task: declarative knowledge, which refers to knowing *what* strategy to use; their procedural knowledge, which refers to knowing *how* to use a strategy; or conditional knowledge, which refers to knowing *when* and *why* to use this strategy.

Figure 1 Model of explicit instruction from Pearson and Gallagher, (1983, p. 337).



While modeling the strategy, the teacher uses a think-aloud to reveal the mental processes that are used to process the texts. The purpose of articulating and demonstrating the strategies through a step-by-step process is to show students how the thinking process is applied to problem-solving and comprehending actual text. Low performing students benefit from overt demonstrations and guidance to guide their understanding in answering comprehension questions (Gersten & Carnine, 1986).

Through the teacher's demonstration of the process, students gain an understanding of how to apply the strategies to increase their comprehension. Students practice using the reading strategy as the teacher monitors their performance and problem-solving. As

students acquire proficiency using the strategy, the teacher begins to release more responsibility to the students.

Brown, Campione, and Day (1981) set guidelines for explicit instruction for developing students' use of strategies for coping with comprehension difficulties: (1) the skill must be relevant, (2) training should move from simple to complex, (3) assessment must be interjected to discover where breakdowns occur in training or transfer of the task, (4) explicit instruction includes when and how to use the strategies, (5) feedback given during class discussions, (6) use a variety of texts or passages to provide transferability of skills, and (7) guide students' awareness of self-checking procedures as a part of comprehending text.

Students' understandings of the procedures used to complete school tasks may be different from what the teacher intended; therefore, teachers need to talk to students about the purpose of using specific strategies (Duffy & Roehler, 1986). Students whose teachers explicitly talked to them about reading as a strategic task were more strategic than those who did not receive this instruction (Duffy et al., 1987). Younger and struggling readers benefit from explicit instruction in using comprehension strategies (Pearson, 1984). Palincsar et al. (1991) studied third- and fourth-grade struggling readers using the Direct Explanation model. They found that students made significant gains in procedural and conditional knowledge of reading strategies, in addition to their gains in metacognitive awareness.

Research has shown that students benefit from explicit strategy instruction (Duffy, Roehler, & Mason, 1984), including cognitive and metacognitive strategies such as activating prior knowledge (Lipson, 1982; Pearson, Hansen & Gordon, 1979) questioning

(Singer, 1978), summarizing text (Hidi & Anderson, 1986; Hill, 1991), searching for information (Dreher, 1992; Dreher & Brown, 1993; Dreher & Guthrie, 1990), organizing information graphically (Armbruster, Anderson, & Meyer, 1991) and monitoring comprehension during reading (Baker & Brown, 1984; Myers & Paris, 1978) .

The students in the CORI-STAR approach received explicit instruction in strategy use. However, Fountas and Pinnell (1996) stated that the purpose of guided reading instruction is not to teach strategies but to guide students' comprehension of text content. The belief is that students would infer how to use the strategies from these experiences when they are reading. Even though Fountas and Pinnell (1996) insisted that reading strategies cannot be explicitly taught, much empirical data exists to document that struggling readers benefit from explicit teaching (Baumann et al., 1993; Dole et al., 1991; Duffy, 2002; Duffy et al., 1986; Guthrie, 2003; Paris, et al., 1984).

Modeling

Modeling refers to the behavioral, cognitive, and affective changes that result from observing one or more models (Bandura, 1986). Students learn new behaviors from observing the model, or teacher. Cognitive modeling incorporates the model's explanation and demonstration of his or her thinking and the reasons for performing the actions (Meichenbaum, 1977). Teachers model strategic reading behaviors to teach students how to use strategies such as accessing prior knowledge, questioning, predicting, summarizing, searching texts, comprehension monitoring, and inferring. Metacognitive strategies can be modeled as the teacher demonstrates and explains the thinking required during the reading process to make meaning of the text.

According to social cognitive theory, students learn from the behaviors modeled by others (Bandura, 1986). The most effective way to introduce students to a new skill or strategy is to model it within the context of authentic reading tasks, and then assist the students in using the strategy (Wilhelm, 2001). Observational learning through modeling, achieved as the models show new behaviors to the observers, is composed of four subprocesses: attention, retention, production, and motivation. Attention occurs when the observer is attending to the distinctive features of a specific task or modeled behavior. Retention occurs when the observer codes and transforms the information about performing the behavior and begins to rehearse the information. Production occurs when the translated visual and symbolic conceptions of modeled events into overt behaviors. Motivation occurs when the observer performs the valued activity with the expected positive consequences (Pintrich & Schunk, 2002).

The most complex skills are learned through a combination of modeling, guided practice, and corrective feedback. Learners often develop a rough estimation of how to perform an activity by observing more knowledgeable models. Then, through practice, learners can refine their skills under the guidance of the teacher or model who may provide corrective feedback or reteach misunderstandings (Schunk, 1991). Modeling informs and motivates learners because it provides information concerning the procedures that would lead to the desired behavior. Modeling helps to raise the self-efficacy of learners by helping them believe that they can be successful by following the same behaviors as the model (Schunk, 1991).

Think-alouds

Think-alouds have been described by Israel and Massey (2005) as a metacognitive process where readers' model and verbalize their comprehension processes and thoughts as they read text. Metacognition is considered a reflective process that readers use to become cognitively aware of their thinking when reading (Baker, 2002). During the 1950's thinking-aloud became an important tool toward understanding the cognitive processes. Huey (1968) reported using the method of thinking aloud to report on either his thinking or the thinking of others as they were reading. Henderson (1903) explored the mental processing of text by recording what people remembered after reading. Thorndike (1917) examined children's processing as they responded to questions about what they read. The work of Huey (1968), Henderson (1903), and Thorndike (1917) set the stage for further researcher in the areas of cognitive processing, schema theory, and metacognition (Kucan & Beck, 1997).

Research revealed that think-alouds, or verbal protocols support the development of cognitive strategy use and reading performance (Afflerbach, 2002; Palinscar & Brown, 1984; Paris et al., 1983). Students who have been taught to use think-alouds while reading demonstrate higher comprehension of text, compared to those who have not been taught think-alouds (Davey, 1983; Dole et al., 1996). Ericsson and Simon (1984) examined the methodological data on think-alouds and supported the critical argument of the validity of students' retrospective verbal reports, compared to the practice of using ongoing reports by students during reading. Their work extended beyond merely using think-alouds for reading tasks, but also asserted that think-alouds could be used while

performing other cognitive problem-solving tasks, such as cryptarithmetic puzzles and math calculations.

Davey (1983) implemented five techniques to teach struggling readers to gain information from their reading by using the think-aloud procedure. The five techniques corresponded to key areas in reading where struggling readers lacked the necessary strategies to comprehend the text. Davey reported that teachers can help students gain control of their reading by verbalizing their own thoughts as they read orally. During the reading, the students observed the teacher's think-aloud as he or she shared the mental processes required to make sense of the text. Davey emphasized that struggling readers benefit from instruction in (1) making predictions, (2) developing a mental image as your read, (3) sharing an analogy of how to integrate prior knowledge with new knowledge during reading, (4) verbalizing or talking through confusing parts to show how to monitor comprehension, and (5) using fix up strategies to make corrections. Davey (1983) found that students were motivated to use the think-aloud strategy to work their way through text.

Instructional approaches have adopted think-alouds to help enhance teacher modeling. Think-alouds are included in Direct Explanation (Duffy et al., 1986; Duffy et al., 1987; Duffy and Roehler (1987) and Informed Strategies for Learning (ISL) (Paris et al., 1984). Palincsar and Brown (1984) included think-alouds in the Reciprocal Teaching model where teachers instruct students in four different strategies, predicting, questioning, clarifying, and summarizing. The use of reciprocal teaching revealed significant increases in the use of reading strategies by struggling readers. In reciprocal

teaching, the teacher helps students self-regulate their learning through their dialogue, use of feedback, explanation, and modeling (Palincsar et al., 1991).

Readers benefit from using think-alouds in a discourse environment where they communicate with each other toward the goal of developing an understanding of the mental processes used to construct meaning and understanding text content (Kucan & Beck, 1997). Dewey (1966) recognized the importance of communication in education and the underlying principle of think-alouds confirms that reading a text is a form of communication (Kucan & Beck, 1997).

Think-alouds are used by teachers to model the comprehension processes. Davey (1983) listed many instructional strategies that could be taught through modeling the think-aloud procedure. They included: activating prior knowledge, predicting, visualizing, expressing confusion, demonstrating fix-up strategies, reading ahead to clear up misunderstandings, summarizing and organizing, restating or rephrasing into simpler terms, using the context to solve an unknown word, understanding important and unimportant information, and making analogies.

Block and Israel (2004, p.154) described think-alouds as a "metacognitive technique or strategy" where the teacher verbalizes his or her thoughts aloud while reading the selection orally and modeling the comprehension process. Teachers use the think-aloud technique as an instructional practice to help students verbalize their thinking during reading, and to bring their thoughts about their strategy-use out into the open so that they are aware of them and understand how to use them in the future (Oster, 2001). Vygotsky (1962) theorized that children's egocentric speech serves as a self-regulating function to guide their thoughts and actions.

Think-alouds, or verbal reports, are used to obtain meaning concerning the thinking processes used by the reader as they construct meaning from the text. Verbal report data tracks the cognitive processes of students that could otherwise only be examined indirectly (Wade, 1990). Think-alouds may be obtained from readers of all levels of reading ability; however, there may be difficulties in obtaining data from younger and less verbal subjects who produce less complete verbal reports than older, more verbal subjects (Afflerbach & Johnston, 1984).

Think-alouds have been shown to be effective when used for explicit instruction of comprehension monitoring and fix-it strategies (Baumann, Jones, & Seifert-Kessell, 1993; Baumann, Seifert-Kessell, Jones, 1992). Research indicates that differences exist in the comprehension monitoring abilities of good and struggling readers (August et al., 1984: Paris & Myers, 1981). Think-alouds have been shown to be effective in helping students improve comprehension monitoring. Baumann et al.(1992) designed think-aloud instruction that consisted of three phases: an introduction consisting of an overview and verbal explanation of a particular strategy, a teacher modeling session, and a guided application and independent practice time for students. Through a series of lessons using think-alouds, students' comprehension improved significantly. The ten lessons consisted of: (1) self questioning, (2) sources of information, (3) think-aloud introduction, (4) think-aloud review, (5) predicting, reading, and verifying, (6) understanding unstated information, (7) retelling a story, (8) rereading and reading on, and (9 and 10) think-aloud comprehension monitoring.

Anders and Simon, (1984, p. 220) stated, "Thinking aloud protocols and retrospective reports can reveal in remarkable detail what information they are attending

to while performing their tasks, and by revealing this information can provide an orderly picture of the exact way in which the task are being performed." Since children think out loud in their early stages of development, think-alouds may serve as a meaningful technique to analyze their problem-solving strategies when they read (Johnston, 1984).

Think-alouds were included as one of the metacognitive components the CORI-STAR instructional approach. Think-alouds were used by the teacher to model a specific reading strategy during the modeling phase of instruction. Students also used think-alouds as they reflected on their use of strategies during the lesson.

Metacognitive Awareness Training

Metacognitive awareness refers a person's awareness of his or her cognitive capacities and awareness how to regulate and monitor these cognitive processes toward accomplishing set goals (Flavell, 1979). Unlike cognition, which involves the knowledge or skills that one possesses, metacognition involves persons' conscious awareness to control their knowledge and skills toward accomplishing cognitive tasks (Stewart & Tei, 1983). Students who possess cognition without metacognitive awareness may "know" something at the unconscious level, compared to students who are metacognitive and consciously "know what they know", "know what they need to know", and "know the utility of active strategic intervention" (Brown, 1980).

Development of metacognitive awareness. Metacognitive processes develop slowly within individuals. By the time children are three years old, they have begun to acquire some awareness of themselves, and of others as persons who "know things" or have knowledge of what is happening in their environment. They can think about an object and begin to discuss what they know by using verbs such as "think" and "know" to

communicate their knowledge (Flavell, 1999). At the age of four, children become aware that other peoples' actions may be guided by different desires and beliefs than theirs. This so called "false belief" is a developmental milestone as children begin to realize differences exist between their thoughts and those of other humans (Kuhn, 2000). During these early preschool years, children develop an awareness of their own knowledge through metacognitive experiences. These metacognitive experiences serve as foundations for children's higher-order thinking that appear later in their development.

The execution of task performance requires both declarative, (knowing that or knowing what) and procedural (knowing how) knowledge of the task. Zelazo and Frye (1998) found that even though three year-olds could easily sort blocks by color and by shape, they had difficulty selecting the so-called rule for how the blocks were sorted. Zelazo and Frye proposed that the requisite executive control of cognitive functions develop gradually over time within young children through many developmental transitions.

The level of cognitive demand differs between the declarative and procedural knowledge necessary to perform a task. Kuhn (2000) claims that children's meta-level awareness operations have the greatest influence on their procedural knowledge. For example, the meta-level awareness of strategies for procedural knowledge or *knowing how* to summarize a chapter after it is read influences the students' comprehension efforts more than *knowing that* they know it. Kuhn (2000, p. 179) asserted that this "explain(s) how and why cognitive development both occurs and fails to occur…the explanatory burden shifts from the performance level to a meta-level that dictates which strategies are selected for use on a given occasion." The students' meta-level serves as the cognitive

control center which both directs their application of strategies, and provides feedback concerning their progress toward meeting the intended goal. As students apply strategies, they receive feedback which is relayed back to the meta-level where it analyzed to determine the extent to which the strategies are helping them meet their goal.

Students' meta-level awareness helps them evaluate the effectiveness and limitations of using various strategies which may lead to refinement or adjustment to the strategies. This is a represented as a continuous cycle; whereby, the "meta-level both directs and is modified by the performance level" (Kuhn, 2000, p. 179). Kuhn asserted that this model may explain why efforts to induce change at the students' performance level often have limited success because students are not metacognitive in transferring their learning from one context to another.

Young children are not always aware of their ability to control their cognitive processes to accomplish various tasks (Schunk, 1991). Preschoolers often have difficulty judging whether a problem is easy or difficult to solve so they expend equal effort on both. Children's higher mental processes function first on the social plane, or the interpsychological plane, as they interact with people in their environment; whereas, later their mental processes operate on the individual level, or the intra-psychological plane (Vygotsky, 1978). Kontos (1983) found that that the metacognitive skills of three- four- and five-year old children developed during their preschool years as a result of both social interactions with supportive adults in their environment, and their solitary individualized persistence at problem-solving tasks.

Preschool children can develop metacognitive awareness and begin to generalize and control what they learn by the strategies they use (Flavell & Wellman, 1977).

Children may scribble a message or make random markings on a paper in their effort to communicate their ideas to others. Whether these children can read back their message or not, they are beginning to become metacognitively aware that written language around them contains meaning and they are thinking about how they can use it to communicate. Children's metacognitive awareness of literacy tasks begins as they develop an understanding that written language makes sense and contains meaning (Goodman, 1986).

From the age of five through adolescence, children become aware of how language works. The beginning of reading and writing occurs when children look at written words and want to know what they mean. As young children explore the literacy environment of the classroom, they begin to develop metacognitive awareness about written language. Metacognitive and metalinguistic awareness are part of the very foundation to children's literacy development (Goodman, 1986).

Clay (1993) established an early assessment of children's metacognitive awareness or reading known as the Observational Survey. Clay recognized that beginning first-grade readers could be interviewed to determine what they knew about the basic concepts of print, the directionality of reading, and the meaning of punctuation marks. She observed students' awareness of print as they found inconsistencies in the text and pictures, as well as identifying letters, words, and sentences.

As children progress through their schooling they become more aware of their cognitive strategies (Flavell, 1985). Metacognitive experiences begin within children as they become aware of their ability to regulate their thinking and problem solving strategies in order to monitor, or control, their performance. These metacognitive

experiences can lead to the development of metacognitive awareness within the child. Metacognitive awareness relates to students' ability to think about and evaluate cognitive tasks and monitor their performance as they complete a particular task. Flavell (1979) distinguished between two levels of metacognitive knowledge; the first level being metacognitive knowledge, which is gradually followed by students' ability to produce and control their metacognitive knowledge.

The developmental of students' metacognitive awareness coincides with their development of cognitive strategies in childhood (Paris & Lindauer, 1982). The foundation of students' awareness of their own thinking processes is associated with their understanding of themselves, through their self-knowledge, self-concept, and self-perception, along with regulation of their behaviors (Piaget, 1976;Vygotsky, 1978). Differences exist between younger and older students in their use of decoding, comprehension and study strategies, with older students demonstrating more proficient levels of metacognitive awareness.

Younger and poorer readers associate their reading success with their ability to decode words; therefore, neglecting to the purpose of reading for meaning (Golinkoff, 1976). Younger readers concentrate more on the decoding process without attention to self-monitoring strategies which could enhance their comprehension of text. Younger children are usually inaccurate and inconsistent in reporting their cognitive abilities, often asserting that they have sufficient cognitive ability to tackle tasks beyond their ability (Paris & Lindauer, 1982).

Beginning and poor readers do not evaluate their understanding of what they are reading, nor do they self-regulate and self-correct. Younger children often do not monitor

their comprehension while listening and they often believe that they have understood inconsistent or ambiguous text (Markman, 1977). They continue the same behavior when reading; therefore they are less aware of difficulties when reading and do not evaluate their own understanding well. Unlike older children, younger children do not realize they must adjust their study time to allow larger portions of time to accomplishing larger tasks (Paris & Myers, 1981).

Research has shown that older readers and proficient readers have better metacognitive knowledge younger readers and struggling readers (Baker, 2005). However, students of all ages have difficulty monitoring their comprehension and implementing strategic reading behaviors. Baker (2005, pp. 63) asserted, "Metacognition differs in degree and kind, and its relations with achievement change over time. The evidence is clear that children begin to use simple rehearsal strategies early in elementary school, but complex strategies for understanding text may not develop until middle or high school." Although strategy instruction is an important element in reading instruction, most students do not initially implement the newly taught strategy until they have had time to practice it and become metacognitively aware of its value (Pintrich & Zusho, 2002).

The development of cognitive and metacognitive abilities continue to develop throughout the elementary grades (Paris & Jacobs, 1984). Differences between older and younger readers, or between proficient and struggling readers may result from two types of developmental trajectories: age-related maturity, and individual task related experience (Baker, 2005; Pintrich & Zusho, 2002). The notable differences in metacognitive awareness and reading skill between students who are the same age may be attributed to

individual differences in students' expertise and experience (Baker, 2005). Since schools rarely emphasize metacognition in the curriculum, it could be concluded that successful readers naturally acquire metacognitive knowledge and control. However, many students would benefit from explicit strategy instruction so that all students can gain the strategies and awareness of their mental processes necessary to read independently. Baker (2005, p. 74) stated, "Metacognitive skills should be taught within the context of authentic literacy engagement, and students should be given sufficient practice in their application that they know when, why, and how to use them relatively effortlessly."

When students are metacognitively aware, they exhibit control over their learning and thinking (Brown, 1978; Baker & Brown, 1984). Students who are metacognitively aware monitor their learning by selecting the appropriate thinking processes to help them be successful at comprehending text. The purpose of metacognition instruction is to help students gain an awareness of their ability to control reading behaviors as they learn to assess what they know, what they don't know, and how to monitor their reading processes (Spring, 1985). Effective teachers explain and model to their students how to read a text or use a specific strategy, why it is important to use a strategy, and when the strategy should be used. The teacher's task is to explain, demonstrate, and make visible the thinking processes involved in a task so that students can observe, practice, apply, and become aware of strategies they can choose from during reading. Teachers support students toward becoming metacognitively aware by designing guided practice opportunities to support them and give them feedback (Spring, 1985).

Students who are metacognitive know how to direct their thinking while selecting different strategies. The key to presenting strategies is to verbalize to students what the

strategy is, or the declarative knowledge, how to use the strategy, or the procedural knowledge, and when and why to use the strategy, or the conditional knowledge (Paris, et al., 1983; Spring, 1985).

A major component of reading is the ability of the reader to monitor his or her understanding of text while reading (Paris & Myers, 1981). When students check their comprehension, they are linking the knowledge from their reading to their conceptual understanding. Comprehension monitoring requires the cognitive skills of evaluating, planning, and regulation. Students evaluate when they check their current state of understanding and ask themselves, "Does this make sense?" Students plan what strategies to use to derive meaning from text or to rectify any comprehension problems. Students regulate as they employ comprehension strategies flexibly to determine the appropriate strategy needed to solve the task.

Comprehension monitoring suggests that readers are metacognitively aware of strategies they need to employ to accomplish their reading goals (Paris & Myers, 1981). Myers and Paris (1978, p. 680) described reading as "a complex behavior that involves interactions among perceptual processes, cognitive skills, and metacognitive knowledge." Comprehension monitoring or reading awareness is an important cognitive attainment that distinguishes between skilled and unskilled readers (Paris & Jacobs, 1984). Locke (1975, p. 126) stated, "You need to be constantly checking to see that you are actually performing those mental operations that produce learning…you need to monitor your mental processes while studying." Dewey (1910) stressed the importance of reflective thinking in the learning process. Stauffer (1969) cited Gray (1936) who noted that effective reading is the result of the readers' ability to recognize more than the facts or

ideas, but to reflect on their significance as they critically evaluate the ideas, discover relationships, and clarify their understanding of the ideas they confront.

Paris and Myers (1981) examined the comprehension monitoring skills of 32 fourth-graders, divided into two groups of 16 good- and 16 struggling readers. Pretesting determined that good readers read at a grade-equivalent mean of 5.4 compared to the struggling readers who read at a grade-equivalent mean of 2.8. During the study, each student read aloud a third- and fifth-grade level text containing nonsense words and passages while the researcher recorded the students' spontaneous hesitations, repetitions, and self-corrections. Students were asked to remember what they read so they could answer comprehension questions. Students were also given a pencil and asked to underline any words or sentences that they did not understand.

Paris and Myers (1981) found that good readers recognized and underlined 70% of the incomprehensible phrases compared to struggling readers who only noticed 35%, indicating that struggling readers did not monitor the meaningfulness of the phrases. Spontaneous monitoring of incomprehensible phrases was significantly inferior for struggling readers reading fifth grade text. Even though struggling readers hesitated, repeated, and self-corrected during reading, they were less able to evaluate anomalous information due to lower levels of monitoring. Struggling readers did not evaluate the comprehensibility of text as frequently as good readers. They tended to focus more on decoding and pronouncing words than monitoring meaning or regulating comprehension of text.

During a second experiment, Paris and Myers (1981) examined the correlation between the comprehension monitoring strategies used by struggling readers and their

reading ability and performance. This study examined students' understanding of useful and harmful strategies in deriving meaning for difficult vocabulary words. They found that struggling readers failed to spontaneously utilize study behaviors like questioning, using a dictionary, or taking notes; therefore, they lacked the awareness of strategies and comprehension problems. For the study, students were given pencils, paper, and a dictionary to use however they needed them, and they were instructed to read and study a story.

Following their study session, students were given a transition task of answering addition problems before being asked to recall the story and define four vocabulary words. Students were also presented with twenty-five strategies and asked to rate the usefulness of each strategy when reading using a nine-point scale. Strategies were grouped in five categories: external positive, external negative, internal positive, internal negative, and neutral. The grouping consisted of ten positive strategies, ten negative strategies and five neutral strategies. Positive strategies were those that could facilitate comprehension and remembering, such as 'underlining important parts' or 'reread it several times'. Negative strategies were those that could be detrimental, such as watching 'television while you read', or 'read the story backwards'. Neutral strategies were those that had no effect on reading, such as "you can jump higher than other kids in your class."

Struggling readers had more reversals of these ratings, indicating that their pertinent strategies were at the word-by-word decoding level compared to good readers. Struggling students were less organized and had less knowledge of the meaning of the vocabulary words. Good readers were more knowledgeable about the usefulness of

reading strategies, detected more errors while reading, and recalled more story information than struggling readers (Paris & Myers, 1981).

Paris and Jacobs (1984) provided students with metacognitive awareness training, known as Informed Strategies for Learning, and examined the children's reported awareness of their reading comprehension skills (Paris et al., 1983). They assessed the reading awareness of 91 third- and 92 fifth-graders using a scripted interview of 15 questions which examined students' understanding of evaluating, planning, and regulating reading through a variety of reading strategies.

Three different tasks were used to determine student comprehension: cloze task, the Gates-MacGinitie Reading Test (MacGinitie, 1978), and Error Detection. During the cloze task students were asked to supply the missing words that were deleted from the passage to determine the students' awareness of the meaning of the passage. The Gates MacGinitie Reading Test measured the students' reading ability and their ability to answer comprehension questions. The Error Detection test measured the students' awareness of incomprehensible text as they were asked to underline words or sentences that did not make sense.

The experimental group received Informed Strategies for Learning instruction which was designed to increase students' awareness of the types of knowledge needed to improve comprehension: declarative knowledge or what strategy to use, procedural knowledge or how to use a strategy, and the conditional knowledge or when and why to employ various strategies. The instruction was presented in 20-30 minute lessons twice a week for 14 weeks. Students received explicit instruction in activating their conditional knowledge of when and why to use reading strategies, conditions for applying knowledge

so they could understand when to expend the effort required in different phases of strategy use. Conditional knowledge is critical to children's acquisition and maintenance of reading strategies (Paris, Newman, & McVey, 1982). Within instruction, students learned to evaluate, plan, and regulate their reading. The study focused on the effects of providing direct instruction of reading strategies, using metaphors to describe strategies, and dialogue between the students and teacher.

As Paris and Jacobs (1984) examined the actual relationship between students' metacognitive awareness and their comprehension ability, they found that children's levels of awareness were highly related to their performance on all three reading comprehension tasks, with those students with high awareness scoring higher in comprehension than those with low metacognitive awareness. The three-factor MANOVA revealed significant main effects of treatment, F (3,147) = 3.51, $p < .05$: age, F (93,147) = 8.55, $p < .001$ and awareness. F (6,294) = 5.22, $p < .001$. Fifth-graders had higher metacognitive awareness than third-graders. The study discovered that students who received direct classroom instruction involving declarative, procedural, and conditional knowledge gained significantly over those students not receiving strategy instruction.

Person, task, and strategy variables have been identified as three important categories of metacognitive knowledge that may help children be more strategic (Flavell & Wellman, 1977). The person variable indicates that children need to be aware of their learner characteristics and know the conditions that impact their performance in learning. The task variable indicates that children need to know the purposes, scope and requirements of the task so that they may effectively use their abilities. The strategy

variable acknowledges the importance of the learners using existing strategies to plan, generate, check progress, and evaluate the results of their problem-solving behaviors.

Myers and Paris (1978) examined the metacognitive awareness of 20 second- and 20 sixth-grade students in comprehension monitoring in relation to person, task, and strategy variables using an eighteen-item interview. They found that older readers were more metacognitively aware of the person, task, and strategy variables required to perform reading tasks. Good readers were more proficient in evaluating their performance, more aware of when and how to use various reading strategies, and more able to distinguish between different levels of tasks than younger readers (Myers & Paris, 1978).

It has been strongly suggested that metacognitive awareness is related to children's reading comprehension (Baker & Brown, 1984; Pressley, 2002b). Research has shown that metacognitive awareness instruction is effective in improving students' reading motivation and strategy use (Cross & Paris, 1988; Paris et al., 1984). Informed Strategies for Learning (ISL) instruction was designed to stimulate greater awareness of declarative, procedural, and conditional knowledge while instructing students how to strategically plan, monitor and evaluate their own comprehension (Cross & Paris, 1988; Paris et al., 1984). ISL instruction involved: (1) directing the children's attention to the material to be learned, (2) generating high levels of student involvement, and (3) providing frequent practice and immediate feedback. ISL includes direct explanation and modeling of target strategies, guided practice, and independent practice to improve student reading skills, and comprehension monitoring (Cross & Paris, 1988; Paris, et al., 1984).

In studies that used the Informed Strategies for Learning approach with third- and fifth-grade students, results revealed that children in the experimental classrooms gained significantly more from pretest to posttest than the control classrooms on measures of reading awareness and strategic reading. Children in the experimental classrooms learned declarative, procedural, and conditional knowledge about reading which helped them to strategically plan, evaluate, and regulate their reading strategy use compared to the children in the control classrooms. Analyses of the pretest-posttest scores revealed that experimental students were significantly more aware about reading goals and strategies after the instructional program, indicating that both awareness and self-controlled strategy use can be promoted through the use of the Informed Strategies for Learning approach (Cross & Paris, 1988; Paris et al., 1984).

ISL is an example of an instructional model that can support elementary reading curriculum by teaching students to be strategic readers. Research reveals that good readers use more strategies as they read and they use them more effectively than struggling readers. Paris, Lipson, & Wixson, (1983, p. 293) asserted, "Learning to be strategic is rooted in both development and instruction. The failure to be strategic in reading may result from either developmental inability or poor learning. The nature of strategic reading requires appropriate instruction be given to readers to help them understand the utility and appropriateness of implementing various strategies when reading (Baker & Brown, 1984).

Strategic behavior is a choice that an informed learner intentionally puts into action (Paris et al., 1983). Readers need motivation to be strategic, and metacognition to know what, how, when, and why to apply strategies to plan, evaluate and regulate their reading

behaviors. The CORI-STAR approach has a metacognitive component that correlates highly with the description of the ISL approach in that it provides direct explanation of strategies, modeling of strategies, guided practice, and independent practice with ongoing feedback from the teacher.

Strategy Instruction

Strategy training is important in learning various reading strategies. Strategic readers possess declarative, procedural, and conditional knowledge (Paris et al., 1983). Many students are aware of the declarative knowledge required to search for information in text, and some students may also possess partial procedural knowledge concerning the steps for searching for information (Dreher, 2002). However, a deficit in students' conditional knowledge affects their ability to flexibly apply strategic behaviors in identifying when, where, and why to apply strategies. A lack of conditional knowledge prevents students from self-regulating their use of strategies effectively and efficiently (Dreher, 2002).

This section discusses the research base for the following comprehension strategies that were emphasized during this research study: activating background knowledge, questioning, searching for information, organizing information and understanding text structures, and summarizing.

Activate background knowledge. Activating prior or background knowledge refers to the readers' recall of relevant past experience and knowledge for the purpose of bringing new understanding to the meaning to the text (Anderson & Pearson, 1984). Readers differ in the kinds of knowledge, as well as the depth and breadth of knowledge that they bring to texts when reading (Reutzel et al., 2002). Research literature abounds

with documentation concerning the notion that the available knowledge that readers brings to text impacts their comprehension (Anderson et al., 1977; Pearson, et al., 1979). Good readers use their background knowledge constantly to help them evaluate and understand the meaning of text. Students with greater background knowledge comprehend and remember more when they read, compared to low-knowledge students who answer fewer inferential questions and recall less information after reading (Pearson et al., 1979). Good readers use background knowledge to determine the importance of information in the text, to infer new information, and to make connections between the text information and their background knowledge (Pearson et al., 1992).

Breakdown in text comprehension can occur when the mental representation from the text does not connect with the reader's background knowledge, or when the text information is inconsistent with what the reader knows. The readers' decision to adjust the text information to fit their existing schema usually results in faulty comprehension (Paris et al., 1991). Readers who only acknowledge information that they already have as a part of their background knowledge or prior beliefs may have difficulty in maintaining the balance between what they read and what they already know (Anderson & Pearson, 1984).

Readers tend to activate their background knowledge during the reading process to gain a deeper understanding of the text. Readers also activate their background knowledge to help them perform other strategies, such as questioning, searching for information, and organizing information. End of the year CORI benchmarks for activating background knowledge acknowledges that under teacher guidance, third-grade students are beginning to see how activating background knowledge supports their

comprehension. By the time they are fourth-graders, end of the year benchmarks acknowledge students' ability to think about their background knowledge and self-initiate the appropriate use of the strategy during reading (Taboada & Guthrie, 2004).

Questioning. Questioning refers to the students' ability to generate questions about the content or text they are studying (Anderson & Armbruster, 1984). In many classrooms, questioning is a commonly used tool for assessment and promotion of reading comprehension, without discriminating the need for the instructional component (Durkin, 1979). Teacher-posed questions usually ask factual or memory-type questions that focus on isolated bits of information, indicating that searching for the answer is the ultimate goal of reading (Nolte & Singer, 1985). Teacher-generated questions stress the value of the 'product' of comprehension by evaluating students' answers, compared to student-generated questions that stress the value of the 'process' of comprehending text (Nolte & Singer, 1985). Armbruster, Anderson, Armstrong, Wise, Janisch, & Meyer, (1991, p. 37) asserted, "Current cognitive theory suggests that factual memory-type questions are not the type of questions are likely to promote conceptual understanding and meaningful learning." Teacher-posed questions may direct students' thinking to specific areas of the text, yet it lacks the main objective of teaching comprehension: to have students learn to ask their own questions to guide their thinking (Singer, 1978).

Question-generation is an important comprehension fostering strategy that involves readers' self-regulating their cognitive activity to determine whether they understand the content (Palincsar & Brown, 1984). Students are motivated to read to find the answers to their own questions and to satisfy their curiosity. As students interact with the printed page and formulate questions, they become actively engaged in the process of

comprehension (Singer, 1978). Instruction in question-generation impacts students' accuracy in responding to high-stakes questions or post-passage questions in one of three ways: by involving students in active comprehension (Singer, 1978), by developing students' metacognitive awareness and self-regulation of their reading, and by familiarizing students with the cognitive and linguistic demands of attending to key information in the text to create an acceptable question (Davey & McBride, 1986). Consequently, questioning and reading comprehension are related by their commonalities: (1) active processing, (2) knowledge use, and (3) attentional focus (Davey & McBride).

Nolte and Singer (1985) found that students benefit from teacher modeling and instruction that is focused on developing questions to stimulate the comprehension process, rather than acquiring a product or quick low-level response. Students benefit from observing good modeled questions that move from literal to high level questions. Gradually as the teacher modeling is phased out, students take responsibility and develop independence in using self-questioning to monitor their cognitive processes (Nolte & Singer, 1985).

Student-generated questions vary in complexity based on students' background knowledge and their conceptual knowledge gained from expository text through comprehension of the text (Taboada & Guthrie, 2006). Taboada & Guthrie proposed that the conceptual level of students' questions enable students to build knowledge structures from text. When students interact with expository or informational text, they ask questions that support their conceptual understanding of the text content, including the main concepts and supporting relationships among concepts in the text. Taboada and

Guthrie established a questioning hierarchy to understand the association between students' questioning and their comprehension. Their questioning assessment included 360 students from third- and fourth-grade. Students were given four assessment tasks related with prior knowledge, questioning, and multiple text comprehension, in addition to the Gates-MacGinitie Reading Test (Form S), a standardized measure of reading comprehension.

Students' prior knowledge was assessed through their recollection of what they knew about two biomes that were described in their reading packet. Prior knowledge activation prompts consisted of five questions that focused on the similarities and differences between two biomes. Comprehension was assessed as students read and identified text-relevant information in expository text packets, before taking notes and writing essays that discussed their conceptual knowledge gained from reading. Questioning was assessed by first asking students to browse text packets for two minutes and think about the important ideas that they were learning about life in the two biomes. Students were prompted to write as many questions as they could about the biomes. Questions were scored from 0-4, with possible student total scores ranging from 0-40.

Student questions that scored a zero were those questions which contained misconceptions in their formulation, used ethical or religious notions, were anthropomorphic, or were non-readable questions. Level 1 questions were simple in form and requested a simple answer to a factual question, or a simple yes/no response question. These questions exemplified the readers' immature world knowledge and lack of understanding of the content matter.

Level 2 questions requested a simple description or statement about an ecological concept or the link between a biome and the organisms that live there. Level 3 questions requested a more elaborate response about the links involved in an ecological concept, such as the interaction of organisms with their environment. These questions were more complex in nature and required more elaborated propositions, general principles and supporting evidence about ecological concepts. Level 4 questions requested information about the patterns of relationships among the complex interactions within an environment, which could involve multiple core concepts. These questions displayed the readers' acquisition of science knowledge about the interrelationship among concepts and interactions in the biome, or interdependencies among organisms (Taboada & Guthrie, 2006).

Taboada and Guthrie (2006) found that questioning impacted reading comprehension for students with low- and high-prior knowledge. They also found that students' question levels were related to their levels of reading comprehension; whereby, students asking level 1 questions tended to have lower levels of comprehension, and students asking Level 2, 3, and 4 questions had comprehension scores that also corresponded to their question levels (Taboada & Guthrie, 2004, 2006). Students' development of questioning progressed from formulating simple questions that asked for facts, to description questions, to explanations of concepts to patterns of relationships among concepts and evidence. Higher-level questions represented students' higher levels of conceptual learning from the text (Taboada & Guthrie, 2004).

Taboada and Guthrie (2004) compared the relationship between students' questions and their reading comprehension levels. They found that students who asked lower level

or factual questions (Level 1) showed lower levels of comprehension on the passage comprehension task (about .35 on a scale of 1-1.0). Students who composed Level 2 questions had higher levels of comprehension (4.0). Students with level 3 questions had the highest level of comprehension (.50). These findings suggest a relationship between student questioning and reading comprehension (Taboada & Guthrie, 2004, 2006).

Since current research suggests a relationship between student questioning and student reading comprehension, this study also included strategy instruction in student question-generating.

Searching for information. Searching for information is defined as students seeking to find a subset of the information they need from a text to meet their goal (Taboada & Guthrie, 2004). Many reading tasks require readers to search texts to find answers to questions. Searching for information requires different cognitive challenges for readers.

Most research on searching for information has been guided by Guthrie and Mosenthal's (1987) problem-solving model for locating information in written documents. This model consists of five components: (1) goal-formation, as the learner establishes a goal, (2) category selection, as the learner selects the sections of the text to inspect, (3) extraction of information that is pertinent to the goal search, (4) integration and judgment regarding the relevance of the extracted information to the goal of the search, and (5) recycling, by which the previous components are organized temporally.

Many students who have not received strategy training have difficulty searching for information in text and understanding how to use text features, such as the table of contents or index to help in locating information. Some students lack understanding in how the macrotext features, such as headings or subheadings, or microtext features, such

as captions to help guide them in their search (Taboada & Guthrie, 2004). Good searchers understand that the strategy of searching text for information can actually save them time over reading all pieces of information related to the topic. Good searchers use relevant pieces of information in the text and reject the irrelevant information. Proficient searchers take advantage of the text features to help them extract the information from text.

Dreher and Guthrie (1990) found that eleventh-grade readers differed in the amount of time it took for them to search for information, especially in tasks differing in complexity. The more efficient students were better at categorizing the different tasks required to locate information, while less efficient readers scanned through the index and pages of texts to find the information. The time differences between both groups could be related to variation in students' reading rates, differences in their strategic behavior of knowing how to search for information, and their failure to identify the information when it was retrieved. Good and struggling readers differed in their cognitive awareness of strategic behaviors as they pursued text searching tasks. Efficient searchers spent relatively more time identifying categories or key words to use as they searched, compared to less-efficient readers (Dreher & Guthrie, 1990).

Students can be taught to search for information within the context of meaningful learning. Dreher, Davis, Waynant, and Clewell (1998) studied fourth-grade students who received explicit strategy instruction in carrying out research projects. For one year, students received both strategy instruction and opportunities to research topics of differing ranges of inquiry. Daily classroom strategy instruction addressed the reading difficulties that students were experiencing. Teachers observed their students' reading progress and examined the students' reflection logs to help them adjust their instruction

according to their students' needs. The reflection logs also helped students become metacognitive by evaluating both their progress and their obstacles in their learning. After the year-long study, students in both the middle-income school and the Title 1 minority-populated school revealed improvement in their ability to search for information to answer their research questions (Dreher et al., 1998).

Although the cognitive processes used for reading comprehension are different from those used to search for information, the searching for information strategy is widely experienced in schools, the community, and the workplace (Guthrie & Kirsch, 1987). Reading comprehension requires the reader to abstract the gist of the text, compared to searching for information which requires the reader to selectively sample the text. Good searchers can examine the text and select the relevant information, while rejecting the irrelevant information (Taboada & Guthrie, 2004). The purpose of searching for information is not to read an entire chapter but to locate the information that is needed in a variety of text.

Teaching students to search for information is valuable in helping them understand how to use the organizational structure of expository text to help in their text searches. Students in grades 3-5 have more instruction using expository text; therefore, their competency at navigating the text is crucial to their success. Text searching becomes an important learning tool as students develop self-regulation of the searching process (Taboada & Guthrie, 2004). At their workplaces, adults have been found to spend more time searching for information than any other reading (Guthrie, Seifert, & Kirsch, 1986).

CORI-STAR instruction followed Guthrie and Mosenthal's (1987) processes for searching for information by: (1) setting clear goals, (2) selecting a limited set of

categories of information in the text, (3) detecting and extracting important ideas and concepts from the text, (4) integrating information with prior knowledge and the goal, and (5) repeating these steps as necessary in searching subsequent text.

Organizing information. Organizing information graphically involves the students' formation of a spatial or graphic representation of the text-based knowledge in the form of concept maps, organizers, drawings, and diagrams (Armbruster, Anderson, & Meyer, 1991). The process consists of reading the text completely, identifying key concepts, locating supporting information in the form of words or phrases, defining the relationships between key ideas and supporting information, and organizing this information into a concept chart or visual display (Taboada & Guthrie, 2004).

Text structure refers to the text's organizational pattern which is defined by the connections among ideas in the text (Meyer, Brandt, & Bluth, 1980). These organizational patterns represent the rhetorical structures which guide the reader's understanding of the text. Texts use signal words, such as first, next, or last to guide the reader to recognize a sequence of events within a particular genre of the expository or narrative text. Titles and headings indicate the overall structure of the text. Even though some texts lack sufficient surface cues or good organization, good readers use their knowledge of text structures to organize the information into a well-structured mental representation (Williams, Hall, & Lauer, 2004). Proficient readers are more attentive to various text structures than young or struggling readers (Oakhill & Yuill, 1996). Most elementary school students' exposure to narrative text dates back to their early storybook reading experiences before entering school; however, many students are unfamiliar with the organizational structures of expository text (Williams et al., 2004).

Graphic organizers are a useful by reducing large amounts of information into key words or phrases which are arranged into a meaningful pattern that represents the meaning of the text. As students extract information from the text, they mentally determine the relationships between superordinate and subordinate ideas before arranging them graphically in a way that distinguishes the relationships between ideas. Graphic organizers can communicate complex relationships such as cause-effect, superordination, subordination, and comparison, and contrast in a spatially appealing form (Chambliss, 1994). Narrative texts usually follow a simple general structural pattern known as story grammar (Mandler & Johnson, 1977). Expository texts can be arranged in a variety of patterns: description, sequence, cause-effect, problem-solution, description, and compare-contrast (Williams, 2005).

The structure of text has a powerful effect on the readers' comprehension. Texts that adhere to an organizational plan are easier for the reader to follow than one which provides poor signals or deviates from the established structure. The readers' awareness of the organization of text is related to their comprehension and memory (McGee, 1932; Meyer, Brandt, and Bluth, 1980). Research shows the importance of text structure instruction in helping students recognize the underlying structure of texts in efforts to improve the students' reading comprehension (Armbruster, Anderson, & Ostertag, 1978).

Chambliss & Calfee (1998) identified seven rhetorical patterns used in information texts: four patterns for description, which are used to represent characteristics of the content at a fixed time, and three patterns for sequence, which are used to present events progressing over time, such as in a motion picture (Chambliss & Calfee, 1998). Descriptive rhetorical designs include list, topical net, hierarchy, and matrix. Sequential

rhetorical designs include the linear string, falling dominos, and branching tree. The list is the simplest in design, with few linkages between the elements. The topical net links concepts in clusters according to their attributes and then allows for numerous clusters to be connected according to their associations. The last two patterns, the hierarchy and the matrix, are used to organize more complex information. In the hierarchy, concepts and their attributes are arranged to represent their superordination and subordination relationships. The matrix arranges attributes according to specified points along two or more dimensions. Both the hierarchy and matrix patterns provide strict requirements in a well-organized text since they are used to organize complex relationships between ideas (Calfee & Chambliss, 1987).

In order to determine how readers use text cues to comprehend text in a written argument, Chambliss and Murphy (2002) examined the recall accuracy of 65 fourth- and fifth-grade students as they read and recalled texts with an argument structure. Students read and recalled one of three texts, each containing an introduction and conclusions which provided clues to the global discourse structure of the text. Three texts were designed to be structural replicates for the study: *Many Marylands*, *State House*, and *Sports*. Each text had the same global discourse structure with explicit warrant statements that linked the data to the claim.

After reading, students returned their texts before completing two written tasks: writing the author's main idea or the "claim", and writing down the author's supporting details, or "data". The results revealed that several students were familiar the with the argument schema and were able to use this schema to represent the argument structure. However, another group of fourth-and fifth-grade students performed as if they did not

have a text schema for the argument text, which was affirmed by their performance difficulties in producing one. The study revealed that fifth-graders were more likely to recall the argument hierarchically than fourth-graders.

McGee (1982) examined whether good and poor readers in third- and fifth-grade were aware of text structure and whether their awareness impacted their recall of text. All of the students in the study read orally and recalled two 125-word expository passages. The results indicated that fifth-grade good readers performed better than third-grade good readers or fifth-grade struggling readers in text awareness and recall of proportionately more superordinate idea units. Fifth-grade struggling readers revealed some degree of sensitivity to recognizing text structure. Third-grade good readers were not aware of the text structure as noted by their recall of more subordinate idea units than superordinate idea units.

Research has shown that younger and struggling readers have difficulty with inconsistent text (Baker, 1979; Markman, 1977, 1979) and with using text structure to help their recall of text (McGee, 1982). Readers may benefit from instruction which helps them become aware of text structures toward more effective strategy use in retrieving textual ideas. Students in the CORI-STAR condition received lessons on structure strategy approach.

Organizing information graphically helps students see a graphic representation of the interrelationships between conceptual information in the text. Graphic organizers help students: examine text to determine how it could be organized visually, learn text structures, focus on the concepts and relationships between concepts in text, and organize information for summarization of text or writing assignments (Trabasso & Bouchard,

2002). Students use cognitive processes to select key words and the informational phrases that support those main ideas. The use of graphic organizers helps students organize information from the text and become more aware of the organization of text structure (Armbruster, Anderson, & Meyer, 1991).

Summarizing information. Summarizing refers to a students' ability to form an abstract representation of either a portion of text or the complete text (Brown, Day & Jones, 1983). Summarizing text is a complex task that reveals the students' ability to recall and understand textual information. The ability to comprehend text is related to the readers' ability to examine the macrostructure of text and recall or summarize what was abstracted during the process (Brown, Day, & Jones, 1983).

According to Brown and Day (1983), summarizing involves five rules: delete redundant material, delete trivial information, provide superordinates to substitute for lists of items or actions, select topic sentences, and invent your own topic in cases where it is missing. Summarization reveals the readers' ability to recall and comprehend the text (Baker & Brown, 1984). Unlike a remembrance of what is read, a true summary is an abbreviated version of the text that the reader recalled by making judgments concerning the main ideas and unnecessary information in the text (Brown, Day, & Jones, 1983).

Summarization instruction benefits students in helping them become aware of how text is structured and how the ideas of text are related (Trabasso & Bouchard, 2002). Through instruction and modeling, students can be taught to apply summarization rules by identifying the main idea of a passage through discerning important ideas, recognizing superordination, deleting redundant and trivial information, and inventing a topic sentence.

Taboada and Guthrie (2004 observed that third- and fourth grade students development of summarizing progressively reflected all aspects of the summarizing process. Through their study they found that students improved in their identification of key points to be summarized, their ability to locate supporting information, and their citing of examples that supported their points. As students mature, they observed that they begin to frame information in an organized representation of the text. Taboada and Guthrie (2004, pp. 286-287) stated, "Although summarizing requires a high amount of cognitive effort, students develop the disposition to write mini-summaries during their work on an extended project."

Motivation to Read

The fifth goal of the literature review examines how students' motivation to read affects their learning. The goal of education is to create learners who self-regulate their thinking and learning. Yet, for students to self-regulate they must be motivated to learn. Motivation refers to a students' willingness to engage in and persist at a task (Wolters, 2003). Motivation can be better understood as the process or processes that accounts for students' goal-directed behavior (Pintrich & Schunk, 2002). Students' motivation to learn is critical to their ability to comprehend and become metacognitive (Baker, 1999); therefore, motivating students to participate in learning is of utmost importance to their acquiring literacy skills.

At any given moment, students have a level of motivation that uniquely influences their choice, effort, and persistence to engage in a particular task (Wolters, 2003). Motivation includes the processes of students being interested, feeling self-efficacious, and wanting to master a task or accomplish a goal (Wolters, 2003). Since reading is

considered to be an effortful activity, students need to be motivated to choose to read (Baker, 1999). Motivating involves making choices; therefore, even readers with strong cognitive skills must be motivated to become engaged readers.

Struggling readers experience difficulty with reading comprehension, affecting their motivation to read (Israel & Massey, 2005). The combination of struggling readers' low motivation and their reading difficulties reinforces the vicious cycle of negative feelings toward reading, causing them to read less than their peers as they continue to fall further behind (Baker, Dreher, & Guthrie, 2000). Each day struggling readers read about one-tenth the amount of words as their more successful peers, and often that reading is accomplished during reading instruction (Allington, 1983).

Several aspects of motivation are experienced by students within the classroom: intrinsic motivation, extrinsic motivation, self-efficacy beliefs, curiosity, challenge, and involvement (Baker & Wigfield, 1999; Wigfield & Guthrie, 1997). Intrinsic motivation refers to students' internal motivation to engage in an activity for its own sake, because they find it to be enjoyable. Empirical research has shown that a high amount of intrinsic motivation is associated with a sense of competence (Wigfield & Guthrie, 1997) and is considered to be an academic enabler (Linnenbrink & Pintrich, 2002). Extrinsic motivation refers to a students' external motivation to engage in an activity as a means to a particular end, such as rewards, praise, recognition, or avoidance of punishment (Pintrich & Schunk, 2002).

Intrinsic Motivation to Read

Students read for both intrinsic and extrinsic reasons (Wigfield & Guthrie, 1997). Wigfield and Guthrie (1997) found that children were intrinsically motivated when they

became deeply involved an activity and devoted much time and effort to it. Three dimensions of intrinsic motivation that are examined more fully in this study are curiosity, challenge, and involvement. Curiosity is the readers' generalized interest in reading about something they want to know more about. Challenge refers to the readers' joy in tackling and learning difficult information or mastering complex tasks. Involvement is recognized as the reader's desire or pleasure to be immersed in reading from a variety of texts (Guthrie, Wigfield, Metsala, & Cox, 1999).

Deci and Ryan (1985, p. 43) described intrinsic motivation as "the natural tendency to engage in one's interest while seeking to conquer 'optimal' challenges in the process." Optimal challenges are those which are neither too hard nor too difficult, but that can be achieved when worked through persistently. Intrinsic motivation is an important motivator in learning, adaptation, and growth in competencies that are a natural part of human development (Boyd, 2002). Deci and Ryan (1985) suggested that there are three primary psychological needs that may be applied to education: (1) the need for competence, (2) the need for autonomy or self-determination, and (3) the need for relatedness or connectedness with others in the social environment. The social nature of literacy learning is important to creating an appropriate learning environment for struggling readers who traditionally read less, get less instruction and interaction than their successful peers (Boyd, 2002).

Self-efficacy

Another area of motivation that is pertinent to this study is the readers' self-efficacy beliefs. Bandura (1997, p. 3) stated, "Perceived self-efficacy refers to beliefs in one's capabilities to organize and execute the courses of action required to produce given

attainments." People's self-efficacy beliefs are highly predictive of their choice to pursue a given endeavor, the amount of effort they will expend, and the amount of time they will persevere as they confront obstacles and failures, and whether their thought patterns are hindering or supporting their choice of action (Bandura, 1997). Students' self-efficacy beliefs relate to students achievement in different school subjects, such as math and reading (Bandura, 1997).

"Perceived self-efficacy is concerned not with the number of skills you have, but with what you believe you can do with what you have under a variety of circumstances," asserted Bandura, (1997, p. 37). Self-efficacy influences the activities people choose to engage in, their persistence, and effort to complete the task. Self-efficacy also impacts students learning new knowledge and ability to activate their background knowledge to tap into their existing knowledge base (Guthrie, Cox, Knowles, Buehl, Mazzoni, & Fasulo, 2000). Self-efficacy for learning involves the students' examination of what is required of them to accomplish a task and their evaluation of their knowledge, skills, and abilities to achieve new learning. Self-efficacy impacts the amount of effort students' put toward accomplishing the task. Students with low self-efficacy perceive the gap between their prior learning and new learning to be a barrier to their achieving new learning, so their learning is hindered (Guthrie, Cox, Knowles, et al.). Therefore, promoting students self-efficacy is essential to their achievement and acquiring skills to be successful learners (Guthrie, Cox, Knowles, et al.).

Pintrich and Schunk (2002) asserted, "The motivational impact of self-efficacy can be dramatic. When self-efficacy perceptions are high, individuals will engage in tasks that foster the development of their skills and capabilities. Self-efficacy is related to the

quantity and quality of effort, as evidenced through the utility of strategies and engagement." Students who have high self-efficacy beliefs will more likely put forth effort and persist with task, even when it is difficult. However, students with low self-efficacy appear more apathetic and resistant in exerting effort to perform a task, often avoiding tasks they feel they will struggle to accomplish. This unwillingness to engage in a literacy task affects their learning and subsequently reinforces their feelings of low self-efficacy (Pintrich & Schunk, 2002). Students who have high self-efficacy work harder and persist longer at a task than students with low self-efficacy.

Pintrich and De Groot (1990) examined the relationship between students' motivation and their self-regulated learning. Their study consisted of 173 seventh-grade students from eight science and seven English classrooms who responded to the Motivated Strategies for Learning Questionnaire (MSLQ), a 56-item self-report questionnaire. The questionnaire included items on student motivation, cognitive strategy use, metacognitive strategy use, and management of effort. Students responded to items on a 7-point Likert scale with 1 = not at all true to 7 = very true of me.

Results revealed that students high in self-efficacy were more likely to report using various cognitive and metacognitive or self-regulatory learning strategies. Students who were motivated also reported that their school work was interesting and important and they were more cognitively engaged that their peers. Students who self-regulated their behavior reported that they persisted more on their academic work. Pintrich and De Groot concluded that teaching students different cognitive and regulative strategies may be important for improving students' performance on classroom tasks, but that improving students' self-efficacy beliefs may more likely lead to the students' use of those

strategies. The results of this study provided empirical evidence for the support of both motivational and self-regulated learning components in the classroom. Students' involvement was closely tied to their self-efficacy beliefs of their capability to perform tasks and their desire to learn. Students need to have both the "skill" and "will" to learn (Pintrich & De Groot, 1990).

Social Cognitive Model of Motivation

Reading is an intentional act that requires students to interact with text for the purpose of deriving meaning (Guthrie & Wigfield, 1999). Reading is an effortful activity that involves choice, motivation, and cognition for readers to be engaged (Wigfield, 1997). The social cognitive models of motivation (Pintrich & Schunk, 2002) stress that students can be motivated in many ways that impact their school achievement motivation and cognitive factors.

Three assumptions exist concerning the social cognitive model of motivation (Linnenbrink & Pintrich, 2002). The first belief countered the existing belief that motivation can be characterized using quantitative measures along some continuum to determine how or why students are motivated for a particular task. Since students can be motivated in multiple ways and through multiple experiences, it should not be assumed that students are either motivated or unmotivated, but that their motivation is contingent on multiple influences at any given time. A second assumption claimed that motivation is not a stable trait of an individual, but it is instead more contextual and domain-specific. Students may be motivated in multiple ways and their degree of motivation is changeable and sensitive to the context of the situation. Students' interest may wane due to their comfort level or interest in a particular subject, their perceptions of their ability, or any

number of personal variables (Linnenbrink & Pintrich). The third assumption asserted that a relationship exists between students' personality and their motivation and achievement. Students' thoughts are active regulators of their motivation; therefore, their thoughts have a key role in their learning and academic achievement (Linnenbrink & Pintrich).

Teachers are challenged with the task of motivating their students to become cognitively engaged for the purpose of acquiring reading proficiency (Metsala, Wigfield, & McCann, 1996). Motivation researchers proposed that individuals' beliefs, values, and goals for achievement are crucial to their achievement related behavior (Wigfield & Guthrie, 1997). Bandura (1977) proposed that self-efficacy is the generative capacity by which the individuals' beliefs concerning their ability to accomplish a task or activity will determine their willingness to expend effort or persistence. Students who feel efficacious about their reading abilities read more frequently and are more intrinsically motivated to read (Wigfield & Guthrie, 1997). Positive self-efficacy is associated with school learning and achievement, which suggest that school should implement practices to develop positive self-efficacy beliefs in their students (Linnenbrink & Pintrich, 2002).

From a cognitive perspective, motivation can be considered as either a product or a process of the students' motivation or goal-directed behaviors (Pintrich & Schunk, 2002). Motivation is considered a product when students willingly engage in, or persist at a given task. Students make choices and expend effort to engage in that task. Motivation is considered as the process or processes that account for students feeling interested, or self-efficacious, or wanting to achieve a goal. Understanding motivation as a process recognizes that motivation is not the end state of students' achievement, but rather it is

the means through which the state is determined (Wolters, 2003). Considering motivation as both a process and a product supports instructional implications that the regulation of motivation can be achieved through tasks or activities that the students "purposefully act to initiate, maintain, or supplement their willingness to start, to provide work toward, or to complete a particular activity or goal" (Wolters, 2003, p. 190). Students' motivation can be regulated by the teachers' instructional decisions to purposefully intervene in various situations by managing and controlling the underlying processes that determine a students' willingness or interest to participate in a given task. The regulation of motivation also impacts students' thoughts, actions, or behaviors which in turn influence their choice, effort, or persistence at a given task (Wolters, 2003).

Motivation and Strategic Reading

The term *engagement* is used to describe the relationship between learning and motivation; therefore, engaged readers work in a motivated way by intentionally employing skills and strategies to achieve success (Cunningham & Cunningham, 2002). Readers need to be both strategic and motivated to comprehend text. Since engaged readers actively use their cognitive systems while reading, reading engagement is important to text comprehension and general reading ability (Baker, Dreher, & Guthrie, 2000).

Motivation and strategy-use are linked; consequently, students' positive feelings of self-efficacy are related to their cognitive engagement and increased use of strategies (Bandura, 1997; Pintrich & De Groot, 1990). Students' learning goals impact their utility of deeper processing strategies related to metacognitive and self-regulatory strategies,

such as comprehension monitoring. Students' cognitive strategies and self-regulation skills directly influence their performance (Pintrich & De Groot).

Children's motivation for reading may be explained as either a result of learners' understanding of their performance, or as the result of teaching practices (Wigfield, 2000). In the first case, the learners' increasing awareness of their abilities in relation to others in the classroom may cause them to view themselves as not as capable as others. However, in the second case, the teaching environment may emphasize a social comparison between students which may lead students to overly rely on how their skills compare to their peers. Instruction that is focused on motivating students to want to learn by sparking their interests will increase their intrinsic motivation, compared to the extrinsic rewards of classroom competition (Wigfield, 2000).

Guthrie, Wigfield, Barbosa, Perencevich, Taboada, Davis, et al. (2004) compared the influence of two instructional approaches upon third-grade students' reading comprehension, reading motivation, and reading strategies. They compared Concept-Oriented Reading Instruction (CORI) with Strategy Instruction (SI). CORI instruction included two major components: cognitive strategy instruction, which was also received by the SI group, and the five motivational practices of: (1) using content goals for reading instruction, (2) affording choices and control to students, (3) providing hands-on activities, (4) using interesting texts for instruction, and (5) and providing opportunities for collaboration. Cognitive strategy instruction included instruction in: (1) activating background knowledge, (2) generating questions related to the topic, (3) searching for information, (4) graphically organizing information, (5) summarizing text, (6) learning structures of stories, and (7) comprehension monitoring.

Guthrie, Wigfield, Barbosa, et al. (2004) trained teachers for either the CORI approach, or the SI approach during the summer prior to the study. Students in all classrooms (eight CORI and eleven SI) received the pretest in September 2001 and the posttest in the third week of December after twelve weeks of instruction. Students in the CORI condition received instruction around the science theme, "Survival of Life on Land and Water", where they became familiar with the nine science core concepts: (1) competition, (2) locomotion, (3) feeding, (4) reproduction, (5) respiration, (6) predation, (7) defense, (8) communication, and (9) adaptation to habitat. The science theme was taught in two six-week units: "Birds around the World", followed by "Pond Life". Instruction was given for 90-minutes daily for both conditions. Struggling readers who were not eligible for special education or were more that two years below in reading were taught in CORI and SI classrooms.

Results of the study revealed that even though pretest scores for CORI and SI were not significantly different, posttest scores for CORI were higher than SI on multiple text comprehension, passage comprehension, reading strategy component, and reading motivation.

In a second study Guthrie, Wigfield, Barbosa et al. (2004) compared CORI and SI with traditional classroom instruction (TI) receiving no intervention, on variables of reading comprehension, reading strategies, and reading motivation. This study was conducted in the same school district during the second year of the program, with many of the same teachers providing either CORI or SI instruction.

Important findings from the second study revealed that CORI students scored higher than TI students on the passage comprehension and the standardized test. CORI

students also performed better than SI and TI students on the Gates-MacGinitie Reading Comprehension test (MacGinitie, MacGinitie, Maria, & Dreyer, 2000). CORI students were superior to SI students in intrinsic motivation, extrinsic motivation, and a combined motivation measure. Given that CORI students scored higher on reading comprehension measures than SI students, it is believed that the combination of motivational and strategy support was more advantageous than strategy support alone. The combination of CORI's motivational practices and strategy instruction appeared to increase students' reading comprehension, motivation, and cognitive strategy use (Guthrie, Wigfield, Barbosa et al., 2004).

Students' reading motivation is essential to reading engagement and time spent reading (Wigfield & Guthrie, 1997). Students with high self-efficacy view themselves as able to master challenging tasks and use their cognitive processes strategically. Within the reading domain, self-efficacy is associated with self-regulation, use of strategies, and comprehension of the text to accomplish the task (Schunk & Zimmerman, 1997). Self-efficacious readers try different activities, are more proficient at achievement activities, and persist with a task when they experience difficulties (Schunk & Zimmerman).

Wigfield, Guthrie, Tonks, and Perencevich (2004) examined the impact of two reading instruction programs, Concept-Oriented Reading Instruction (CORI) and multiple strategy instruction (SI) on third-grade students' intrinsic motivation to read, their reading self-efficacy, and increases in reading amount. About 150 third-grade students from eight classrooms received CORI instruction, while 200 third-graders from eleven classrooms received SI for 90-120 minutes a day.

As a pretest and posttest, students' reading motivation was assessed using the Motivations for Reading Questionnaire (Wigfield & Guthrie, 1997), and their reading frequency was assessed using the Reading Activity Inventory (RAI). The RAI assesses how often students read and their reading preferences. Analyses using repeated measures ANOVA revealed that even though there were no differences between groups in reading self-efficacy in September, the CORI group had a significant increase in reading self-efficacy, compared to the SI group Although both groups experienced increases in reading frequency during the semester, the CORI and SI groups did not differ in reading frequency at either the September pretest or the December posttest. Statistically significant increases were found for the CORI group on intrinsic motivation measures of challenge and curiosity.

Motivation has been shown to be a major factor in students' success in school (Guthrie, Wigfield, Humenick, Perencevich, Taboada, & Barbosa, 2006). Cognitive and metacognitive strategies are correlated to reading comprehension (Guthrie, Wigfield, Barbosa et al., 2004). The amount of students' engaged reading correlates to their achievement in reading comprehension. Instructional approaches such as CORI have been shown to increase engaged reading, motivation, and cognitive strategy-use (Guthrie, Wigfield, Barbosa et al., 2004).

Wigfield and Guthrie (1997) found that fourth- and fifth-grade students' intrinsic motivations such as curiosity, challenge, and involvement were highly predictive of the amount of time students were engaged in reading. Students' growth in vocabulary, comprehension and spelling were highly dependent upon the amount of their exposure to reading and print (Guthrie, VanMeter, McCann et al., 1998). Guthrie et al. (1996) found

that most of the third- and fifth-grade students who received CORI instruction had increased intrinsic motivation, strategy-use, reading engagement, and frequency of reading.

In his article, "If they don't read much, how they ever gonna get good?", Allington (1977) argued that the best way for children to develop reading ability and become proficient readers is to give them opportunities to read, which primarily challenges teachers to provide motivating reading materials for students of all reading abilities within the classroom. Motivation to read is a major concern in reading instruction (Baker, Dreher, & Guthrie, 2000). Good readers allow little time for reading and struggling readers are not motivated to read at all (Dreher, 2003). Struggling readers often choose books that are too difficult for them to read and they have difficulty becoming engaged in reading. However, Guthrie, Anderson, Alao, and Rinehart (1999) found that struggling readers were intrinsically motivated to read high quality expository texts. Dreher (2000, 2003) asserted that struggling readers could benefit from the motivational aspect of choosing and reading information books. Dreher (2000, p. 72) asserted, "Effective use of more diverse material, including informational books, may help to counteract this drop in motivation to read." Teachers need to establish classroom libraries with a variety of informational text for students to select. Research suggested that students, especially struggling readers, need opportunities to interact with information text. Classroom libraries can provide a variety of genres, and choices to motivate students to become engaged in reading (Chambliss & McKillop, 2000).

Motivation is an integral part of this study. CORI-STAR is based on the motivational principles of CORI which recognizes the 7's of motivation*: curiosity* in

pursing books and questions of interest, *concepts* to read and learn about, *collaboration* with other students as you share ideas you learned during reading, *challenge* of taking risks when tackling and thinking about text, *connections* in learning from various texts, *choice* in taking charge of your reading, and *confidence* that the reader knows a variety of strategies to tackle the text (Guthrie, 2004b).

This current study examines the metacognitive awareness and motivation of students receiving strategy instruction during the intervention. The ultimate goal would be to help students develop strategies toward becoming self-regulated learners; therefore, a brief description follows to establish an understanding of the relationship between motivation, metacognitive awareness, and self-regulation. Self-regulation refers to the students' self-generated thoughts, feeling, and actions toward attaining their goals (Zimmerman, 1994). Self-regulating students recognize the value of the strategies they use to optimize their academic performance. Their motivation drives their independence in selecting and using strategies, and by doing so, they develop confidence in their own abilities (Paris & Oka, 1986).

Self-Regulated Learning

Self-regulated learning is often the result of students' motivation, cognitive strategy use, and metacognition (Wolters, 2003). Students' regulation of strategies and motivation are important aspects of students' acquisition of self-regulation. Wolters (2003, p.189) claimed, "Self-regulated learners are autonomous, reflective, and efficient learners who have the cognitive and metacognitive abilities as well as the motivational beliefs and attitudes needed to understand, monitor, and direct their own learning."

Self-regulation may be defined as the cognitive, metacognitive, and resource management strategies that students use to regulate their cognition and control their learning (Pintrich, 1999). Self-regulated learners may be identified as those students are metacognitively skilled regarding their awareness and utility of strategies (Butler & Winne, 1995), and who have high levels of knowledge about a variety of cognitive strategies, and the ability to select, monitor, and regulate their use of those tasks when engaged in learning (Wolters, 2003). Self-regulation consists of three components which include: students' metacognitive strategies for planning, monitoring, and modifying their cognition (Brown, Bransford, Campione, & Ferrara, 1983), students' management and control of their effort on classroom tasks, and students' use of cognitive strategies, such as rehearsal or elaboration to learn, remember, and understand their learning (Pintrich & De Groot, 1990).

Self-regulation consists of a multidimensional criterion that incorporates the metacognitive, motivational, behavioral, and environmental processes of academic achievement (Schunk & Zimmerman, 1998). Zimmerman & Risemberg (1997, p. 105) asserted, "Self-regulated learning challenges metacognitive theorists to explain why students learn and what manner they perform behaviorally on their own; conversely, it challenges motivational and behavioral theorists to explain how students think about themselves and their academic tasks in order to learn independently."

This study did not assess students' development of self-regulated learning. However, many of the components of CORI-STAR instruction support the framework for developing self-regulated learners: cognitive strategy training, motivational attributes of CORI, and the metacognitive awareness training. This study explored the influence of

two instructional interventions, CORI-STAR and Guided Reading on students' intrinsic motivation dimensions of involvement, challenge, curiosity, and self-efficacy. Students in the CORI-STAR group received the motivational components of CORI: real-world models and interactions, interesting text, strategy instruction, collaboration support, autonomy support, learning and knowledge goals, teacher involvement, rewards and praise, and evaluation. CORI-STAR provided students with opportunities to satisfy their curiosities by asking questions and exploring topics of interest. Students challenged themselves with interesting topics and texts, becoming reflective thinkers and involved readers in a collaborative literacy group.

Instructional Models for the Study

The sixth goal of the literature review examines both Concept-Oriented Reading Instruction (Guthrie, Wigfield, & Perencevich, 2004) with the metacognitive STAR components and Guided Reading Instruction (Fountas & Pinnell, 1996, 2001).

Concept-Oriented Reading Instruction

Concept-Oriented Reading Instruction, or CORI, is an instructional approach that has been shown to increase reading strategy use (Guthrie, Van Meter et al., 1998; Guthrie, Wigfield, Metsala, & Cox, 1999; Guthrie, Wigfield, & Von Secker, 2000); reading engagement (Guthrie & Cox, 2001; Guthrie, Cox et al., 1998); and motivation in reading (Baker & Wigfield, 1999; Guthrie & Alao, 1997; Ng, Guthrie et al., 1998). The CORI instructional approach is based on four processes of reading engagement: motivation, strategy use, conceptual knowledge, and social interactions. Students become intrinsically and extrinsically motivated to read as they apply reading strategies to gain

conceptual knowledge through their exploration of engaging texts and interactions with peers.

An important of goal of CORI is reading engagement (Guthrie, Wigfield, & Perencevich, 2004). The amount of student reading has been shown to be highly correlated to student reading proficiency, academic achievement, and student knowledge of the world (Allington, 1977; Allington, 2001; Cunningham & Stanovich, 1997). Reading engagement is achieved through extended periods of engaged reading and writing every day, whether independent reading and writing, guided reading, small group reading or writing instruction, literature circles, team or partner reading, searching for information, integrated science investigations, or reading for enjoyment. Guthrie, Wigfield, Metsala, and Cox (1999) found that reading volume strongly predicted reading comprehension in third-, fifth-, eighth-, and tenth-grade students, even when controlling for prior knowledge and past reading achievement.

CORI incorporates four aspects of instruction in the classroom (Guthrie & Alao, 1997). In the first phase, "Observe and Personalize," students observe the real world and "personalize" their learning by tapping into their background knowledge to determine what they already know about a particular subject and then determining the ideas and questions they want to know more about. The second phase, "Search and Retrieve," involves the students in searching to find answers to their questions to develop a more complete conceptual understanding as they read a variety of texts over an extended period of time. In the third phase, "Comprehend and Integrate," students locate relevant information to answer their questions and satisfy their curiosities. They also integrate their learning from texts with their hands-on science explorations and experiences. In the

final phase, “Communicate to Others,” students are involved with pulling together what they have learned during their reading and investigations as they develop reports, posters, displays, or expository pieces to communicate their understanding to others.

The CORI classroom is conceptually thematic for students to develop a deeper understanding within a specific content domain through the use of literary and informative texts (Guthrie & Alao, 1997). The conceptual theme is valuable in increasing students’ intrinsic motivations to learn, such as their natural curiosities, involvement, desire for challenge, self-efficacy, aesthetic involvement, and social interactions. The concept-oriented approach fulfills students’ intrinsic motivation of inquiry, while supporting their desire to link real-world interactions to their text interactions. Through real-world experiences, students are motivated to read to answer their own questions and obtain knowledge to satisfy their natural curiosities. The integration of reading strategy instruction within the thematic study provides the perfect opportunity for preparing students to be able to access information and become self-motivated learners.

Students explore science concepts through sequential science procedures that reflect the authenticity of the scientific method. Learners develop concepts of observing, designing an investigation, collecting data, representing data, organizing an investigation, and communicating to others. The students become motivated by exploring their own interests through choosing topics and questions to investigate, by extending their research into areas of personal interest, by examining interesting and supportive texts, by collaborating with peers, teacher, and teams in learning and discussing concepts, and by following their curiosities to satisfy their natural quest for knowledge.

The theoretical model of CORI considers student outcomes of achievement, knowledge, and reading practices as central to the framework. Within the CORI engagement perspective, reading outcomes are accomplished by developing students' conceptual knowledge, strategy use, motivations, and social interactions (Grant, Guthrie, Bennett, Rice, & McGough, 1993). Reading processes and strategies are taught within the context of inquiry, which supports student motivation, establishes knowledge goals for reading instruction, integrates hands-on activities with student reading, presents students with realistic choices, uses interesting texts for instruction, and encourages social collaboration to enhance student learning. Students' comprehension of texts improves as they utilize these processes during engaged reading (Guthrie, Wigfield, & Perencevich, 2004).

Guthrie and Wigfield (1997) described engagement in reading as "the simultaneous operation of motivations and strategies during reading activities." Engaged readers are more intrinsically motivated by their curiosity, involvement, and challenge in learning (Wigfield, 1997). Wigfield and Guthrie (1997) found that students who were intrinsically motivated through their involvement, curiosity, and challenge were strongly influenced to spend more time reading, which lead to their reading growth. Using the Motivation for Reading Questionnaire (MRQ) Wigfield and Guthrie (1997) assessed eleven different aspects of reading motivation such as: social, efficacy, challenge, curiosity, involvement, competition, grades, recognition, importance, compliance, and work avoidance. They concluded that students highest in intrinsic motivation read nearly three times as many minutes as those students with low intrinsic motivation. This was compared to high- and

low-extrinsically motivated students who did not vary much on their amount and breadth of reading.

The instructional goal of CORI is to create classroom environments that optimize the development of reading engagement. Guthrie, VanMeter et al.(1998) examined the reading engagement of 172 third- and fifth-grade students receiving either CORI instruction or traditional basal and science instruction to determine the influence the two approaches upon students' strategy use and conceptual knowledge. The framework for CORI instruction was taught in two sessions totaling 16-18 weeks on themes of adaptations and habitats of birds and insects in the fall, and weather, seasons, and Earth formations in the spring.

Through CORI, the students were involved in hand-on science exploration both inside and outside of the classroom. Student learning was challenged by their searching for answers to their own questions. The students chose their own subtopics using interesting texts and worked with peers in interest-based learning activities while constructing knowledge and communicating their learning with others. Students revealed their curiosity by searching through expository text to find the answers to questions that they posed.

Students receiving traditional basal instruction followed the sequence of content and activities in the McGraw-Hill basal program for both grades three and five. Science content for the traditional program was similar to the CORI science objectives in learning about topics of adaptation, life cycles, weather and seasons, and solar systems. However, teachers from the traditional classrooms frequently visited CORI classrooms which may

have led to a less dramatic effect in determining differences in the impact of each approach.

Guthrie, VanMeter, et al. (1998) found that students receiving CORI instruction were more likely to learn and use strategies than those students receiving traditional instruction. The effect of instruction on strategy use was significant as students demonstrated their strategies of searching the texts for information, reading informational texts, making diagrams and illustrations of their learning, and taking notes from text to answer the broad conceptual question. When analyzing the effect for grade level it was apparent that CORI was effective for both third-and fifth grade students, with more advantages noted in third-graders. They found that students in CORI classrooms had higher literacy engagement and conceptual learning than students in the traditional classrooms. Also, CORI conditions had a positive effect on the students' ability to use a range of strategies to gain conceptual knowledge (Guthrie, VanMeter, et al., 1998).

Guthrie, Anderson, Alao, and Rinehart (1999) implemented year-long CORI instruction with 133 third-and 106 fifth-grade students to determine its influence upon students' use of strategies, conceptual learning, and text comprehension, compared to students receiving traditional instruction. They found that motivated strategy use was higher for third-grade students receiving CORI instruction, compared to traditional students. Even though fifth-grade CORI students were lower in motivated strategy-use than traditional students they scored higher in conceptual knowledge on the performance assessment. The end of the year assessment revealed that third- and fifth-grade CORI students had increased reading engagement and relatively high levels of conceptual knowledge on the life science topics of ponds and deserts. As a result of CORI

instruction, students were able to transfer their reading engagement and conceptual learning to the uninstructed subject topic of volcanoes and rivers.

Guthrie, Wigfield, and VonSecker (2000) examined five classroom practices in grades three and five that were designed to increase intrinsic motivation: (1) autonomy support, (2) competence support, (3) collaboration, (4) learning goals, and (5) real world interactions. Compared to conventional classroom instruction, they found that students who received CORI instruction had higher self-reported strategy-use and higher curiosity for reading. CORI students also had a strong positive association with curiosity.

The structure of the CORI classroom provided students with choices to satisfy their curiosities, involvement in a conceptual theme, opportunities for challenge, all which motivate students to learn. Within the CORI classroom, students learned to use six reading strategies that were identified in the National Reading Panel Report (National Institute of Child Health and Human Development, 2000) as crucial for developing children's comprehension skills: activating background knowledge, student questioning, searching for information, summarizing, organizing graphically, and story structure for literary text.

CORI-STAR: CORI with a Metacognitive Component

The research literature reveals that the CORI instructional approach positively affects students' motivation, comprehension, and strategy use over traditional reading approaches (Guthrie, Wigfield, Barbosa, et al., 2004; Guthrie, Wigfield, Tonks, et al., 2004).

CORI was selected as the instructional approach for this study because of its positive influence on students' reading motivation and students' utility of strategies;

however, CORI has not been examined as a small-group reading intervention for struggling readers. I have been fortunate to have experienced CORI instruction firsthand, as a teacher and as a reading specialist in a school that has participated in CORI research with third-, fourth-, and fifth-grades. I was introduced to the CORI program five years ago when I received training for the CORI pilot study that included my third-grade class. At the time of the CORI pilot study, my third-grade class consisted of a large number of below-grade level, struggling readers. With the permission of the CORI researchers, I made several adaptations to the program to provide for the diverse instructional needs of my students and to teach my struggling readers to become strategic, motivated readers.

One adaptation that I made to CORI was to teach students to self-monitor their comprehension by using think-alouds. Through this procedure, students became metacognitively aware of their ability to monitor their reading comprehension and to employ various comprehension strategies to gain meaning from texts. I modeled the process of think-alouds with each lesson to let the students become aware of my thinking during reading. Gradually, I asked the students to stop at various points when reading to verbalize their thinking in a think-aloud. In the initial stages of the process, students read only small portions of text, such as a sentence or two, before stopping to verbalize their thinking about what they read. Upon repeated practice in using thinking-alouds, the students were able to read several sentences or even a paragraph and remember what they read and the strategies they employed. This procedure provided me with a window into students' comprehension monitoring, conceptual understanding, and their awareness of strategy use as they became more metacognitive. It also helped the students to regulate and evaluate their comprehension as they read.

In their book, *Motivating Reading Comprehension: Concept-Oriented Reading Instruction*, Guthrie, Wigfield, and Perencevich (2004) included a chapter written by Melissa Sikorski entitled, "Inside Mrs. O'Hara's CORI Classroom." This chapter presented a case study of my classroom of struggling third-grade readers. The author discussed some of the instructional strategies that I implemented with CORI instruction to help struggling readers become successful readers. Even though CORI instruction provided excellent opportunities for implementing strategy instruction such as activating background knowledge, questioning, searching texts, organizing information, and summarizing in a whole-group setting, it was not initially established to support struggling readers of varying ability levels. The framework of CORI was very supportive for motivating struggling readers. Consequently, the strategy instruction and motivating elements of CORI combined with explicit small-group strategy instruction became known as CORI-STAR, an intervention to help struggling students become engaged strategic readers.

Within my classroom of 24 third-grade students, only four were reading on-grade level. The other three reading groups in my classroom ranged from one-year below grade, two-years below grade, and emergent readers who were still learning the alphabet. The adjustments that I made to CORI instruction in my classroom included explicit, small-group instruction, teacher modeling, teacher think-alouds, student think-alouds, and metacognitive awareness instruction to get students to think strategically. Strategic Thinking Applied to Reading, or STAR, is the metacognitive thinking component that has been added to CORI instructional approach to create CORI-STAR. As a result of providing CORI-STAR instruction to struggling readers in the classroom the students

developed reading strategies which improved their reading comprehension and motivation to read, and also increased their engaged reading in the classroom.

CORI-STAR contains many effective teaching behaviors that were identified by Reutzel and Smith (2004). In order to make the necessary gains set forth in No Child Left Behind (U. S. Department of Education, 2003) and to accelerate reading progress of struggling third- and fourth-grade readers, the two reading approaches, CORI-STAR and Guided Reading instruction were examined to determine their effects upon struggling readers. The CORI-STAR approach has only been minimally examined as possible remedial intervention in my school; whereas, the Guided Reading approach has been accepted and used in the county school system as the instruction model for primary and intermediate reading instruction.

Struggling students need exemplary instructional practices in order for them to develop effective literacy strategies. Examination of the CORI-STAR instructional approach reveals that it includes the research-based best practices set forth in Flippo's (1998) "Expert Study", which are: teacher modeling and scaffolding, academic time on task, increased volume of reading, student choice, discussion and dialog, integration of language arts with content areas, silent reading, access to a variety of reading materials, print-rich classrooms, and encouragement for readers to become engaged. Students receiving CORI-STAR had explicit, small-group reading instruction that included teacher modeling, teacher think-alouds, student think-alouds, metacognitive awareness instruction, and student reflection. Research has shown that direct explanation (Duffy & Roehler, 1986; Duffy & Roehler, 1987), modeling (Duffy, 2003), think-alouds (Kucan &

Beck, 1997), and metacognitive awareness instruction (Baker & Brown, 1984; Garner, 1980; Paris et al., 1983) benefit students in developing self-regulating reading behaviors.

Duffy and Roehler (1987) emphasized the importance of explicitly teaching reading strategies within the context of reading. Realizing that good readers are strategic (Anderson & Pearson, 1984) confirmed the rational for an instructional program for struggling readers that explicitly models and explains reading strategies and provides time for students to practice and reflect upon these strategies.

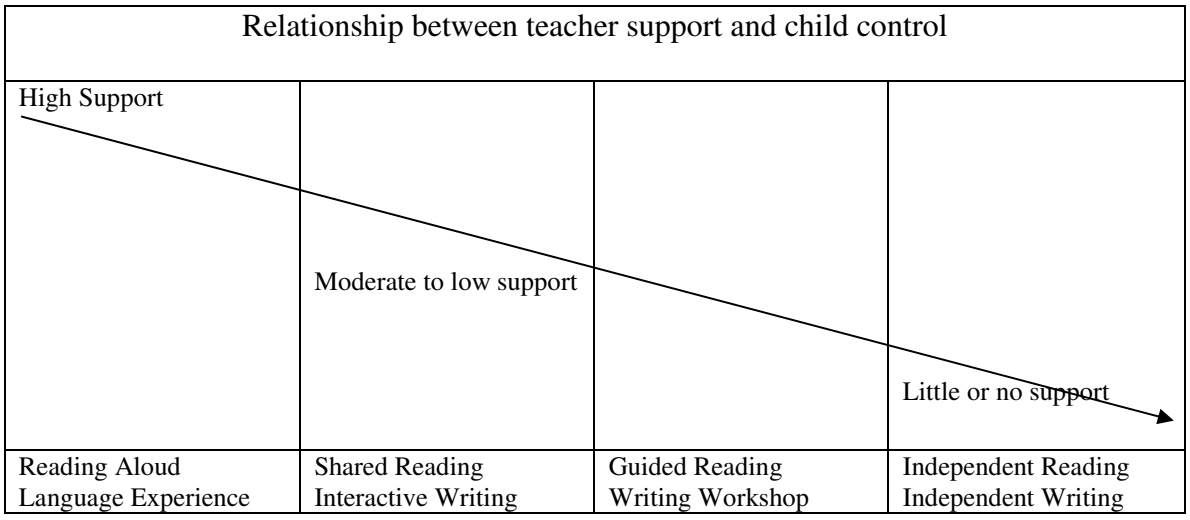
Cognitive and metacognitive strategies are correlated to reading comprehension in grades three through five (Guthrie et al., 2004). Research has shown that reading instruction should be explicit cognitive strategy instruction (Duffy, Roehler, & Mason, 1984) including cognitive and metacognitive strategies such as activating prior knowledge (Afflerbach, 1990; Anderson & Pearson, 1984; Wilson & Anderson, 1986), questioning (Nolte & Singer, 1985; Singer, 1978; Taboada & Guthrie, 2006), summarizing text (Brown & Day, 1983; Brown, Day & Jones, 1983), searching for information (Dreher, 1992; Dreher & Brown, 1993; Dreher & Guthrie, 1990; Guthrie & Mosenthal, 1987), organizing information graphically (Armbruster, Anderson, & Meyer, 1991; Chambliss & Calfee, 1998; Meyer, Brandt, & Bluth, 1980) and monitoring comprehension during reading (Baker & Brown, 1984; Myers & Paris, 1978) .

Guided Reading Instruction

Guided Reading is a reading approach within a balanced literacy program that includes read alouds, shared reading, and independent reading. The literacy program consists of reading and writing components that are located along a continuum that progress from a high-level of teacher support, to little, or no teacher support as

represented in the gradual release model (see Figure 2). The continuum displays the level of teacher support that students receive for each instructional component as they gain more control over their learning. Read-alouds and language experiences warrant a high level of teacher support, but the ratio between teacher support and student control begins change as students take on greater responsibility in shared reading, interactive writing, guided reading, and writers' workshop The final phase of the continuum represents minimum to no teacher support as students independently practice reading and writing skills (Fountas & Pinnell, 1996, 2001).

Figure 2: The Gradual Release model used in Guided Reading instruction (Fountas & Pinnell, 1996, p. 26)



Guided Reading provides opportunities for students to read a wide variety of texts at the students' reading level, as determined by the students' running records. As students read silently, the teacher observes students' use of strategic reading behaviors to construct meaning while reading leveled narrative and expository texts. The teacher

listens in and takes running records as a student whisper reads a portion of the text. Running records provide information concerning the types of miscues the student made during reading such as: repeating text, self-correcting, omissions, or insertions. The teacher's observation of the students' reading behaviors informs the teacher of an appropriate instructional teaching point for that lesson. After reading, the teacher guides students' use of problem-solving strategies by focusing on one or two strategies which were noted from observations of the reading session. The teacher uses the students' running records, group observations, and anecdotal records to make instructional decisions regarding teaching points and appropriate texts for future lessons.

During Guided Reading, small groups of four to seven children meet regularly for 20-30-minute lessons. The children in the reading group share a common characteristic; each child is reading on the same instructional reading level with between 90-95% accuracy. The one purpose of Guided Reading groups is to help students acquire the reading behaviors of good readers. The readers work on their use of fix-up strategies as they read. Teachers continually adjust instruction to meet the needs of the different abilities and needs of students within the group. Within the small group, the teacher selects texts at the students' instructional level which provide both challenge and support for students as they acquire reading skills (Fountas & Pinnell, 1996). The key elements for providing Guided Reading instruction includes: the teacher's selection of the appropriate text level for the group, the teacher's introduction of the text, the students reading independently as the teacher observes or listens in, the group discussing the reading and the teacher providing a teaching point, and the teacher's evaluation of the students' reading of the text (Ministry of Education Staff, 1997).

The Guided Reading approach is based on several theoretical perspectives. The Ministry of Education Staff (1997) identified six basic underlying theories that are relevant to Guided Reading instruction for intermediate grade students: reading is an active constructive process (Clay, 1991), developing background knowledge is critical in reading and schema development (Anderson & Pearson, 1984; Fielding & Pearson, 1994), social interaction promotes literacy growth (Vygotsky, 1978), reading engagement is important (Baker, Dreher, & Guthrie, 2000), strategy instruction in the context of reading (Au, 1997), and reading involves complex thinking using contextual cues (Clay, 1991).

Guided Reading is rooted in a different philosophy of instruction than CORI-STAR. In Guided Reading, students are immersed in a literacy environment with the belief that students will learn the strategies during reading. Instruction is determined by the teachers' observations of readers' behaviors when decoding text. When students encounter decoding difficulties during reading the teacher prompts them to use 'monitoring and correcting' strategies by asking themselves: "Does it look right?, Does it sound right?, or Does it make sense?" Student miscues are analyzed to determine whether the student's error is visual, syntactic, or semantic. Visual errors are described as errors which closely resemble the correct word, either in the beginning, medial, or ending letter formation. Syntactic errors are described as errors which make sense in the sentence up to the point of the error. Semantic errors are described as errors that interfere with the meaning of the sentence.

The emphasis of Guided Reading is reading accuracy. Running records and miscue analysis are performed to determine how the student decodes text, and the reading

behaviors the student uses to correct errors. In Guided Reading, strategy instruction is included as students demonstrate a growing awareness of text and demonstrate a need for the teaching point. By the time many students reach intermediate grades their decoding proficiency far exceeds text comprehension, however, Guided Reading does not provide teacher modeling of reading strategies, or metacognitive awareness of how, when, and why to apply strategies.

Reading is a complex behavior that requires direct instruction and explanation of the strategies. In Guided Reading, instead of students receiving direct explanation of strategies with the teacher modeling the process, students rely on the teachers' observation of their reading to determine what they need. Pinnell (2002, p. 109) stated, "Readers build strategies over time. As they process more complicated texts, those texts make greater demands on readers' processing systems. The whole process is driven by readers' search for meaning." Trabasso and Bouchard (2002, p. 177) stated, "Most readers who are not explicitly taught cognitive procedures are unlikely to learn, develop, or use them spontaneously." Although a great deal of empirical research supports explicit teaching of strategies (Baumann, Seifert-Kessell, & Jones, 1992; Duffy et al., 1986; Duffy et al., 1987; Paris, et al., 1984), Fountas and Pinnell (1996) insisted that strategies cannot be directly taught (Duffy, 2002). Readers who read on-grade or above-grade level can usually figure out how reading works in a literacy environment as they learn by doing. However, struggling readers needs to develop a conscious awareness of how reading works so that they can assume control over the reading process (Duffy, 2003).

After pursuing multiple attempts, I must report that I was unable to obtain empirical research regarding the effectiveness of the Guided Reading approach by

Fountas and Pinnell. The bibliographies in Fountas and Pinnell's books: *Guiding Readers and Writers 3-6* (2001) and *Guided Reading: Good First Teaching for All Children* (1996) also lack references to available research on their instructional approach.

Context of This Investigation

The ultimate goal of reading instruction is to create proficient readers who engage in reading text, reflect on what they have read, are able to acquire knowledge and conceptual understanding, and appropriately apply textual information (Rand Reading Study Group, 2002). Our charge as educators is to improve reading instruction for our struggling readers so that no child is left behind. Since "No Child Left Behind" legislature (U.S. Department of Education, 2003), schools have made efforts to improve instructional practices and to create learning environments where students receive effective reading instruction.

Research has shown that good readers use more strategies and use them more effectively than struggling readers (August et al., 1984; Markman, 1977; Pearson & Gallagher, 1983). Strategies are deliberate actions that the reader consciously employs for a purpose (Paris et al., 1983). Readers choose to be strategic, just like they choose to become engaged in reading. Research has shown that readers need both the skill and will to read (Paris, et al., 1983), but do most intervention programs provide instruction that meets both of these criteria? Good strategy instruction is not the viewed as the rote memorization of steps, but rather it is the result of direct explanation of comprehension strategies, teachers modeling and verbally explaining their thinking, and teachers providing feedback as students practice and apply the strategies (Pressley, El-Dinary,

Gaskins, Schuder, Bergman, Almasi, & Brown, 1992). Strategy instruction is valuable in teaching students to think about their own thinking.

Motivation is crucial for readers to become engaged (Wigfield et al., 2004). Students who are intrinsically motivated to read enjoy reading challenging texts, exhibit curiosity to read and learn more on a topic, and can become totally involved in a book (Wigfield & Tonks, 2004). Reading motivation is an important contributor to students' reading achievement and school success (Guthrie, Wigfield, et al., 2006); therefore, it is important to provide students with an instructional approach that supports the development of cognitive skills, as well as the motivation to read.

CORI instruction has been shown to increase readers' self-efficacy and their intrinsic motivation to read in dimensions of reading curiosity and preference for challenge (Wigfield et al., 2004). The type of supplemental instruction selected by schools to accelerate the growth of struggling readers could affect students' motivation to read, and subsequently their reading achievement. School systems have the massive responsibility of selecting and implementing appropriate supplementary instruction programs so that all students can achieve. This decision is critical to insuring that students are prepared to meet the demands of "No Child Left Behind" legislature (U. S. Department of Education, 2003) and national efforts to close the achievement gap

Research has charted multiple deficits in the design of remediation programs and supplementary instruction goals (Allington, 1983; Johnston & Allington, 1991; Johnston, et al., 1985). Yet, as school systems establish extensive goals to provide the quality of instruction so that all students can be successful and graduate, they must also choose to become knowledgeable in research-based practices that would inform instruction for

classrooms and supplemental programs that would insure the success of those students in need of remediation so they may succeed with their classmates.

Even though eighty years ago the objectives for a remedial reading model were described as including a rich varied experience, motivation to read, the development of desirable habits, and efficient reading skills (Whipple, 1925), those attributes are still not components that can be found together in reading interventions. Motivation has not been examined as a component of supplementary instruction programs, primarily because teachers are unaware of its contribution to students' learning. Moreover, research has not examined small-group reading interventions that include the components of this study: strategy instruction, metacognitive awareness training, and the motivating elements provided through the nine CORI principles. Often remediation interventions struggle for students' attention and participation, neglecting any consideration of the benefits of instruction that motivates students to become engaged, self-efficacious readers.

Research has not revealed effective small-group instructional approaches for struggling readers that includes the dimensions of motivation included in CORI. Since motivated readers become engaged readers (Wigfield, Guthrie, Tonks, & Perencevich, 2004), supplementary instructional approaches need to be carefully examined to insure that they include elements that have been shown to increase students' reading motivation.

Research has supported various instructional practices which have been shown to help students develop strategic reading behaviors. Explicit instruction (Duffy et al., 1986; Duffy et al., 1987), modeling (Vygotsky, 1978), think-alouds (Baumann et al., 1992; Block & Israel, 2004; Pressley & Afflerbach, 1995), and metacognitive awareness training (Baker & Brown, 1984; Paris et al., 1983) have been shown to increase students'

cognitive and metacognitive performance. Each of these components are a part of CORI-STAR, which follows the nine principles of CORI, an instructional approach which as been shown to increase reading motivation and comprehension (Guthrie, Wigfield, Humenick, et al., 2006).

Even though Guided Reading instruction (Fountas & Pinnell, 1996, 2001) has been well publicized in the past decade, it does not have the research underpinnings for us to risk the futures of our most novice readers. Students who have not gained reading proficiency through their regular classroom instruction by the time they enter intermediate grades are in need of explicit instruction that teaches them to be thinkers as they plan, monitor, and regulate their reading behaviors. Struggling readers benefit from explicit instruction in using reading strategies (Palincsar & Brown, 1984; Pressley et al., 1992). Good strategy instruction involves helping students become aware of what strategies they can use, how to use them, and when and why to use strategies when reading (Harris & Pressley, 1991). Students need to be actively involved in selecting, evaluating and modifying strategies while they read to help them gain meaning (Harris & Pressley, 1991). Guided Reading does not provide explicit instruction, nor has it been shown to help students develop the metacognitive knowledge necessary to acquire self-regulatory skills for lifelong learning. Also, Guided Reading does not have the motivational dimensions of CORI which have been shown to increase students' reading comprehension and engagement.

I developed CORI-STAR as a supplementary reading intervention for struggling readers in response to "No Child Left Behind" legislature and the existing empirical research on instructional approaches that positively influence struggling readers'

motivation and comprehension. This study examines the influence of two supplementary instructional approaches, CORI-STAR and Guided Reading, to determine their effectiveness in supporting the comprehension, metacognition, and motivation our most fragile assets, our struggling readers.

Chapter III: Methods

Purpose and Design

The purpose of this study was to compare the influence of two supplementary small-group reading instruction approaches, CORI-STAR and Guided Reading, on the reading comprehension, metacognition, and motivation of third- and fourth-grade struggling readers. As stated in Chapter 1, the CORI-STAR instructional approach combined the engaging and motivational elements of Concept-Oriented Reading Instruction (CORI) with the explicit instructional procedures of metacognitive awareness, modeling, and think-alouds to create the metacognitive component of "Strategic Thinking Applied to Reading," or CORI-"STAR." Within this study, two instructional approaches, CORI-STAR and Guided Reading, were specifically examined to determine their comparative effectiveness in supporting and promoting strategic, motivated readers during supplemental small-group reading instruction.

The investigation, which extended from November 2005 through June 2006, consisted of two 8-week instructional intervention sessions for both third- and fourth-grade students, one in the fall and one in the early spring. Approximately four weeks were devoted to test administration: one week prior to each session for pretesting, and one week at the conclusion of each session for posttesting. Third- and fourth-grade struggling readers were randomly divided into small groups by classroom into one of two conditions: CORI-STAR or Guided Reading. Instruction was provided for each group by me, within grade-level classrooms. Students involved in the study were identified as below grade-level readers by teacher recommendation or low standardized test scores from their previous year's grade.

The study was quasi-experimental using a pretest/posttest design. The independent variable was the instructional approach, CORI-STAR or Guided Reading. The dependent variables were metacognitive awareness, reading comprehension, and motivation.

Research Questions

This study posed four research questions in regard to the effectiveness of the supplemental instructional approaches. Among struggling third- and fourth-grade readers: (1) What influence will each reading approach, CORI-STAR and Guided Reading, have on students' reading comprehension, metacognitive awareness, and motivation?, (2) What impact will CORI-STAR and Guided Reading have on students' transference of strategy-use to their classroom?, (3) What impact will CORI-STAR and Guided Reading instruction have on struggling readers' ability to regulate their use of reading strategies when reading independently?, and (4) How will instruction using self-regulation strategies in relation to declarative, procedural, and conditional knowledge impact students' ability to remember what, how, when and why to apply strategies to specific situations? Table 1 lists each question, the measures, and the type of analysis that was used to answer the questions that were posed.

Table 1: Measures Used to Answer Questions

Questions	Measures	Analysis
1. What influence will each reading approach, CORI-STAR and Guided Reading have on students' reading comprehension, metacognitive awareness, and motivation?	1 a. Comprehension and selection of reading texts: QRI-4: comprehension questions and retelling 1 b. Comprehension: Maze Passages 1 c. Comprehension: Woodcock Reading Mastery Test-Passage Comprehension 1 d. Motivation: Motivations for Reading Questionnaire 1 e. Metacognitive Awareness: Metacomprehension Strategy Index	1a. Determine Reading Level Mixed ANOVA with one between-subjects factor and one within-subjects factor 1b-f. Mixed ANOVA with one between-subjects factor and one within-subjects factor
2. What impact will CORI-STAR and Guided Reading have on students' transference of strategies to their classrooms?	2. Teacher Questionnaire: Teacher's Perception of Students' Strategy Use Questionnaire	2. Mixed ANOVA with one between-subjects factor and one within-subjects factor
3. What impact will CORI-STAR and Guided Reading instruction have on struggling readers' ability to regulate their use of reading strategies when reading independently?	3 Strategy Application Assessment	3. Mixed ANOVA with one between-subjects factor and one within-subjects factor
4. How will instruction using self-regulation strategies in relation to declarative, procedural, and conditional knowledge impact students' ability to remember what, how, when, and why to apply strategies to specific situations?	4. Strategy Activation Inventory	4. Mixed ANOVA with one between-subjects factor and one within-subjects factor

Participants

The participants in this study were 26 third-grade students and 24 fourth grade students in a multicultural, suburban elementary school in the mid-Atlantic region of the United States. The ethnic composition of the participants in the study consisted of 38% African American, 36% White, 18% Hispanic, 4% Asian Pacific Islander, and 4% Asian. Third graders ranged in age from seven years ten months to nine years five months. Fourth-graders ranged in age from nine years zero months to twelve years six months. The CORI-STAR group had a mean age of nine years two months compared to the Guided Reading group which had a mean age of nine years.

The school population consisted of 641 students in grades Pre-K through fifth-grade with 32 % of students receiving free and reduced lunches. The school has a high-average mobility of students with 11.2% new student entrants to 11.6 % student withdrawals. The school serves as a magnet school for ESL (English as a Second Language) learners (8.7%) who either live in the school district or are bused to the school from other areas of the county. The school serves as a magnet school for special education life skills instruction for students with disabilities within the county. The students are heterogeneously grouped by ability ranging from low-to-high achievers in every classroom throughout the school. In most cases, supplemental instruction is provided to identify students within their own classrooms such as: ESL instruction for ESL students who have passed the beginning level, Special Education instruction for students who are not in the life skills program but who receive additional instruction, and reading instruction from the reading specialist for students who need additional reading support.

This school has participated in a CORI research study through the University of Maryland for the past five years. CORI instruction was provided for two years each in grades three, four, and five. The University of Maryland staff and researchers provided two weeks of specialized CORI training to grade-level teachers, reading specialists, and administrators in the summer prior to the new school year. Teachers were taught the CORI reading strategies and methods of instruction and given resources to implement the instruction. The staff and students of this elementary school have benefited from CORI instructional support, abundant instructional resources, and guidance in implementing strategy instruction, selecting resources for instruction, and supporting student reading.

In this study, CORI-STAR instruction was not influenced by students' prior exposure to this type of instruction. Since CORI instruction did not extend below third-grade, younger students in the school were not exposed to CORI instruction or the resources. Many of the third- or fourth-grade teachers who had been trained in CORI were either no longer at the school, or were not teaching CORI in their classrooms. Discussions with grade-level teachers prior to the study affirmed that third- and fourth grade teachers who were trained in CORI were not teaching CORI in their classrooms. For this reason, it was determined that the students currently in third- and fourth grades had neither received, nor would they receive CORI instruction in their classrooms during the span of this research. However, all students in the school received Guided Reading instruction as a part of their daily reading program.

Since students throughout the school are heterogeneously grouped, all of the third- and fourth-grade teachers identified struggling readers in their classrooms who would benefit from an intervention that emphasized comprehension instruction. Students who

were identified for the study came from five third-grade classrooms and four fourth-grade classrooms. Teachers identified their students for supplemental instruction and they also participated in determining which students would participate in either the first or second session of the study based on their classroom reading performance, and their scores on last year's standardized tests, the Stanford Achievement Test–10 (SAT-10) (Stanford Achievement Test Series-10th edition, 2006) for the third-graders and the Maryland School Assessment (MSA), (Maryland State Department of Education, 2003) for fourth-graders.

Students who were selected to participate in the first session were those students who would typically be referred to as the "fence-sitters" because their reading scores were positioned either slightly below, or slightly above, the cut score for reading proficiency at their grade level. These students either had reading scores in the "basic" range from fifteen points below achieving "proficient" to within ten points of achieving "proficient" scores on the previous year's SAT-10 or MSA.

Although the students in the first session primarily scored below-grade level in the basic range, they had higher scores on the previous year's SAT-10 or MSA tests than those students who participated in the second session. Third- and fourth-grade students who received instruction during the second session included: (1) those students whose reading scores were below the "proficient" level by more than fifteen points, (2) students who may have moved to the school during the school year with recommendations from their previous schools for additional reading support, (3) those students who, because of classroom performance, were tested and identified as needing to participate in a new school-wide phonics remediation program during the first part of the school year, or (4)

those students who were identified by their classroom teachers as being significantly below grade-level.

It was decided to place this group of students in Session 2 in order to provide them more time for developing strategic behaviors in relation to grade-level expectations. At the beginning of the school year, several students in this group had been recommended to participate in the new county-adopted phonics intervention program, Systematic Instruction in Phoneme awareness, Phonics and Sight words (SIPPS) in order to teach the prerequisites for developing reading fluency and comprehension by addressing word-based decoding skills.

A review of students' educational data showed many of the students identified for Session 2 had been involved in many school reading interventions throughout previous grades, such as Reading Recovery, Targeted Reading assistance, Title 1 services, working with volunteer tutors, and additional reading groups with the reading specialist or instructional assistants. These students would be in danger of receiving basic scores on the upcoming MSA test if interventions were not provided. However, because of deficits in a combination of phonics, comprehension, and fluency, it was determined by the school team that the SIPPS intervention was the primary intervention to be implemented, followed by involvement in Session 2 of the study. Students who were identified for either Session 1 or Session 2 were primarily working with peers who performed within the same range on their standardized reading tests, and who were reading on about the same text level for Guided Reading instruction.

Students were identified for instruction during a particular session by their classroom teacher. The classrooms that were combined for reading groups were those

closest in proximity to one another. The goal for grouping students was to avoid time-consuming transitions between classrooms and to assign equal numbers of students to each group condition. Identified students from closely-located classrooms were grouped together for instruction. This made it convenient for me to pick up and return students to their classrooms between group times, and it also helped to guard against internal validity issues of experimental treatment diffusion. Teachers and students in the same grade who are located closest to one another often join together for activities in each other's classrooms. By grouping students together by location, teachers and students who were most likely to interact with one another had students who were involved in the same condition of the study.

For example, when forming third-grade groups for Session 1, I took into account the location of the grade-level classrooms. Classroom A and Classroom B have doorways that are beside each other; therefore, combining four students from Classroom A (or B) with three students from Classroom B (or A) minimized transition time between classrooms. The doorways to Classroom C and D were also side by side at the other end of the hallway, with Classroom E located directly across from them. Classroom C had three students, and Classrooms D and E each had two students for Session 1, so they were all combined for the same instructional approach. After students were combined into groups, the groups were randomly assigned to either the CORI-STAR or Guided Reading instructional group.

The forming of fourth-grade groups for Session 1 was quite similar. Classroom A had six students from the same classroom reading group who were identified to receive supplemental instruction, so they composed one reading group. The other fourth-grade

reading group resulted from the combination of five students from Classroom B with one student from Classroom C.

In Session 2, Classroom E had six students from the same reading group who composed one group. Classrooms C and D, which were located beside each other had three students and two students, respectively. I picked up one student from Classroom A to join with this group.

The fourth grade groups were the combination of two classes for each group. The number of identified students in each classroom was a determining factor in formulating those combinations: Classrooms A and B were combined together, and Classrooms C and D were combined to get six students per group. This also minimized transition time since the combined classrooms were adjacent to one another. The identified fourth-grade students were placed in equivalent groups based on their close classroom proximity before they were randomly assigned to either the CORI-STAR or Guided Reading instructional group.

Table 2 reveals the composition of the supplementary reading groups by their classroom, grade levels, and instructional sessions.

Table 2: Composition of Supplementary Reading Groups by Grade-level Classrooms for each Grade and Session

Grade	Session	Classroom A	Classroom B	Classroom C	Classroom D	Classroom E
3rd Grade	1	3 students CORI-STAR	4 students CORI-STAR	3 students Guided Reading	2 students Guided Reading	2 students Guided Reading
	2	1 student Guided Reading	0 students	3 students Guided Reading	2 students Guided Reading	6 students CORI-STAR
4th Grade	1	6 students CORI-STAR	5 students Guided Reading	1 student Guided Reading	0 students	
	2	4 students Guided Reading	2 students Guided Reading	3 students CORI-STAR	3 students CORI-STAR	

The classroom teachers provided important assistance in identifying students in their reading groups for each instructional session, and in coordinating their reading group schedule to accommodate their students' involvement in the study. In most cases, classroom teachers identified below-grade level students who were in the same reading group for a particular session. It was decided that only one group of students was to be taken from a classroom for each instructional session so as to minimize disturbances to the classroom reading group schedule instruction.

Table 3 shows the descriptive statistics for the students' standard scores on the Woodcock Reading Mastery Test – Passage Comprehension test.

Table 3: WRMT- Passage Comprehension –Standard Score Levels for Participants in the Study

	Session	N	Mean Standard Score	Standard Deviation	Min.	Max.
3rd Grade	1	14	98.78	4.90	89.0	107.0
	2	12	89.00	5.79	74.0	96.0
	Total	26	94.26	7.21	74.0	107.0
4th Grade	1	12	88.25	7.23	77.0	102.0
	2	12	88.33	10.97	68.0	110.0
	Total	24	88.29	8.59	68.0	110.0
Total	1	26	93.92	8.01	77.0	107.0
	2	24	88.66	8.59	68.0	110.0
	Total	50	91.40	8.62	68.0	110.0

The standard score mean for fourth-graders in Session 1 was lower than the mean for third-grade students in Session 1. Table 3 also reveals more variance in students' scores in Session 2 than Session 1, which may have resulted from including all students in the Session 2 session who were working below grade level, including students who were selected by a range of qualifiers: (1) students with differing levels of low reading performance on the previous year's SAT-10 test or MSA test, (2) new students' performing below-grade level, or (3) students who were available to participate in this intervention after completing another type of reading intervention, such as SIPPS. Fourth-grade students also revealed a larger range of scores in Session 2 (68.0 - 110.0),

than third-grade students during that session (74.0-96.0). Table 3 reveals the descriptive statistics for the students' standard scores from the Woodcock Reading Mastery Test-Passage Comprehension.

One-way analyses of variance using the students' standard scores on the Woodcock Reading Mastery Test – Passage Comprehension showed statistically significant initial differences between grades ($F(1, 48) = 6.68$, $p = .013$ and instructional sessions ($F(1, 48) = 5.01$, $p = .030$). Analyses showed no differences between instructional groups ($F(1, 48) = 3.15$, $p = .082$), or gender ($F(1, 48) = .158$, $p = .692$). Students' scores were combined for grades and sessions.

An examination of descriptive statistics for grade equivalency on the Woodcock Reading Mastery Test – Passage Comprehension scores showed that during the first session third-graders had a mean grade equivalency of $M = 3.13$ (SD = .30), compared to the second session when they had a mean grade equivalency of $M = 3.16$ (SD = .36). The fourth-graders had a lower mean grade equivalency during the first session $M = 2.60$ (SD = .43), than for the second session $M = 3.41$ (SD = .36).

Materials

All of the instructional texts for the CORI-STAR group and the Guided Reading group, in addition to the students' supplies, were housed in the identified classroom instructional areas for each grade level. Each group had a basket containing the students' notebooks, journals, extra paper, pencils, sticky-notes, and miscellaneous supplies. Fidelity of treatment specification sheets (See Appendix T) were kept in each instructional area for teachers to retrieve during their classroom observations of a group.

The fidelity of treatment specification sheets will be discussed in the Fidelity of Treatment section of this chapter.

In order to assure consistency for both groups when identifying which supplementary lesson they were on, I constructed a grid to record individual student's attendance. The grid contained forty blocks: five blocks across by eight blocks down. This grid represented eight weeks of instruction; however, often with school schedules, one day of the week may not be available for instruction due to weather, holidays, or interferences. In order to avoid any confusion for students or myself when balancing several groups, I constructed an attendance grid to coordinate the lessons for either CORI-STAR or Guided Reading to the available instructional days. All lessons for both groups were identified by the week number and day number; therefore, a lesson that was given on the second day of the third week was identified as lesson 3.2. For example, the lessons for week 3 may be given on Monday through Thursday of one week and conclude on Monday of the following week with lesson 3.5. This system became an easy way to identify lesson objectives for myself and for my students, as well as a convenient method of keeping track students' attendance to determine who may have missed a particular lesson. Students' attendance charts were placed inside each of their notebooks.

Even though different instruction was provided to CORI-STAR and Guided Reading groups, the students in both groups received instruction in using five reading strategies: activating background knowledge, questioning, searching texts for information, graphically organizing information, and summarizing texts. Texts were selected in order to support strategy instruction for both groups. A list of texts that were used for CORI-STAR and Guided Reading instruction during the study is located in

Appendix N. A description and explanation of text selections for the two instructional groups is included in Appendix O. Tape recorders were also housed in the instructional areas for occasional use in tape-recording students as they practiced think-alouds or discussed their reading with one another.

Aquariums were set up in CORI-STAR classrooms, along with supplies for feeding and observing the pond animals as a part of instruction. Each aquarium contained many guppies, snails, two newts, two frogs, fiddler crabs, and a variety of grasses, such as hornwort, duckweed, and elodea. Other supplies included magnifying glasses, small tumblers for observing the animals, an aquarium housing crickets for feeding the frogs, paper towels, and a smaller aquarium that was established for closely observing the reproduction of guppies. Students' notebooks for the CORI-STAR group were housed in a bin in the instructional area. The notebooks included sections for the weekly lesson materials, aquarium observations, students' questions, students' reflections, and reference guides for think-alouds, chart identifying the survival concepts, a questioning guide, and a lesson schedule that corresponded to the specification form used for fidelity of treatment that the teachers completed when making observations.

The Guided Reading group had copies of the *Writers Express* (Kemper, Nathan, & Sebranek, 1995) student handbook to support the word work instructional components of this study. Dictionaries and thesauruses were available for students to refer to during their writing and development of understanding words during the word work portion of the lesson. Each student had a notebook that was divided into two sections. The first section was used for weekly lessons, recording questions, charts, and retellings. The second section was used for the word work portion of the lesson. Word cards for sight words

were kept in the basket for review. Materials for the Making Words lessons were also housed in this area, in addition to the schedule for the Guided Reading lessons that corresponded to the format used on the fidelity of treatment specification form that teachers completed during observations.

Procedures

Students reading below grade-level, or those who had low reading scores, either on the Stanford Achievement Test-10th edition (SAT-10) for third-graders or the Maryland School Assessment (MSA) test for fourth-graders, were identified by a school team consisting of the classroom teachers for each grade, the principal, assistant principal, and reading specialist. The identified students were invited to participate in the study consisting of 40-minutes of additional daily reading instruction from the reading specialist for eight weeks, or 40 lessons.

This study was conducted in two eight-week sessions, the first session running from November to early February and the second session running from mid-February to late May. Six to seven students met for small-group instruction. During each session approximately 12-14 third-grade students and 12 fourth-grade students participated, with a total of 50 students participating during the two sessions.

Twelve to fourteen students were identified to participate in supplemental small group instruction from each grade for each session. Students were randomly assigned by classroom to either the CORI-STAR or Guided Reading group (see Table 4). Supplementary reading groups were composed of students from grade-level classrooms which were located in close proximity of one another. Table 2 revealed the five third-grade and four fourth-grade classrooms and the numbers of students from each classroom

who were involved in the study for each instructional group, instructional session, and grade. The students were grouped together for both instructional groups, with attention to classroom proximity and equal numbers of students in the CORI-STAR group and Guided Reading groups.

Table 4: Number of Participants in the Study

Session	Grade	Participants
Session 1 (Nov. – Feb.)	3rd grade	7 students receiving CORI-STAR Instruction 7 students receiving Guided Reading Instruction
	4th grade	6 students receiving CORI-STAR Instruction 6 students receiving Guided Reading Instruction
Session 2 (Feb. – May)	3rd grade	6 students receiving CORI-STAR Instruction 6 students receiving Guided Reading Instruction
	4th grade	6 students receiving CORI-STAR Instruction 6 students receiving Guided Reading Instruction

According to "No Child Left Behind" legislature, the goal for all schools is to provide appropriate instruction so all students can perform on-grade or above, and achieve "proficient" or "advanced" levels of reading to be successful. With the

realization that each year the Annual Measurable Objective (AMO) for the MSA test increases, it was decided by a school team consisting of the classroom teachers, administration, and myself that all students who were in danger of not performing at the "proficient" reading level and were not already receiving extensive pull-out services for ESL, Special education, or Learning Language Support were to be included in the study. It was felt that the combination of students' low reading performance on past tests and their inconsistent reading behaviors in the classroom in relation to their peers put them at risk of "basic" reading performance on the MSA test for the current school year.

Prior to the study, parents were contacted to inform them of the availability of a supplemental reading program for their child. Upon the parents' verbal approval, an information letter, the informed consent form, and student assent form were sent home for the parents and students to sign. After the identified third- and fourth grade students returned their permission forms, they were randomly assigned by classroom to either the CORI-STAR or Guided Reading group, followed by the administration of the pretests. Students were tested individually on the Qualitative Reading Inventory-4 (QRI-4) (Leslie & Caldwell, 2006), the Strategy Activation Inventory (SAI), and the Woodcock Reading Mastery Test –Passage Comprehension (Woodcock, 1987). They were tested in small groups, consisting of three or four students, on the Motivations for Reading Questionnaire (MRQ), Strategy Application Assessment, Metacomprehension Strategy Index (MSI) (Schmitt, 1990), and Maze passages (Guthrie, 1973, Palmer, Hasbrouck, & Tindal, 1992). The third- and fourth-grade teachers were given the Teacher's Perception of Students' Strategy Use Questionnaire to rate the observable reading behaviors of their

students prior to the intervention and again at the end of the session. These measures are described later in this chapter.

Only one instructional group was pulled out of a classroom during each session to minimize the amount of interruption to classroom reading schedules. Reading groups were composed of students from one to three classrooms at that grade level. Group times were coordinated around the schedules of the grade-level teachers. The students in both groups, CORI-STAR and Guided Reading received 40-minutes of daily supplementary instruction for 8 weeks in a grade-level classroom. Each group consisted of 6 or 7 students. I administered instruction for both the CORI-STAR group and the Guided Reading groups in an instructional area within grade-level classrooms.

During each session of the study, there were four established instructional areas, one Guided Reading and one CORI-STAR instructional area was set up in both the third- and fourth-grade. Students receiving instruction for either CORI-STAR or Guided Reading met for instruction in a grade-level classroom that was central in location and contained the greatest number of students who were participating in the study for that session. Student transition time and movement was minimized since grade-level classrooms were located adjacent to one another, and only a fraction of the students within a group were moving from one class to another. I accompanied students from their classrooms to the reading group sessions and I walked them back to their classrooms afterwards. See Table 5 for a time schedule of setting up and preparing for the study.

Table 5: Time Schedule of the Study

Oct. 24-Nov.4	Identification of students with teachers and administration, Parent letters and consent/assent forms sent home with students Pre assessments administered: QRI-4, Maze passages, Woodcock Reading Mastery Test- Passage Comprehension (WRMT), Metacomprehension Strategy Index (MSI), Motivations for Reading Questionnaire (MRQ), Strategy Application Assessment (SAA), Strategy Activation Inventory(SAI), Teachers complete Teacher's Perception of Students' Strategy Use Questionnaire (TPSSUQ) (pre)
Nov.5-8	Order Aquatic animals for CORI-STAR, All-Star Book Club was set up
Nov.8- Jan 27	Instructional sessions for both CORI-STAR and Guided Reading
Jan 30- Feb. 7	Post assessments administered: QRI-4, Maze passages, WRMT-PC, MSI, MRQ, SAA, SAI, TPSSUQ (post)
Jan 23-Feb. 7	Identification of students with teachers and administration, Parent letters and consent/assent forms sent home Pre assessments administered: QRI-4, Maze passages, Woodcock Reading Mastery Test- Passage Comprehension (WRMT), Metacomprehension Strategy Index (MSI), Motivations for Reading Questionnaire (MRQ), Strategy Application Assessment (SAA), Strategy Activation Inventory(SAI), Teachers complete Teacher's Perception of Students' Strategy Use Questionnaire (TPSSUQ) (pre)
Feb 14-Feb 17	Order Aquatic animals for CORI-STAR
Feb 13-May 26	Instructional sessions for both CORI-STAR and Guided Reading
May 30-June 12	Post assessments administered: QRI-4, Maze passages, WRMT-PC, MSI, MRQ, SAA, SAI, TPSSUQ (post)

Reading intervention instruction is routinely available to any student in the school who needs additional support to accelerate reading development; therefore, all identified students were eligible to receive reading intervention services from me, even if they or their families elected to not participate in the study. As a part of my responsibilities as school reading specialist, I established instructional groups for those students who needed additional small-group reading instruction, but who were not a part of the study.

In the school where this study was conducted, classroom libraries had been established in each classroom for students' independent reading; however, those books are not allowed to be taken home. Since most students enjoy reading more about topics they are learning about, I established two libraries in my reading room: one for the CORI-STAR groups and one for the Guided Reading groups. Books were placed in labeled bins on shelves. Students in the CORI-STAR group could sign out almost 200 expository and narrative CORI books about ponds and pond animals. Students in the Guided Reading group could also select from about 200 leveled expository and narrative guided reading books that were at their instructional reading range.

The students in both CORI-STAR and Guided Reading groups were given an invitation to be a part of the All-Star Reading Club which gave them rights to sign out books and write book reviews. A large bulletin board was established on one wall of the reading room where students put up their book reviews for others to read. Book sign-out times were coordinated around the classroom schedules and my schedule, which usually allowed for two times per day when teachers could send students to return books and select new books. Students signed out books by writing their names on a colorful, easy-to-see bookmark that was inserted in each book in either the CORI-STAR or Guided

Reading book bins. The book bins were labeled for each group and the bookmarks were color-specific to a particular reading group. Students placed their bookmarks in a basket on my desk. Bookmarks were put back in the books when they were returned. All third- and fourth-grade students in CORI-STAR and Guided Reading were members of the All-Star Reading club.

Instructional Groups

CORI-STAR instruction

Students in the CORI-STAR group received explicit instruction using modeling, think-alouds, and metacognitive awareness training in addition to CORI instruction. The eight-week session included the integration of language arts and science. Students were immersed in the study of ponds during which they identified the core concepts of survival in a pond. Within the CORI framework, students developed conceptual knowledge about ponds through their real-world observations and interactions with pond animals in the aquariums that they helped to set up. The children voluntarily took ownership of the aquariums by feeding the pond animals. As a part of their hands-on learning, students learned first-hand about the animals they were reading about through their observations. The aquariums contained toads or frogs, tadpoles, guppies, fiddler crabs, newts, and snails, along with a variety of aquatic plants, such as hornwort, elodea, and duckweed.

Students in the CORI-STAR group examined expository texts on the conceptual theme of ponds and pond animals. Students used a variety of texts on the theme of ponds, snails, frogs, fish, toads, and animal eaters in the pond. The students had several bins of pond books available in the meeting area of the classroom for their use as they searched to find answers to their questions. The texts contained a variety of text features to help

students gain an understanding of locating information, and determining the structure of the text. Students also read narrative texts to develop their concept of interactions within a pond community. As students activated their background knowledge about ponds and pond animals, the narrative texts assisted students' understanding of the core concepts of a pond community, such as feeding, locomotion, reproduction, respiration, defense, predation, communication, biome, and competition. (See Appendix O for a description of books used for CORI-STAR and Guided Reading)

CORI-STAR lessons began with my direct explanation of the reading strategy to be presented, modeled, and practiced during the lesson. (See Table 6 for an example of the CORI-STAR schedule) (See Appendix P for a sample CORI-STAR lesson.) I explained the declarative, procedural, and conditional knowledge needed to perform the strategy by revealing *what* strategy would be modeled, *how* to use the strategy when reading, and *when* and *why* this strategy may be used. Through the eight weeks the students were taught five strategies: activating background knowledge, questioning, searching for information, organizing information graphically, and summarizing the text.

Table 6: CORI-STAR Schedule

Step 1	1 minute	Teacher introduces the lesson: Direct Explanation of the strategy for the lesson: (i.e. Activating Background Knowledge, Questioning, Searching for Information, Organizing Information, and Summarizing).
Step 2	2 minutes	Teacher identifies the declarative, procedural, and conditional knowledge needed to perform the strategy and displays a chart which lists what, how, when, and why to use this strategy.
Step 3	4 minutes	Teacher models how to use the strategy through a think-aloud while the students observe.
Step 4	8 minutes	Students practice using the strategy that was modeled as they read the text. Students may use sticky notes to jot down their thinking, or make notes to share in their think-aloud.
Step 5	6 minutes	Students think-aloud to explain the strategies they used when reading and to explain how they problem-solved by using the strategy. The teacher observes students' use of strategies and think-aloud.
Step 6	8 minutes	Student writing connected to their reading (summarizing, questioning, organizing information, making charts, writing summaries, or working on searching for information and note-taking).
Step 7	1-2 minutes	Students record questions or make aquarium observations.
Step 8	5 minutes	Reflection Journals: the knowledge used to perform strategies, and a "thinking question" related to the lesson.
Step 9	4-5 minutes	Students read the text to practice fluency.

After the opening explanation of the specific strategy that would be focused on during this lesson, I demonstrated how to perform the strategy. I modeled the strategy by selecting a text and using a think-aloud to verbally explain my thinking and mental

processes before, during, and after the reading. I read a small section of text and then stopped to engage in a think-aloud to demonstrate the thinking that was activated as I used the strategy and connected with the text. The students observed the process to understand the thinking that I used to problem-solve and make sense of the text. This modeling portion because a great deal of learning takes place during modeling. It was important to explicitly show students what I wanted them to do as they practiced using the strategy.

After the students observed my modeling, they were given the responsibility of reading a portion of text silently and using the demonstrated strategy. Students could use their sticky notes to jot down notes, connections, or questions, or to tag a particular page that they wanted to discuss in their think-aloud when they shared with the group. After reading, students took turns identifying a page or two of the text that they had selected and they discussed their thinking and strategy use in a think-aloud. The students took turns sharing their think-alouds with others in the group. Some think-alouds elicited discussion and further questions from the group. Students referred to their sticky notes or looked back to a specific area of the text to explain their thinking. Some students shared the problem-solving strategies they used when something in the text didn't make sense. Students were tape-recorded during many of their think-alouds.

After completing their think-alouds, the students passed out their three-ring binders that included dividers indicating each week of the study, science observations, vocabulary list, questions, and the reflection journal. Pages were placed in the notebooks each week that corresponded to the written portions of the lesson.

For example, when beginning to learn about frogs, the students completed the first two portions of a KWL chart on frogs. They wrote down what they knew about frogs under the "K" section, and what they wanted to know about frogs under the "W" section. Students began reading a variety of texts, searching to answer questions they posed for themselves, and to find out what they wanted to know about the survival concepts of a frog. After reading, the students wrote down specific information about the frogs' survival concepts on a matrix chart located in their notebooks for that week. The survival concept chart was used by students to record information about each of the survival concepts, such as feeding, defense, locomotion, and reproduction. As the students read about frogs over a period of a few days to a week, they recorded what they learned on the chart. The students' use of charts and organizers was related to their observations and identification of text structure prior to reading the text. When students read about what a frog eats, or how he defends himself, they recorded that information on the chart. As students searched for information, they recorded their new information on organizers or other pages in their notebooks. After reading the students could summarize the main points they learned about the frog by identifying each of its survival concepts.

The use of students' notebooks alleviated time-consuming transitions from reading the text to writing about what they learned, which is so often the result of spending time passing out papers. All of the pages in the students' notebooks were organized by the weekly and daily lessons. Students had dividers which indicated each of the eight weeks of instruction such as, week 1, week 2, and so on. In each section the pages were prearranged in order of use. Each section contained sticky notes and extra notebook paper for students to record ideas from their reading.

The students took ownership over their notebooks and their organizational skills as they learned to sort information that they were reading and determine how to record it on organizers. Students organized information in a variety of ways, through lists, graphic organizers, charts, summaries, or reports. Sometimes students used graphic organizers before reading, such as making a list of what you know, or what you would expect to see in a pond. At other times, information was organized during reading as students stopped to identify what a pond community was, and to make a list of animals they found in a pond as they read. Yet, often students used organizers to record information at the conclusion of the reading process, such as when they organized information on survival concept charts, or sorted information on a student-made T-chart. Students also learned to value their questions and keep a list of questions they had as they read. This was helpful for them to review to find out how much they had learned during their reading. They also made routine aquarium observations, particularly of the animal we were reading about in group, and they recorded their aquarium observations on the observation chart.

At the conclusion of each lesson, students took time to reflect on their new learning. The reflection journal contained two parts: a reflection of the declarative, procedural, and conditional knowledge needed to perform the strategy that was taught in this lesson and a 'thinking question' that asked students to reflect about how they used the strategy to better understand the text. Since the students' experience with *after reading* questions had previously been connected to what they just read, the reflection questions were a bit novel to them. For example, at the end of each lesson, students reflected on the declarative, procedural, and conditional knowledge of the lesson by recording *what, how*, *when*, and *why* in regard to the strategy they used in the lesson.

Students also answered a “thinking question” in their reflection journals that was directly related to their mental processing during reading. For example, one question asked, “Why is it important to preview the text before reading? How did it help you?” The thinking question helped students specifically reflect on the thinking they did in the think-aloud, or that they did while practicing the strategy, rather than asking them to recall text information.

During CORI-STAR instruction, I encouraged students to record their personal questions related to their reading. Students were given choices in reading about things that interested them. They searched through texts to find answers to their own questions. They selected books and pages that they wanted to read and share with others in the group. Students jotted down questions during lessons and during their think-alouds to guide them during their text searches. Students were given instruction in how to use the text structure to determine the organizational pattern of the text. After learning how to identify the text structure of the passage, the students were instructed in how to make or select a graphic organizer that works best with that structure for recording their thinking, such as KWL charts, survival concept charts, comparison charts, and their observation charts.

Students usually practiced fluency reading at the conclusion of each session; however, on several occasions, it worked better to begin the lesson with fluency reading. The students either reread text from the day’s lesson, or they selected a text from the book bins. Students enjoyed selecting books and taking turns reading parts aloud with a partner. Fluency reading became an important focus for this county school system this year; therefore, classroom teachers were also implementing fluency instruction and

assessment. At the conclusion of each lesson, the students recorded their attendance on their attendance chart in their notebooks. This practice was helpful for determining any lessons a student may have missed.

At the beginning of the intervention, the students decided that they wanted to be responsible for feeding the animals so that was done on a rotating basis with student within the group taking turns with one another. Each day the students had many opportunities to observe the pond animals that were housed in the aquariums adjacent to the meeting area. Students also took responsibility in helping to distribute books, notebooks and supplies for the reading group.

Strategy instruction within the CORI-STAR approach was explicitly modeled using teacher think-alouds, guided practice, student think-alouds, followed with independent practice and reflection. Through the questioning strategy students began to generate questions related to things they were interested in learning more about. Students also became aware of different levels of questions when posing questions. Students generated many questions through their think-alouds and reading. They became aware that their questions guided their reading and conceptual understanding of the topic, rather than limiting their questions to their previous reading and background knowledge. Students were taught to become aware of text features when searching for information. Students learned to identify various text structures to help them determine how to organize text information on a graphic organizer.

CORI-STAR supported the nine principles of CORI: (1) learning and knowledge goals, (2) strategy instruction, (3) teacher involvement, (4) real-world interactions, (5) collaboration, (6) autonomy, (7) interesting texts, (8) rewards and praise, and (9)

evaluation. Learning and knowledge goals were achieved when students set conceptual goals, increased their depth of learning, and became experts in a science content area. I provided explicit strategy instruction that included modeling the strategy and explaining my thinking as I problem-solved and monitored my understanding during reading.

Teacher involvement is crucial to CORI-STAR. I provided direct instruction of specific reading strategies and used think-alouds to let students become aware of my thinking as I problem-solved. My modeling of the strategies was gradually released to the students as they practiced using and discussing how they used a strategy to help them learn. An important goal of CORI-STAR is to show students how to become metacognitive so they can begin to self-regulate their actions as learners. Through teacher involvement, students understood what it meant to monitor their thinking. I provided many opportunities for students to practice performing strategies and discussing their actions through daily think-alouds.

Real-world interactions appeared to be motivating to the students in CORI-STAR. When the students participated in setting up and maintaining their aquarium, they were interested in learning more about the animals. Students especially enjoyed observing specific pond animals as we read about them. Sometimes, students' questions arose when what they observed in the aquarium conflicted with their prior knowledge about the survival of pond animals. The CORI-STAR students enjoyed catching and feeding crickets to the frogs and observing predation in the pond. It helped students make connections between their observations and their text reading. Several students even signed out extra books from the school's library or from the All-Star Book Club to learn more about the animals they read about in the group and to have something to contribute

to the group about what they learned about a particular animal in the pond habitat.

Collaboration was achieved when students have opportunities to work together and support others in their learning. Students worked together as a small group, as pairs, and also as triads during daily instruction.

As a part of instruction, students searched texts for information about the survival concepts of the pond animal they selected. They used a graphic organizer to organize their information according to each survival concept. Then, students used information from their graphic organizers to write a story in the style of Joanne Ryder's "One Day at a Time" series. In their stories, students wrote about themselves waking up in the morning and finding that they turned into a pond animal that they selected to research and investigate. Their stories examined the animal's survival concepts in a completely different style than they typically had used in their classroom writing. This writing experience seemed to be motivating to the students and they enjoyed sharing their stories and experiences with others in the group and with their classmates.

Students also received autonomy support as they developed independence in sharing responsibility for the maintaining the aquarium and organizing their materials for reading group. Students had opportunities to make choices as they selected books, determined topics they wanted to learn more about, generated questions to satisfy their curiosities, developed conceptual knowledge about ponds, selected their examples for their think-aloud of how they used a strategy, became involved in the All-Star Book Club, searched for information for their research project, and challenged themselves to read a variety of texts to learn about the interrelationships of the pond community.

Interesting texts were great motivators for the CORI-STAR group. Students enjoyed texts with colorful, enticing pictures and captions. The large variety of texts supported the theme of ponds and contained text features such as the table of contents, index, subheadings, headings, pictures, and bold words. The texts were not leveled, nor did they contain controlled vocabulary. Students had opportunities to learn how to use expository texts to search for and locate information. (See Appendix N for a description of the texts used for the CORI-STAR and Guided Reading groups.)

Students in the CORI-STAR group received immediate feedback and praise for their thinking and their learning. As the students performed their think-alouds and practiced using their reading strategies, their peers and I were positive supporters. Students could evaluate their knowledge of strategy use through their daily reading performance. Students' think-alouds were an excellent daily assessment which helped me determine the students' understanding of what they read and how to implement strategies. It also provided information concerning how comfortable the students were in using the reading strategies.

Guided Reading Instruction

Students in the Guided Reading group read narrative and expository texts at their instructional level, as determined by the students' accuracy between 90%-94% on the QRI-4 reading selections. Students' reading was regularly assessed through the use of running records, both on familiar reading selections and new text selections. Table 7 summarizes the Guided Reading schedule. See Appendix Q for a Sample Guided Reading lesson.

Table 7: Guided Reading Schedule

Step 1	4 minutes	Students reread familiar text. Teacher assesses 1-2 students by using running records
Step 2	5 minutes	Teacher introduces new text, section of text, or chapter of text, Prepare to read by: Activating background knowledge and new vocabulary, picture or text walk, making predictions, asking questions about what they text will be about
Step 3	10 minutes	Student reading the text, teacher listens in and observes students' reading behaviors
Step 4	3 minutes	Reading group discussion, Asking questions based on what we know and what we want to know, Inferring, Search for information to support ideas and connections
Step 5	3 minutes	Mini-lesson based on student reading behaviors
Step 6	10 minutes	Writing about reading (organizing information, retelling, summarizing, questioning, identifying main idea, etc.)
Step 7	5 minutes	Word study (making words, word study)- based on grade-level curricular goals

Guided Reading instruction began each day with fluency reading. Students read familiar text, which is text that they had already read in a previous day's lesson. Students either read silently or they read to a partner. As students practiced reading the text fluently, I listened in to one or two students as they whisper read to me. I took running records by squatting down beside the child and listening to him, or her read the text. I

kept a notebook for each reading group. In the notebook I recorded students' reading behaviors during the reading. As students read, I put a check mark down for every word they said that correctly corresponded with the actual text in the book. When students made an error, I wrote the incorrect word down over the correct word from the text and I put a line between the two words. The word at the bottom of the fraction refers to the actual word that was in the text, and the word above the line refers to the word the child said when reading. By marking down this information, I know what type of error the student was making when reading.

While taking running records I also noted when the student omitted words by writing the word the student missed reading with a line over it and a dash. The dash identified that the student had no response for that word; therefore, it was considered to be omitted. I noted when students inserted words that were not in the text by writing the word the child said and putting a line under it with a dash that represented that they child put a word in that was not in the text. I also noted when students failed to honor punctuation as they read by marking the punctuation mark on my paper and circling it. Anecdotal records were also kept that describe the type of reading, such as choppy, fluent, slow, or word-by-word reading. Running records are helpful in determining whether the child was attending to visual, syntactic, or semantic clues when reading. The information I gained from "listening in" as students read was valuable in providing a pertinent teaching point that reflected what students were observed to be doing as they read.

Running records were used to informally assess the students' reading behaviors toward providing instruction that matched the needs of the students. Each student within

a reading group was informally assessed with a running record about once a week. Running records provide instructional points for helping students improve their reading behaviors, and they can also help teachers become aware of students' inconsistency when reading.

After the fluency reading, I introduced students to the book that would be used for the lesson. I gave a brief introduction of the book. Students explored the book with a picture/ text walk. Students activated their background knowledge through making connections between themselves and the text and in making predictions based on what they already know. Students were introduced to the new vocabulary in the story. I made word cards for the students that introduced them to new words that they would confront in the text and we reviewed those words together. Sometimes the students read a word and used it in a sentence. Sometimes a new word was introduced as a phrase that was taken from the book. The students were each given a phrase to read that contained an underlined word which may be new for the students. The page number was also noted on the card in case we needed to determine its meaning by reviewing a larger portion of text. Each student read his or her card and made a prediction as to what the word meant in the sentence or phrase.

These discussions before reading helped students to think about the text before reading and it helped them interact with new vocabulary within the context of the text. As students read they individually confirmed their predictions of the story and of the meaning of the new vocabulary words. After reading they would have an opportunity to share how they clarified the meaning of the text during reading by using text information.

Before reading the students also asked questions about the story which set their purpose for reading.

The students read the text silently while I observed their reading behaviors and listened in to their reading as they used strategies and problem-solved during their decoding of text. As I observed students, I became aware of teaching points that would be valuable to the group. At the conclusion of the reading, I asked students to talk about what they read. In a group discussion, the students shared the main points of their reading. I used my observations of the students' reading behaviors to touch on one or two teaching points. This provided positive feedback to students of strategies they were observed to be using while reading and it also informed students of other strategies they needed to work on practicing when reading. For example, many students read without looking at the whole word, but instead would substitute a word that started with the same beginning sound for a word they do not know. The mini-lesson helped students become aware of their reading behaviors as they were observed in the group. The mini-lesson did not actually focus on the student who made the error, but instead it was generalized for the benefit of all students in the group.

After reading, the students wrote a retelling of the main points of the story in their spiral notebooks. The spiral notebook was used to keep a record of the stories they read and to encourage them to think about the story. This would be the same as follow-up for students after receiving reading group instruction in the classroom. The students wrote the title of each story at the top of the page for each summary or retelling. Depending on the length of text that was read during this lesson, students may be summarizing 4-8 pages of text. Sometimes they made charts in their notebooks to distinguish between two

viewpoints that were shared in the text. For example, on one occasion students were instructed to read several pages of text and to use the information in the text to support either of the two viewpoints discussed in the text. The students could reread the text to locate information for their charts. Students in the Guided Reading group received implicit strategy instruction which included activating their background knowledge, questioning, searching for information, organizing information graphically, and summarizing. Unlike CORI-STAR instruction, strategy instruction for Guided Reading was embedded into reading instruction of various texts.

The final part of the lesson consisted of word study to help students learn more about the spelling patterns and meanings of words they encountered in their reading. The indicators from the county curriculum guided the word study portion of instruction for third- and fourth-grade participants in the study. Word study included indicators for identifying different parts of speech, contractions, compound words, making words, synonyms, antonyms, vowel sounds, and syllables. Only one curricular area was emphasized for a lesson. Students were given small group opportunities to learn and practice the word work skills. Materials and leveled texts that were used for instruction were housed in the meeting area in a grade-level classroom.

Measures

Students were assessed using seven measures, both before the study and after. Pretest assessments were conducted about one to two weeks prior to the intervention and the posttest assessments were conducted one to two weeks after the intervention. Measures that were used for this study are shown in Table 8.

Table 8: Measures Used in the Study

Measure	Purpose
QRI-4 Comprehension questions and Retelling, (Leslie & Caldwell, 2006)	Determine student reading level, Reading Comprehension,
Maze passages (Guthrie, 1973; Parker, Hasbrouck, & Tindal, 1992)	Reading Comprehension
Woodcock Reading Mastery Tests- Passage Comprehension (Woodcock, 1987)	Reading Comprehension
Metacomprehension Strategy Index (Schmitt, 1990)	Metacognitive awareness before, during, and after reading
Motivations for Reading Questionnaire (Wigfield & Guthrie, 1997)	Reading motivation: students' reading self-efficacy, strategies for self-efficacy, challenge, curiosity, and involvement
Teacher's Perception of Students' Strategy Use Questionnaire	Student transference of strategies to classroom
Strategy Application Assessment Form A or Form B	Students' use of reading strategies: Activating background knowledge, questioning, searching for information, organizing information, and summarizing
Strategy Activation Inventory	Students' awareness of declarative, procedural, and conditional knowledge of strategy use
All-Star Book Club	Students' sign-out of additional reading materials for extended reading opportunities

Students in the CORI-STAR and Guided Reading groups were assessed with seven measures: the Quantitative Reading Inventory- 4 (QRI-4) (Leslie & Caldwell, 2006), Maze passages (Guthrie, 1973; Palmer, Hasbrouck, & Tindal, 1992), the Strategy

Application Assessment, the Motivations for Reading Questionnaire (MRQ) (Wigfield & Guthrie, 1997), the Metacomprehension Strategy Index (MSI) Schmitt, (1990), the Strategy Activation Inventory, Woodcock Reading Mastery Passage Comprehension test (Woodcock, 1987), and the Teacher's Perception of Students' Strategy Use Questionnaire.

QRI-4 Reading Assessment

The QRI-4 (Leslie & Caldwell, 2006) is an individually administered informal reading assessment that provides diagnostic information concerning students': (1) identification of words in isolation, (2) reading behaviors during reading, (3) comprehension and recall of information from the reading, and (4) fluency. The QRI-4 includes narrative and expository reading passages from pre-primer level through high school levels. Even though the QRI-4 is not a norm-referenced or standardized instrument, it has been analyzed through extensive piloting with approximately 1,000 participants.

For each grade level, Leslie and Caldwell (2006) determined the correlation between the instructional levels of the QRI and the students' national curve equivalency (NCE) or standard score on a group administered standardized reading test. The QRI-4 was compared to standardized test data from the California Achievement Test or the Iowa Test of Basic Skills for grades one, two and three. The standardized test data from the Terra Nova tests were used for comparison for grades 3-8. Correlations for grades three and four had correlations of .55 ($n = 39$, $p < .05$) and .66 ($n = 31$, $p < .01$) respectively for narrative text. Correlations were not performed on expository texts above the fifth grade level. The QRI-4 correlated .90 with the Word Identification and Word Attack scale used

in the Woodcock Reading Mastery Test- Revised (Woodcock, 1987). Students' prior knowledge was assessed through several questions that were asked prior to the reading of the text. The correlation between prior knowledge and comprehension was statistically significant at all levels except the preprimer level. The correlation between prior knowledge and comprehension was only $r\ (210) = .30\ (p < .001)$ at primer level; $r\ (336) = .18, p < .01$ at first grade level; and $r\ (303) = .30, p < .001$ at second grade level. Correlations increased to $r\ (232) = .35$ at fourth grade level; $r\ (80) = .40$ at fifth grade level: and $r\ (64) = .48$ at sixth grade level.

The QRI-4 was used to assess the students' reading skills through the use of several components: a graded list of isolated word list, miscue analysis of oral reading accuracy using grade-level text, retelling of the passage, answering of comprehension questions, and total reading time. This assessment determined the students' reading behaviors when reading grade level text. The analysis of the students' reading provided information concerning their decoding, comprehension, and fluency when reading which was useful in selecting texts. Students each read one expository passage for their pretest and another for their posttest. The QRI is regularly used in the school system by reading specialists to assess student reading levels and reading proficiency.

Administration of the QRI-4 assessment. I met individually with students to administer the QRI-4 reading assessment in their classrooms. Since a few students from each classroom were identified for the study, I invited one student at a time to read with me at a side table within his or her classroom. The QRI-4 began with students decoding a list of 20 grade-level words in isolation. The number of correct words from the word list was then used to determine the appropriate grade level to begin reading with the student.

Students' decoding scores from 90%-100% are considered as at the independent level. Scores from 70%-89% are at the instructional level, and scores below 70% are at the frustration level. Texts are selected for students at their instructional level. I asked all students to read the list for his or her grade level to provide a score for each student based on their performance reading the same list of grade level words.

I introduced students to a grade-level passage by telling them the title of the exposition they would be reading and then asking them a few questions to determine whether the text was familiar or unfamiliar. Students were asked to make a prediction about the passage they were getting ready to read. Even though the QRI-4 contains both expository and narrative passages, I selected expository passages for this study. Expository selections that were chosen were based on topics that would be somewhat familiar to students within each grade level, but which would not be identical to topics of expository text that are available in the school's intermediate book closet. This selection was made to avoid conflicts with presenting students with exposition on topics that have been covered in their classroom reading groups, and which could most dramatically affect students' comprehension scores. For example, one third-grade QRI-4 text choice is on the topic of beavers. The book closet contains many grade-level books on beavers which mirror the content of the QRI-4 passage; therefore careful examination of school resources was conducted before selecting the text. For the pretest, third-grade students read, *Where Do People Live* and for the posttest they read, *Wool: From Sheep to You.* Fourth-grade students read *Sequoyah* for their pretest, and *Early Railroads* for their posttest.

In preparation for the assessment, students were informed that their reading would be timed. New county language arts curriculum was implemented during this school year which required routine fluency instruction and assessment in the classrooms; therefore, the students were familiar with timed reading. Students were also encouraged to show me how well they were doing in reading. When the student began reading, I started the timer and then I began to do a running record using the QRI-4 test materials for that passage. I made checkmarks above words that were read correctly and notations above words that were miscues, omissions, or insertions. After the student finished reading, I stopped the timer, recorded the time for the reading, and asked him or her to recall the main points of the story as I recorded them on the student's test record. Each QRI-4 passage included eight questions, four contained information that was implicitly stated in the text and four contained information that was explicitly stated in the text. I asked the students each question and wrote down their responses. After answering questions the students returned to their seats.

Scoring of the QRI-4 assessment. The QRI-4 was administered in four areas: isolated word list, total reading accuracy, comprehension questions and retelling, and fluency. The isolated word list score was the correct number of words decoded correctly by the student out of a possible twenty words. The total reading accuracy required an examination of the students' running records to determine the students' miscues. Miscues were identified as "any deviation from the printed text" (Leslie & Caldwell, 2006, p. 73). Miscues included inserted words, omitted words, substitutions, and word reversals. To determine the percentage of total accuracy, the number of miscues was subtracted from the total number of words in the passage. This number is then divided by the total number

of words in the passage to find the total accuracy percentage. The students' independent level was achieved with 98% or better accuracy, with the instructional level between 90% to 97% accuracy, and the frustration level below 90% accuracy.

To determine the students' comprehension score for the reading, the implicit and explicit questions were scored for accuracy. The QRI-4 listed acceptable answers for each question. The questions counted as 1 for a correct response and a 0 for an incorrect response. Implicit and explicit questions were scored separately. According to the QRI-4 guidelines, 0-2 correct answers was at the frustration level and received 0 points, 3 correct answers was at the instructional level and received 1 point and 4 correct answers was at the independent level and received 2 points (Leslie & Caldwell, 2006, p. 89). See Appendix B for the scoring rubric.

Although the QRI-4 provided data concerning students' decoding of isolated words in a word list, their reading accuracy, reading fluency, and comprehension, I only analyzed the

scores from their comprehension questions and their retelling for my study. The decoding, accuracy, and fluency data provided valuable information that was used for selecting texts at the students' readability level for both groups. Students' reading comprehension scores were analyzed using a mixed ANOVA with one between-subjects factor and one within-subjects factor.

Maze passages

Maze is a multiple-choice cloze task that students complete independently. Unlike cloze, maze requires the reader to select among three choices: exact word, a word representing the same part of speech, and a word that represents a different part of

speech. The Maze consists of a passage where every 7th word is replaced with a choice of three words inside parenthesis. One of the words in the parenthesis is the word that makes sense in the sentence. The two other words are considered as distracters. One word is a near distracter of the same type such as a noun or verb, and the other word is a far distracter that is not the same type and does not make sense or preserve the meaning of the text.

Maze has been found to have moderately high internal consistency. Guthrie (1973) found Kuder-Richardson formula 21(KR-21) levels of .90 to .93 for 36 normal and struggling readers, functioning at the second through eighth-grade levels between ages six and eleven. Cranney (1972-73) reported similar KR-20 values of .86 for more extended Maze tests administered to college students.

Guthrie (1973) obtained validity coefficients of .85 and .82 for 36 normal and disabled readers, age six to eleven. In their study of 335 students in second-grade through sixth-grade, Jenkins and Jewell (1990) also found a strong relationship between the Maze and both the Metropolitan Achievement Reading Test and the Gates-MacGinitie Reading Test (r =.80 and .85 respectively).

Administration of the Maze. The Maze passages (Guthrie, 1973, Parker, Hasbrouck, & Tindal, 1992) are administered as an informal reading assessment. Two passages were constructed for both third- and fourth-grades, each consisting of from 166-171 words. The passages for each grade had the same readability as determined by the Dale-Chall Readability formula (Miller, 1995). The readability of both third-grade passages was 2.9 and the readability of the fourth-grade passages was 4.0. See Appendix A for Maze passages and scoring information.

The Maze was administered in small groups of 2-4 students. I read the directions for the Maze task as students followed along. The directions included two sample statements containing three word choices listed on a blank line. To help students understand the task, I read the first sample sentence three times, each time inserting a different word choice to see which one made the most sense. After the students practiced the two sample sentences, I asked if they had any questions about the procedure. Students were asked to turn over their papers to silently read the passage. I explained that they had five minutes to read the passage and make their word choices. Students were encouraged to reread the passage to check for accuracy if they finished early. Most students completed the task within five minutes and many students had time to go back and check their work. This assessment took about 10 minutes to administer.

Scoring the Maze. The tests were scored by checking the passages for the correct word choice. The raw scores were determined as the number of correct responses out of 22 choices. A correct response scored one point and an incorrect response scored 0 points. The scores were analyzed using a mixed ANOVA with one between-subjects factor and one within-subjects factor.

Woodcock Reading Mastery Test -Passage Comprehension

The Passage comprehension test measures students' ability to read short passages of one to three sentences and identify a key word that is missing from the passage. A blank line is used in the sentence to represent the missing word. This task is a modified cloze procedure that required the student to use comprehension and vocabulary knowledge. The passages are designed so that the students need to understand the complete passage to provide a correct response. The passage must be read as a whole to

understand the word that should be inserted into the blank. Early passages in the test are one sentence long and contain pictures that relate to the text. The pictures can serve as a valuable piece of information to help students determine the correct word choice. The inclusion of the picture-text feature of the lower items allows this test to be used with younger children than would not be possible with text alone.

The students' performance on the Passage comprehension test demands that they understand both the semantic and syntactic clues in the written text. Poor performance on this test indicates that the student is making poor use of the passage context clues, misunderstanding vocabulary used in the passage, or unable to accurately decode key words in the passages.

The Passage comprehension test has a high concurrent validity, indicating the relative effectiveness of this test when compared to an independent criterion measure. The Woodcock Reading Mastery Test (WRMT-R test) has a .92 correlation to the Woodcock Johnson test for students in grade 3, and .87 for grade 5. The WRMT total reading scores correlated with several reading measures at the third grade level: Iowa Test of Basic Skills had a .83 correlation, PIAT Reading had a .87 correlation, and WRAT Reading had a .88 correlation.

Administration of the Woodcock Reading Mastery Test-Passage Comprehension. The WRMT was administered individually to each student. I sat across from the student with a tri-fold book positioned between us. Each page of the book that faced the student revealed the passage which consisted of one to three sentences. Lower level passages also included picture clues. The page that faced me had the same sentences, but also included two lists of possible students' responses: one list containing words which would be

accepted as correct, and the other list had words which would not be scored as correct. In some cases, a third list of responses was given which would signal the test administrator to query further for another response.

To begin the test, students were given a sample sentence to read to ensure that they understood the format of providing the missing word that best fit in the sentence. At the beginning of the test, students were asked to read the passages silently. Many of the third-grade subjects reverted back to reading aloud. I gave them one reminder to read the passage silently. The instructions for administering the WRMT stated that the teacher is to remind students to read silently, but if they start reading aloud again, the teachers should not insist on students reading silently.

After the student completed the sample question, I asked him or her to begin at a particular item number in the test, depending on their grade level. The student was asked to read a passage silently and respond with only one word that would best fit in the sentence. Students read each passage while I recorded whether the response was correct or not.

The scoring criteria for this test required that a basal and a ceiling level must be established. The test contains items with a very wide span of difficulty. In order to create a basal for the test, students need to have six correct responses in a row when they began the test. If a student had an error before the sixth response, I turned back several pages to easier text to help establish the basal. Students continued responding to passages until they receive six consecutive incorrect responses that end with the last item on a test page. Scores are calculated by counting the correct number of responses between the basal and the ceiling. I recorded the students' responses in the test booklet, indicating a 1 for a

correct response and a 0 for an incorrect response. The WRMT contained two forms of the test, each consisting of 68 items arranged in order of difficulty. Form G was used as the pretest for the students and Form H was used as the posttest.

Scoring of the Woodcock Reading Mastery Test -Passage Comprehension. The number of correct responses between the established basal and the ceiling levels of the test represented each student's raw score. The raw scores for the pretest (Form G) and the posttest (Form H) were converted into W scores using Table A of the Examiner's Manual. The next step was to locate the reference scores (R) in Table E that are related to the Passage Comprehension test and the grade and month that the test was administered as a pretest or a posttest. Table E also lists the column to refer to in Table G in the Examiner's Manual to find the standardized test score. The R score was subtracted from the W score to get the difference, which is referred to as DIFF. Next you locate the students' DIFF scores on the left-hand column of Table G. By using the column numbers that were listed in Table E to correspond to a specific score, you can locate the percentile ranks and standard scores for each of the students' scores. The standard scores were analyzed using a mixed ANOVA with one between-subjects factor and one within-subjects factor.

Metacomprehension Strategy Index (MSI)

The Metacognitive Strategy Index (Schmitt, 1990) is a 25-question, multiple-choice questionnaire that measures the students' awareness of strategies used before, during, and after reading narrative text. Ten test items assess students' strategy use before reading, ten items assess strategy use during reading, and the last five items assess students' strategy use after reading. The strategies assessed through this measure are areas of

predicting and verifying, previewing, purpose-setting, self-questioning, activating background knowledge, and using fix-it strategies before, during and after reading. As a reading specialist for my school, I have used the MSI to determine students' ability to identify appropriate reading strategies that are used to monitor the reading process. Schmitt reported the MSI to be a valid measure of strategy awareness with reliability of 0.87 (Kuder-Richardson Formula 20), which indicates a high degree of reliability (Schmitt, 1990). (See Appendix C for the Metacomprehension Index and Appendix D for the scoring guide.)

Administration of the MSI. The Metacomprehension Strategy Index was administered in small groups of two to four students. The questionnaire, composed of 25 multiple-choice questions, was read to the students. I read each question of the test, along with the four choices for students to select from. After reading a test question, I waited for all students to circle an item before moving to the next test question. This task took about 15-20 minutes to complete.

Scoring the MSI. Students' responses were scored using the scoring guide in Appendix D. A correct response earned 1 point and an incorrect response earned 0 points. I combined raw scores for items related to students' before reading, during reading, and after reading to determine student's strategy use at these times. The scores were analyzed using a mixed ANOVA with one between subjects' factor and one within subjects' factor.

Motivations for Reading Questionnaire (MRQ)

Since reading motivation and reading achievement have been closely linked (Wigfield & Guthrie, 1997), I administered the Motivations for Reading Questionnaire (MRQ) to assess students' reading motivation in a pretest and posttest treatment design.

The MRQ was developed to assess various motivation constructs as they relate to reading. Wigfield and Guthrie (1997) and Baker and Wigfield (1999) used existing motivation literature to develop the Motivations for Reading Questionnaire. This questionnaire assesses students' self-efficacy for reading, their intrinsic motivations such a preference for challenge in reading or reading curiosity, and also their extrinsic motivation such as their desire for good grades, or reading for recognition. The researchers used exploratory factor analysis to examine constructs in the reading domain and their relationship to children's reading frequency and their reading comprehension.

The original MRQ (Wigfield et al., 1996) measured students' motivation on eleven dimensions: Reading Efficacy, Reading Challenge, Reading Curiosity, Aesthetic Enjoyment of Reading, Importance of Reading, Compliance, Reading Recognition, Reading for grades, Social Reasons for Reading, Reading Competition, and Reading Work Avoidance. The internal consistency reliabilities of the MRQ scales were computed in both the fall and the spring of their study. The reliabilities indicated the extent to which the items on each scale are connected. Values that are greater than .70 are preferable. They found the most reliable scales were: Reading Challenge, Reading Curiosity, Aesthetic Enjoyment, Social Reasons, Reading Competition and Reading Recognition, all which ranged from adequate to good on internal consistency.

Five dimensions of reading motivation were examined during this study: self-efficacy, strategies for self-efficacy, challenge, curiosity, and involvement. Reading self-efficacy is defined as the readers' beliefs that they can be good at reading. The variable known as strategies for self-efficacy refers to the readers' beliefs that they can use certain strategies to help them be more strategic readers. Challenge refers to students' desires to

master or assimilate complex ideas in text. Curiosity is defined as the readers' desire to learn about something that interests them. Involvement refers to the readers' engagement with a text that they enjoy reading. Table 9 reveals the fall and spring reliability scales for three out of five of the dimensions of motivation that were examined in this study and were also a part of Wigfield et al.'s (1996) study: reading efficacy, reading challenge, and reading curiosity. Wigfield and Guthrie (1997) found that those students who are intrinsically motivated to read are more likely to report that they are engaged in reading both in and out of school. Those readers are defined by their curiosity to read, their ability to challenge themselves with a variety of texts, and their involvement in reading.

Table 9 Spring and Fall Reliabilities for the Reading Motivation Scales (Wigfield et al., 1996)

Scale	Fall	Spring
Reading efficacy	.63	.69
Reading challenge	.68	.80
Reading curiosity	.70	.76

Administration of the Motivations for Reading Questionnaire. An abbreviated version of the MRQ (Wigfield & Guthrie, 1997) was administered to students in both the CORI-STAR and Guided Reading groups (n = 50) to assess their reading motivation as indicated through dimensions of self-efficacy, strategies for self-efficacy, challenge, curiosity, and involvement on the questionnaire. The 18-item form of the MRQ was read

to a small group of two to four students (See Appendix E). The MRQ contained three practice items that I read to students before initiating the questionnaire. These questions helped students think about which end of the scale was most like them. One practice item stated, "I like ice cream." Many students circled the four on the Likert scale. Yet on another practice item that stated, "I like spinach" relatively few students circled a four, but circled a number at the lower end of the scale. Students were asked if they had any questions concerning how to use the scale before I began to ask them the items from the Motivations for Reading Questionnaire.

Students were directed to think carefully about what they wanted to circle before circling an item and to be accurate about how they felt. They were reassured that they were not going to be graded on their responses, but that their truthful responses would help in planning reading instruction for them. Students were separated around a large table so that they weren't looking at others' papers. They were asked to not tell their responses out loud, but to circle them on their papers. Students were instructed to raise their hands if they needed me to reread any of the questions.

I read each statement slowly, followed by the Likert scale choices that they could circle. For one item, I might say, "I like hard, challenging books. Is that statement (1) very different from me, (2) a little different from me, (3) a little like me, or (4) a lot like me?" Students responded by circling their choice on a one-to-four Likert scale which ranked their motivation on each item from "very different from me" to "a lot like me". This assessment took about 15 minutes to administer as a pretest and a posttest. Table 10 reveals the correlation between the five dimensions of motivation examined in this study: self-efficacy strategies for self-efficacy, challenge, curiosity, and involvement. The

Motivations for Reading Questionnaire has good internal consistency, with a Cronbach alpha coefficient reported of .882.

Table 10 Correlations between Motivation Dimensions Explored in this Study

	Self-efficacy	Strategies. for self-efficacy	Challenge	Curiosity	Involvement
Self-efficacy	1.00	.681**	.802**	.667**	.402**
Strategies for self-efficacy	.681**	1.00	.725**	.762**	.399**
Challenge	.802**	.725**	1.00	.667**	.457**
Curiosity	.667**	.762**	.667**	1.00	.454**
Involvement	.402**	.399**	.457**	.454**	1.00

* Correlation is significant at the 0.05 level,

** Correlation is significant at the 0.01 level (2-tailed)

Scoring of the Motivations for Reading Questionnaire. After administering the MRQ, I obtained standard scores for each student on their reading efficacy, strategies for self-efficacy, reading challenge, reading curiosity, and involvement scales. The Likert scale scores for each of the statements that referred to a particular dimension, such as

reading self-efficacy, were added together. (See Appendix F) This number was then divided by number of corresponding statements within that MRQ scale. For example, if there were four statements for a particular MRQ scale, such as involvement, the student's score for each statement would be added together to get his or her raw score. Let's say a student circles a 2, 1, 3, and 3, giving a raw score of nine. The raw score of nine would then be divided by four, the number of statements on the scale, giving that student a scale score of 2.25. The standardization of MRQ scores provides each student a score ranging from 1-4 in each dimension examined in this study. These data were analyzed using the mixed ANOVA with one between-subjects factor and one within-subjects factor.

Children's motivation has been shown to affect their performance in various achievement areas, such as reading. The MRQ has been shown to be a reliable assessment of students' reading motivation for the CORI project. It has also been used in this school with students involved in CORI instruction since 2001.

Teacher's Perception of Students' Strategy Use Questionnaire

The Teacher's Perception of Students' Strategy Use Questionnaire was based on the Index of Engagement that was designed by Guthrie (2004d) as a teacher's report of their observations pertaining to students' classroom reading behaviors. The Index of Engagement in Reading was implemented in the county schools that participated in the CORI study. Guthrie (2004d) tested the Index of Engagement questionnaire with 19 teachers and 405 fourth-grade students. In their analysis, the scores from the eight-item questionnaire had a possible range between 8-40, with a mean score of 28.28 and standard deviation of 8.52. Guthrie reported an overall reliability alpha was .9428 for the Index of Engagement. In the current study, the eight items on the Teachers' Perception of

Students' Strategy Use Questionnaire also have good internal consistency, with a Cronbach alpha coefficient of .930.

The Teacher's Perception of Students' Strategy Use Questionnaire (TPSSUQ) consists of eight identifiers of student reading behavior that the teachers rated on a five-point Likert scale from not true to very true. (See Appendix G) The Teacher's Perception of Students' Strategy Use Questionnaire was used to determine students' transference of strategic reading behaviors to their classrooms as reported by their teachers. Teachers were asked to rate students in eight areas: reading engagement as observed through amount of independent reading time, use of use of metacognitive strategies, use of comprehension strategies in reading group, amount of effort expended for reading, engagement when discussing texts, ability to employ reading strategies, and motivation to select and read a variety of texts. Several items varied from the original Index of Reading Engagement to support the instructional goals of the study.

Administration of the TPSSUQ. Classroom teachers were given the Teacher's Perception of Students' Strategy Use Questionnaire about one to two weeks prior to the beginning of the first or second session. The teachers completed the Likert scale questionnaire and returned it to me before the intervention began. At the conclusion of the 8-week intervention, teachers were given another copy of the questionnaire and were asked to again rate their students' reading behaviors in the classroom.

Scoring of the TPSSUQ. The Likert scale scores from the questionnaire were added together to get a total score for students' transference of strategies. Students' scores had a possible range from eight to forty. These data were analyzed using a mixed ANOVA with one between-subjects factor and one within-subjects factor.

Strategy Application Assessment

The Strategy Application Assessment is an instrument that I designed to determine students' awareness and application of the reading strategies that were taught as a part of reading instruction: activating background knowledge, questioning, searching for information, organizing information, and summarizing. The Strategy Application Assessment has two forms: A and B which were counter-balanced in their administration as the pretest and the post-test. Approximately one-half of the students took Form A as a pretest and Form B as a posttest, whereas the other half of the students took Form B as a pretest and Form A as a posttest. (See Appendix H)

Both forms of the Strategy Application Assessment contained the same structural format, with identical questions; however, each test form used different reading passages to assess students' summarizing, searching for information, and organizing information. The first four questions assessed students' background knowledge of ponds and were identical on both forms of the Strategy Application Assessment. Questions 5-9 assessed the other four strategies as students were asked to generate a question about ponds, read a paragraph and write a summary, read a passage and organize the information, and search for information in a text and record how they found it and where it was found.

Two texts were used by students to search for information: *How Snails Live* was used for Form A, and *The Survival of Fish* was used for Form B of the assessment. Both texts had a table of contents and an index for students to use. Each of the searching questions contained key words which were located in the index for students to use for the search. The table of contents also could be used to direct students to the correct area of the text to find the information.

The Strategy Application Assessment is an abbreviated form of the assessment given by Guthrie, Wigfield, Barbosa, Perencevich, Taboada, Davis et al. (2004) in their CORI investigation which consisted of students stating their background knowledge, generating questions, searching for information in packets, performing multiple text readings and writing about their new knowledge gained from reading the text, and organizing information from text to a hierarchical structure using a Pathfinder computer program. This assessment instrument is also similar to assessments used by reading specialists to determine how students use reading strategies to comprehend text. The Strategy Application Assessment has good internal consistency with a Cronbach alpha coefficient reported of .77. Table 11 reveals the correlation between measures on this assessment.

Table 11 Correlations between Variables on the Strategy Application Assessment

	ABK	Q	SI	OI	S
Activate background knowledge (ABK)	1.00	.424**	.586**	.599**	.401**
Questioning (Q)	.424**	1.00	.534**	.432**	.037
Searching for Information (SI)	.586**	.534**	1.00	.631**	.092
Organizing Information (OI)	.599**	.432**	.631**	1.00	.397**
Summarizing (S)	.401**	.037	.092	.397**	1.00

** Correlation is significant at the 0.01 level (2-tailed)

Administration of the Strategy Application Assessment. To administer this assessment, I met with 2-4 students in a small group. Students completed the nine-item Strategy Application Assessment at their own pace. Even though there was no time limit

for this task, most students finished in 20 minutes or less. First, students activated their background knowledge about ponds as they were asked to write what they knew about ponds, if they had read any books about ponds, if they had ever visited a pond, and what animals live in ponds. The next assessment item asked students to generate a question about ponds.

Since students were working at their own pace, I asked them to let me know when they were ready for the next task so I could give them the materials that they needed. For the third strategy task, I gave students a paragraph to read about either a heron or a snake, depending upon which form of the test the student had. Students were asked to read it carefully, and when they were done they were to give the paper back to me before they began writing a summary of the text. Students were monitored during the reading so that the passages were not in front of the students when they began to write their summaries. Removal of the passages was done to eliminate student copying of the passage and to determine whether students comprehended the superordinate and subordinate propositions of the passage.

To assess students' understanding of graphically organizing information, they were asked to read a two- paragraph descriptive passage which contained information about two pond animals. Students were asked to read the passage and make an organizer to compare information about either a snail and a turtle or a frog and a snake. The passage was at the top of the page for students to refer to as they constructed the organizer on the bottom portion of the page.

Students were assessed on their ability to locate specific information in a text about pond animals. They were asked to tell how they found the information. Students used

their searching strategies to locate two different answers using the same text. Two texts were used by students to search for information: *How Snails Live* was used for Form A, and *The Survival of Fish* was used for Form B of the assessment. Both texts were about 30 pages long and each had a table of contents and an index for students to use to locate information. Each of the searching questions contained key words which corresponded to the words that were used in the index for students to use for the search. Students were assessed on their ability to use the key words in the directions to guide them in their use of text features to locate the information.

After completing all of the assessments, I assigned a random code number to each student to identify his or her assessment scores. I compiled a list with students' names and their corresponding code numbers to use for labeling all assessments to insure confidentiality and anonymity when scoring and recording students' data.

Scoring of the Strategy Application Assessment. To score the Strategy Application Assessment, photocopies were made of students' answers and each question was identified only with the students' code number. Pretests were coded with the students' number in green ink. Posttests were scored with the students' number in red ink. The students' nine questions were sorted onto piles with responses from other students for the same question. The process concluded with the formation of eleven piles of responses, one for each question in the Strategy Application Assessment and two additional piles for the two variations of reading tasks for summarizing and graphically organizing information from Form A to Form B.

After looking over the students' responses, I developed a rubric for each question that recognized the range of students' responses. (See Appendix I) I trained two raters on

an overview of the assessment and how to use the scoring rubric. The raters each have between 11 and 17 years of teaching experience, a masters' degree in reading, and have taught intermediate-level students. The raters looked over students answers and scored them according the rubric, resulting in 98% agreement between raters. After clarifying and restating some wording in the rubric, 100% agreement was obtained between raters.

The scores on the first four items were combined to make a raw score that ranged from 0-9. Scores for student generated questions ranged from 0-3, depending on the complexity of the question from a simple factual question to one that considers the relationships between animals and their environment (Taboada & Guthrie, 2004). Scores for summarizing ranged from 0-7, depending on students representation of the superordinates and subordinates in the passage.

Scores for organizing information ranged from 0-5 depending on students' representation of a graphic organizer and their comparison of information about two animals. Scores for searching for information ranged from 0-6, depending on students' success at using key words and text features to locate the information that was requested.

The scores obtained for each of the five strategies were analyzed using a mixed ANOVA with one between subjects' factor and one within subjects' factor. (See Appendix I for the Scoring Rubric)

I developed the Strategy Application Assessment to assess students' acquisition of reading strategies. Data from this measure could be used to evaluate students' application of reading strategies which would further inform instruction.

Strategy Activation Inventory (SAI)

I designed the Strategy Activation Inventory to assess students' declarative, procedural, and conditional knowledge in regard to each of the five focused reading strategies; activating background knowledge, questioning, searching for information, summarizing, and organizing information graphically. This assessment was suggested by several students at the conclusion of my pilot study who questioned when they would be asked to tell what, how, when, and why to use the strategies they were taught. This instrument was informally administered to students in fall 2005 to determine its value in determining students' metacognitive awareness of their strategy use. The SAI was used to better understand students' knowledge of the utility of strategies when reading. (See Appendix J) The SAI has good internal consistency, with a Cronbach alpha coefficient reported of .973. Table 12 shows the correlations between variables on this posttest data for this measure.

Table 12 Correlation of Strategies Assessed by Strategy Activation Inventory

	ABK	Q	SI	OI	S
Activate background knowledge (ABK)	1.00	.899**	.895**	.902**	.817**
Questioning (Q)	.899**	1.00	.913**	.864**	.864**
Searching for Information (SI)	.895**	.913**	1.00	.897**	.880**
Organizing Information (OI)	.902**	.864**	.897**	1.00	.871 **
Summarizing (S)	.817**	.864**	.880**	.871**	1.00

** Correlation is significant at the 0.01 level (2-tailed)

Administration of the SAI. I administered the SAI individually to students. Students were asked to identify their declarative, procedural, and conditional knowledge of each of the strategies. This assessment took the form of an interview where I asked students questions and they dictated their responses to me. The dictated assessment was designed to alleviate the anxiety many low readers experience when performing writing tasks and to focus the assessment on students' thinking, rather than their writing. Through this task, students identified what, how, when, and why to use each of the five strategies, as well as giving an example of the declarative, procedural, and conditional knowledge required when using each strategy.

This task was performed in the students' grade-level classroom at a side table where the reading group met. I posed five questioning prompts for each strategy. I asked students, "*What* does it look like when you do this strategy?" Students responded orally to the question prompt as I wrote their responses on paper. I read the students' responses

back to them so that they could check that I had accurately recorded what they said. Then, I proceeded to the next questioning prompt, "Tell someone *how* to do this strategy when they read." Again I wrote the students' response and read it back to them for their approval. The third prompt was, "Think of what would be a good time to use this strategy *when* reading?" The fourth prompt was, "Think *why* it is important to use the strategy whey you read." The last prompt was, "Explain what each strategy is, how you use it, when you use it, why you use it and give an example." I wrote down students' responses they were seated next to me. After students answered a questioning prompt, they listened to my reading of their response and at times some students added more information or clarified ambiguous responses.

After asking the five questioning prompts about their use of activating background knowledge, I continued the interview by asking students the same five questioning prompts about each of the remaining four strategies: questioning, searching for information, organizing information, and summarizing. Each time the students were asked to identify *what* each strategy was, *how* you use it, *when* do you use it, and *why* you use it and to give an example of the knowledge necessary to perform this strategy.

Scoring the SAI. Students' responses on the SAI were typed and coded with their identification number. Pretest responses were printed on green paper and posttest responses were printed on pink paper to distinguish between the two. Student responses were sorted and grouped together by each of the five strategies. For example, all of the students' responses for background knowledge were grouped together in one pile, questioning was on another pile, followed by a pile for each of searching for information, organizing information, and summarizing. I examined the responses and created a scoring

rubric that encompassed the range of responses received. (See Appendix K for scoring rubric)

Three raters were trained in the administration of the SAI assessment and in the use of the SAI scoring rubric. Each rater has between 11-14 years of teaching experience, a masters' degree, and has multiple years of experience teaching intermediate level students. The raters became familiar with the task and discussed what type of response should receive a given score. The purpose for several raters is to improve the clarity and generalizability of the scoring rubric for other testing situations. The assessments were scored by the raters with students receiving between 0-2 points for each component of what, how, when, and why of using a strategy, and 0-3 points for giving an example of using the strategy. Raters experienced 97.6 % agreement in scoring. After adjusting and clarifying the wording of the rubric, 100% agreement was achieved between raters.

Students' scores were recorded by their code number and entered as data into the computer. Students' pretest and posttest scores were analyzed using a mixed ANOVA with one between-subjects factor and one within-subjects factor.

All-Star Book Club

The All-Star Book Club was established as a part of the study to provide opportunities for students to choose books of interest to sign out. About 400 books were separated and sorted into bins for each of the two instructional groups, with multiple copies of some titles available. (See Appendix R for the All-Star Book Club list of books.) Students in the CORI-STAR group could choose between 119 expository or narrative titles about pond life and pond animals that supported what they were reading about in their group. The students in the Guided Reading group could choose between

163 expository or narrative titles of leveled books that covered many areas of interest and which corresponded to the type of text they were reading in their group. The students in both groups were welcome to sign out one book at a time, and they could sign out books as frequently as desired in conjunction to the two daily sign-out times.

Set up and administration of the All-Star book club. All students in the study were members of the All-Star Book Club. Two book sign-out times were established that were agreeable with classroom teachers. The All-Star Book Club was set up in my room along one side of the room. Several bins were filled with books for students in either the CORI-STAR or Guided Reading group to choose from. In order to clarify which books were available to a particular group, the bins were labeled by group, such as CORI-STAR or Guided Reading. Bins were also labeled by classroom teachers' names. Since students were assigned to a particular group by classroom, all of the students within a particular classroom would be choosing books out of the same bins for a particular session of the study.

Students came to my reading room and selected a book. Each book contained a super-sized color-coded bookmark with the title of the book, the author's name or names, and lines for students to write their names on to sign out their books. A basket was available on my desk for students to place their returned books. The bookmarks were kept in a bag in the bottom of the basket so I could quickly replace bookmarks in the returned books and put them back in the appropriate bins for other students to sign out. There were no due dates established on returning books to the Book club; therefore, students could keep books as long as they needed them. The sign out procedure was simple for students to understand and it was easy to maintain.

Any students who wished to write a book review about their book was able to use the All-Star Book review form to record book information and why they liked the book. Book reviews were displayed by grade level on a bulletin board in my room for students to read when they signed out books. (See Appendix S for book review forms and student invitation)

Scoring of the All-Star book club results. At the conclusion of the study, the bookmarks were removed from all of the books that were used for the All-Star Book Club. Since the bookmarks were color-coded, it was easy to sort them into piles by color and group, with pink bookmarks for CORI-STAR and yellow bookmarks for Guided Reading. After sorting by group, all of the bookmarks that did not have students' names on them were removed from the piles. The number of students' signing out books was determined by counting each of the names on the bookmarks for each group, and then verifying by counting again. A one-way analysis of variance was performed on the data to determine any variance in signing out books between groups.

Data Analysis

The purpose of this chapter is to review the methods, procedures, and measurements that were used to answer the research questions. Four questions guided this study: (1) What influence will each reading approach, CORI-STAR and Guided Reading, have on students' reading comprehension, metacognitive awareness, and motivation?, (2) What impact will CORI-STAR and Guided Reading have on students' transference of strategy-use to their classroom?, (3) What impact will CORI-STAR and Guided Reading instruction have on struggling readers' ability to regulate their use of reading strategies when reading independently?, and (4) How will instruction using self-

regulation strategies in relation to declarative, procedural, and conditional knowledge impact students' ability to remember what, how, when, and why to apply strategies to specific situations? Table 13 shows the table of relations among the research questions, the research measure, and the method for statistical analysis.

Table 13 Table of Relations

Question	Measures	Analysis
1. What influence will each reading approach, CORI-STAR and Guided Reading have on students' reading comprehension, metacognitive awareness, and motivation?	1.Comprehension: a. Maze Passages b. QRI-4 comprehension questions and retelling c. Woodcock Reading Mastery Test- Passage Comprehension d. Motivation: Motivations for Reading Questionnaire e. Metacognitive Awareness: Metacomprehension Strategy Index	1. a-e Mixed ANOVA with one between subjects factor and one within subjects factor
2. What impact will CORI-STAR and Guided Reading have on students' transference of strategies to their classrooms?	2. Transference of strategy use: a. Teacher's Perception of Students' Strategy Use Questionnaire	2. Mixed ANOVA with one between subjects factor and one within subjects factor
3. What impact will CORI-STAR and Guided Reading have on struggling readers' ability to regulate their use of reading strategies when reading independently?	3. Students' application of strategies: Strategy Application Assessment	3. Mixed ANOVA with one between subjects factor and one within subjects factor
4. How will instruction using self-regulation strategies in relation to declarative, procedural, and conditional knowledge impact students' ability to remember what, how, when, and why to apply strategies to specific situations?	4. Students' Knowledge of Strategies: Strategy Activation Inventory	4. Mixed ANOVA with one between subjects factor and one within subjects factor

One-way ANOVAs were performed to determine initial differences between the students' scores between grade levels, gender, instructional sessions, and instructional groups. The test of homogeneity of variances was used to determine whether significant differences existed between groups. After it was determined that equivalence existed between the scores of third- and fourth grade students, the data were combined together for the two grade levels for Session 1 and Session 2 to strengthen the results, given the low number of participants. Combined scores resulted in 25 students per instructional condition. Equivalence was also determined for gender, sessions, and instructional group. Chapter IV will provide more information concerning the data analysis that was used to determine equivalence in the mean scores on the dependent variable across the grade levels, gender, sessions and instructional groups.

The first research question examined the influence of the independent variables, CORI-STAR and Guided Reading, on the three dependent variables: metacognitive awareness, reading comprehension, and motivation. To answer this question, three measures were used to assess students' reading comprehension: Maze passages, Woodcock Reading Mastery -Passage Comprehension test, and the QRI-4 questions and retelling. The Metacomprehension Strategy Index (MSI) was used to assess students' understanding of when to apply specific strategies when reading. The Motivations for Reading Questionnaire (MRQ) was used to assess students' reading motivation in five areas: reading self-efficacy, self-efficacy of strategy use, challenge, curiosity, and involvement.

Students' scores on each of the five assessments: the Maze passages, Woodcock Reading Mastery-Passage Comprehension test, QRI-4, Metacomprehension Strategy

Index (MSI), and Motivations for Reading Questionnaire (MRQ) were analyzed using a mixed ANOVA with one between subjects' factor and one within subjects' factor with an alpha level of .05.

The second question examined students' transference of strategic reading behaviors from the CORI-STAR or Guided Reading intervention to their classroom reading group. Teachers' responses on the Teacher's Perception of Students' Strategy Use Questionnaire Index (Guthrie, 2004d) measured students' strategy use, metacognitive awareness, comprehension, and motivation in the classroom reading group before and after the intervention. Data obtained from these tests were analyzed by mixed ANOVAs with one between subjects' factor and one within subjects' factor.

The third question examined the impact of CORI-STAR and Guided Reading instruction on readers' ability to regulate their use of reading strategies. This was measured by students' scores on the Strategy Application Assessment. Data were analyzed using a mixed ANOVA with one between subjects' and one within subjects' factor.

The fourth question investigated students' understanding of the declarative, procedural, and conditional knowledge necessary to monitor and apply reading strategies. The Strategy Activation Inventory was used to measure students' declarative, procedural, condition knowledge of the five reading strategies that were taught during this study. Data were analyzed using a mixed ANOVA with one between subjects' factor and one within subjects' factor.

Fidelity of Treatment

To insure fidelity of treatment for this study, teachers and administrators were invited to observe lessons for both instructional approaches, CORI-STAR and Guided Reading. Observations of instruction were unannounced. Observers were trained during staff development sessions on the instructional components of each supplementary approach. They were given a schedule of each approach and they were introduced to materials they would see during each component of the lesson. Classroom teachers reviewed the fidelity of treatment specification sheets for each of the reading conditions to clarify what they would expect to see when observing a particular group. The observers received training in how to complete the fidelity of treatment specification sheet for the particular instructional condition which he or she observed. These forms were made available at each instructional area at either grade level. Teachers checked off and initialed each component of the lesson that they observed during their visit. The lesson plan was also available for each session of both CORI-STAR and Guided Reading for teachers to examine or to follow as they observed a lesson. Each lesson coincided with the same instructional components and sequence as was shown on the fidelity of treatment specification sheet. A total of 33 fidelity of treatment observations were collected, accounting for about four observations per each grade, for each instructional condition, for each of the two 8-week sessions. Data were examined using descriptive statistics.

Attendance

Attendance records were also kept to determine the frequency of students' attendance in their supplemental group. The attendance records were helpful during the

study in determining when students may have missed the introduction of a strategy. Data were analyzed using one-way analysis of variance.

Summary

This chapter provided a detailed description of the sample population in the study, the instructional groups which served as the independent variables, the measures used to assess change in the dependent variables of comprehension, metacognitive awareness, and motivation, data collection procedures, and the analysis of the student data. The next chapter examines the results of this empirical study.

Chapter IV: Results

Introduction

The purpose of this investigation was to examine the influence of two supplementary instruction programs, CORI-STAR and Guided Reading, on struggling third- and fourth-grade students' comprehension, metacognitive awareness, and motivation. In this chapter I review the results of the data analysis related to the research questions that were posed: (1) What influence will each reading approach, CORI-STAR and Guided Reading, have on students' reading comprehension, metacognitive awareness, and motivation?, (2) What impact will CORI-STAR and Guided Reading have on students' transference of strategy-use to their classroom?, (3) What impact will CORI-STAR and Guided Reading instruction have on struggling readers' ability to regulate their use of reading strategies when reading independently?, and (4) How will instruction using self-regulation strategies in relation to declarative, procedural, and conditional knowledge impact students' ability to remember what, how, when and why to apply strategies to specific situations?

The first section of this chapter examines whether there were initial differences between grade-levels, gender, instructional sessions, and instructional groups on students' reading comprehension, motivation, and metacognitive awareness. The next section of this chapter examines the results pertinent to the research questions that directed this study. An analysis of the findings will be presented for each question. Given the pretest-posttest experimental design of this study, data were analyzed using mixed between-within subjects analyses of variance. Statistical significance for each measure was set at an alpha level of .05 to guard against Type 1 error. The final portion of the chapter

reviews the results of students' participation in accessing books from the All-Star Book Club lending library that was established for the purpose of encouraging reading engagement among students in the study. It also examines the results of the fidelity of treatment measures that were implemented throughout the study, and students' attendance in their respective supplemental groups.

Initial Performance Level of Participants

In this study, third- and fourth grade struggling readers were randomly assigned by small groups from each classroom. Students participated in one of two conditions: CORI-STAR, or Guided Reading. Students were identified for instruction during a particular session by their classroom teacher. The classrooms that were combined for reading groups were those closest in proximity to one another. Statistical analyses were used to determine whether participants' initial performance levels were equivalent. The Woodcock Reading Mastery Test – Passage Comprehension (WRMT-PC) and the QRI-4 were used to determine students' initial comprehension levels. WRMT-PC standard scores and QRI-4 scores were analyzed using one-way analyses of variance (ANOVAs) to determine whether group equivalence existed between grades and sessions, gender, and instructional groups on the dependent variable of reading comprehension. One-way ANOVAs were also used to analyze pretest scores from the Motivations for Reading Questionnaire and the Metacomprehension Strategy Index to determine whether group equivalence existed between grades and sessions, gender, and instructional groups on the dependent variables of motivation and metacognitive awareness prior to the study.

Comprehension by Grade Levels and Sessions

Woodcock Reading Mastery Test- Passage Comprehension (WRMT-PC). One-way analyses of variance were used to examine whether the Woodcock Reading Mastery Test-Passage Comprehension (WRMT-PC) standard scores at pretest differed across grades or testing sessions. These analyses revealed statistically significant differences between grades (F (1, 48) = 6.68, p = .013) and sessions (F (1, 48) = 5.01, p = .030).

Table 14 reveals the means and standard deviations for grades and instructional sessions from the WRMT-PC.

Table 14 Means and Standard Deviations of WRMT-PC for Grades and Sessions

Grade	Session	Mean	Standard Deviation	Minimum	Maximum	Number
3rd Grade	1st	98.78	4.90	89.00	107.00	14
	2nd	89.00	5.79	74.00	96.00	12
	Total	94.26	7.21	74.00	107.00	26
4th Grade	1st	88.25	7.23	77.00	102.00	12
	2nd	88.33	10.97	68.00	110.00	12
	Total	88.29	9.09	68.00	110.00	24
Total	1st	93.92	8.01	77.00	107.00	26
	2nd	88.66	8.59	68.00	110.00	24
	Total	91.40	8.63	68.00	110.00	50

Qualitative Reading Inventory-4 (QRI-4). One-way analyses of variance were used to examine whether the QRI-4 standard scores at pretest differed across grades or testing sessions. There were no statistically significant differences between grades (F (1, 48) = .512, p = .478) or sessions (F (1, 48) = .763, p = .387) on the QRI-4 pretest scores. Table 15 reveals the means and standard deviations for grades and instructional sessions.

Table 15 Means and Standard Deviations of QRI-4 for Grades and Sessions

Grade	Session	Mean	Standard Deviation	Minimum	Maximum	Number
3rd Grade	1st	3.78	1.71	1.0	7.0	14
	2nd	2.25	1.91	0.0	6.0	12
	Total	3.07	1.93	0.0	7.0	26
4th Grade	1st	2.33	1.67	0.0	0.5	12
	2nd	3.08	1.67	0.0	6.0	12
	Total	2.71	1.68	0.0	6.0	24
Total	1st	3.11	1.82	0.0	7.0	26
	2nd	2.66	1.81	0.0	6.0	24
	Total	2.90	1.81	0.0	7.0	50

Initial comprehension performance for grades and instructional sessions were different for the two comprehension measures. Although statistically significant differences were found between grades (F (1, 48) = 6.68, p = .013) and sessions (F (1,

48) = 5.01, p = .030) on the WRMT-PC, differences were not found between grades (F (1, 48) = .512, p = .478) or sessions (F (1, 48) = .763, p = .387) for the QRI-4.

Although differences were found on the WRMT-PC, data were nevertheless combined for grades and for sessions for both CORI-STAR (n = 25) and Guided Reading (n = 25). The reason for this decision was to increase the sample size. In order to increase the likelihood of rejecting the null hypothesis, it is important to have a larger sample. Since the design of the study included small-group instruction for a period of eight weeks, it was necessary to conduct two instructional sessions in order to meet the needs of the struggling third- and fourth-grade readers in the school, and also to increase the statistical power of this experimental study.

Comprehension by Gender

The participants of the study consisted of 30 males and 20 females, with 16 males and 9 females in the CORI-STAR groups, and 14 males and 11 females in the Guided Reading groups. The descriptive statistics revealed scores for males M = 91.80 (9.05) and females M = 90.80 (8.13). Data were analyzed for gender using one-way ANOVAs. There were no statistically significant differences between genders on the WRMT-PC (F (1, 48) = .158, p = .692) or the QRI-4 (F (1, 48) = .914, p = .344).

Comprehension by Instructional Groups

WRMT-PC. The instructional groups for the study were CORI-STAR (n = 25) and Guided Reading (n = 25). The descriptive statistics are reported in Table 16. A one-way ANOVA was used to examine initial performance of the two instructional groups, on the WRMT-PC test. This analysis revealed no statistically significant differences between

groups on the WRMT-PC pretest scores (F (1, 48) = 3.151, p = .082). The results are shown in Table 17.

Table 16 Means and Standard Deviations for WRMT-PC for Instructional Groups

Group	Mean	SD	Minimum	Maximum	N
CORI-STAR	93.52	7.05	77.00	110.00	25
Guided Reading	89.28	9.63	68.00	107.00	25
Total	91.40	8.62	68.00	110.00	50

Table 17 Initial Comprehension Performance of CORI-STAR and Guided Reading on the WRMT-PC

Source	*SS*	*df*	*MS*	*F*	*p*
Between groups	224.72	1	224.72	3.15	.082
Within groups	3423.28	48	71.32		
Total	3648.00	49			

QRI-4. A one-way ANOVA was used to examine initial performance of the two instructional groups on the QRI-4. The descriptive statistics are reported in Table 18. The results revealed no statistically significant differences between groups on the QRI-4 pretest scores (F (1, 48) = .295, p = .590). The results are shown in Table 19.

Table 18 Means and Standard Deviations on QRI-4 for Instructional Groups

Group	Mean	SD	Minimum	Maximum	N
CORI-STAR	3.04	1.64	0.0	6.0	25
Guided Reading	2.76	1.98	0.0	7.0	25
Total	2.90	1.81	0.0	7.0	50

Table 19 Initial Comprehension Performance of Groups on the QRI-4

Source	*SS*	*df*	*MS*	*F*	*p*
Between groups	9.80	1	.980	.295	.590
Within groups	159.52	48	3.32		
Total	160.50	49			

Motivation by Grades and Sessions

One-way analyses of variance were used to examine whether students' performance differed between grades or instructional sessions. The results revealed no statistically significant difference between grades and sessions for self-efficacy (F (1, 48) =.949, p = .335), strategies for self-efficacy (F (1, 48) = .359, p = .064), challenge (F (1, 48) = .491, p = .487), curiosity (F (1, 48) = 3.60, p = .064), and involvement (F (1, 48) = .005, p = .946).

Table 20 shows the means and standard deviations from the MRQ pretest scores for each of the five dimensions of motivation.

Table 20 Means and Standard Deviations for Grades and Sessions on the MRQ

Grade	Session	Self-efficacy Mean (SD)	Strategies Self-efficacy Mean (SD)	Challenge Mean (SD)	Curiosity Mean (SD)	Involvement Mean (SD)	N
3rd	1st	3.37 (.71)	3.06 (.74)	2.95 (1.1)	3.41 (.52)	3.46 (.69)	14
	2nd	3.31(.48)	3.00 (.37)	3.00 (.84)	3.41 (.49)	3.21 (.62)	12
	Total	3.35 (.60)	3.02 (.59)	2.97 (.95)	3.41 (.49)	3.34 (.66)	26
4th	1st	3.02 (.83)	2.67 (.76)	2.60 (.74)	2.74 (.54)	3.08 (.60)	12
	2nd	3.31 (.54)	2.96 (.50)	3.01 (.56)	3.48 (.49)	3.58 (.67)	12
	Total	3.16 (.70)	2.82 (.65)	2.80 (.67)	3.11 (.63)	3.33 (.67)	24
Total	1st	3.21 (.77)	2.88 (.76)	2.79 (.93)	3.10 (.62)	3.28 (.66)	26
	2nd	3.31 (.50)	2.97 (.43)	3.00 (.70)	3.45 (.48)	3.40 (.66)	24
	Total	3.26 (.65)	2.93 (.62)	2.89 (.82)	3.27 (.58)	3.34 (.66)	50

Initial Performance in Motivation between Genders

One-way ANOVAs were performed to determine if there were initial differences between genders on the Motivations for Reading Questionnaire. The results showed no statistically significant difference between genders on motivation dimensions of self-efficacy (F (1, 48) =.124, p = .727), strategies for self-efficacy (F (1, 48) = .000, p =

.996), challenge (F (1, 48) = .154, p = .697), curiosity (F (1, 48) = 2.12, p = .152), and involvement (F (1, 48) = 2.73, p = .105).

Initial Performance in Motivation between Instructional Groups

Instructional groups were examined for initial differences in the motivation dimensions of reading self-efficacy, self-efficacy for strategy use, challenge, curiosity to read, and involvement, as measured by the Motivations for Reading Questionnaire (MRQ) (Wigfield & Guthrie, 1997).

The means and standard deviations for motivation by instructional groups are found in Table 21.

Table 21 Means and Standard Deviations for Instructional Groups on MRQ

Variable	Group	Mean	SD	Variance	N
Self-efficacy	CORI-STAR	3.39	.62	.391	25
	Guided Reading	3.13	.66	.438	25
	Total	3.26	.65	.423	50
Strategies for	CORI-STAR	2.97	.63	.396	25
Self-efficacy	Guided Reading	2.88	.62	.387	25
	Total	2.92	.62	.385	50
Challenge	CORI-STAR	3.05	.82	.675	25
	Guided Reading	2.74	.82	.668	25
	Total	2.89	.82	.683	50
Curiosity	CORI-STAR	3.30	.56	.313	25
	Guided Reading	3.21	.60	.363	25
	Total	3.27	.58	.335	50

Involvement	CORI-STAR	3.64	.46	.219	25
	Guided Reading	3.04	.69	.478	25
	Total	3.34	.58	.433	50

One-way analyses of variance were conducted on pretest scores for each of the five dimensions included in the Motivations for Reading Questionnaire. Initial differences were not statistically significant between groups in reading self-efficacy (F (1, 48) = 2.038, p = .160), self-efficacy for strategy use (F (1, 48) = .215, p = .645), challenge (F (1, 48) = 1.81, p = .185), or curiosity (F (1, 48) = .501, p = .483).

However, a statistically significant difference between groups was found for the motivation dimension of involvement (F (1, 48) = 12.92, p = .001). Initial differences in involvement were found between CORI-STAR [M = 3.64, (.468)] and Guided Reading [M = 3.04, (.691)]. Table 22 displays the results of the one-way ANOVAs for the motivation dimensions examined in this study.

Table 22 Initial Performance on Motivation by Instructional Groups

	Source	*df*	*MS*	*F*	*p*
Self-efficacy	Between Groups	1	0.84	2.04	.160
	Within Groups	48	0.42		
	Total	49			
Strategies for	Between Groups	1	0.08	0.22	.645
Self-efficacy	Within Groups	48	0.39		
	Total	49			
Challenge	Between Groups	1	1.22	1.81	.185
	Within Groups	48	0.67		
	Total	49			
Curiosity	Between Groups	1	0.17	0.50	.483
	Within Groups	48	0.34		
	Total	49			
Involvement	Between Groups	1	4.50	12.92*	.001
	Within Groups	48	0.37		
	Total	49			

* $p < .05$

Initial Performance on Metacognitive Awareness by Grades and Sessions

One-way analyses of variance were used to determine whether students' metacognitive awareness differed by grades and instructional sessions on the pretest Metacomprehension Strategy Index (MSI). The results revealed a statistically significant difference between grades (F (1, 48) = 15.33, p = 000) but not for sessions (F (1, 48) = .520, p = .474) on metacognitive awareness. The means and standard deviations for the Metacomprehension Strategy Index are shown in Table 23.

Table 23 Means and Standard Deviations for Grades and Sessions on the MSI

Grade	Session	MSI Before Reading Mean(SD)	MSI During Reading Mean (SD)	MSI After Reading Mean (SD)	MSI Total Reading Mean (SD)	N
3rd	1st	2.43 (0.11)	3.00 (1.17)	1.42 (0.76)	6.85 (2.11)	14
	2nd	3.67(1.82)	3.00 (1.65)	1.42 (0.99)	8.08 (2.96)	12
	Total	3.00 (1.57)	3.00 (1.38)	1.42 (0.85)	7.42 (2.56)	26
4th	1st	5.42 (1.83)	3.83 (2.44)	2.25 (1.54)	11.50 (5.19)	12
	2nd	5.50 (1.98)	4.16 (2.04)	2.00 (1.47)	11.67 (4.42)	12
	Total	5.45 (1.86)	4.00 (2.21)	2.12 (1.48)	11.58 (4.72)	24
Total	1st	3.81 (2.09)	3.38 (1.87)	1.81 (1.23)	9.00 (4.44)	26
	2nd	4.58 (2.08)	3.58 (1.91)	1.71 (1.26)	9.87 (4.11)	24
	Total	4.18 (2.11)	3.48 (1.87)	1.76 (1.24)	9.42 (4.26)	50

Initial Performance on Metacognitive Awareness by Gender

One-way ANOVAs with gender as the independent variable were performed on students' before reading, during reading, after reading, and total reading metacognitive awareness scores from the Metacomprehension Strategy Index. The results showed no statistically significant differences between genders on metacognitive awareness for before reading (F (1, 48) = .766, p = .386), during reading (F (1, 48) = .134, p = .716), after reading (F (1, 48) = .781, p = .381), and total reading metacognitive awareness (F (1, 48) = .722, p = .400).

Initial Performance on Metacognitive Awareness by Groups

The students were administered the Metacomprehension Strategy Index as a pretest to determine their metacognitive awareness of the reading process. The means and standard deviations of students' scores for before, during, after reading, and total reading are shown in Table 24.

Table 24 Means and Standard Deviations for the Metacomprehension Strategy Index

Variable	Group	Mean	SD	Variance	N
Before Reading	CORI-STAR	4.40	2.34	5.50	25
	Guided Reading	3.96	1.85	3.62	25
	Total	4.18	2.11	4.44	50
During Reading	CORI-STAR	3.04	1.86	3.45	25
	Guided Reading	3.92	1.82	3.33	25
	Total	3.48	1.87	3.52	50
After Reading	CORI-STAR	2.00	1.32	1.70	25
	Guided Reading	1.52	1.12	1.76	25
	Total	1.76	1.24	1.53	50
Total Reading	CORI-STAR	9.44	4.52	20.42	25
	Guided Reading	9.40	4.10	16.75	25
	Total	9.42	4.26	18.21	50

One-way ANOVAs with instructional group as the independent variable were conducted to explore possible differences in initial metacognitive awareness performance as measured by the Metacomprehension Strategy Index (MSI). There were no statistically significant differences at the $p < .05$ level in MSI scores between instructional groups for before reading (F (1, 48) = .540, p = .466), during reading (F (1, 48) = 2.85, p = .098), after reading (F (1, 48) = 1.91, p = .173), and total reading metacognitive awareness (F (1, 48) = .001, p = .974), as shown in Table 25.

Table 25 Initial Performance in Metacognitive Awareness by Instructional Groups

	Source	*df*	*MS*	*F*	*p*
Before Reading	Between groups	1	2.42	0.54	.466
	Within groups	48	4.47		
	Total	49			
During Reading	Between groups	1	9.68	2.85	.098
	Within groups	48	3.39		
	Total	49			
After Reading	Between groups	1	2.88	1.91	.173
	Within groups	48	1.51		
	Total	49			
Total Reading	Between groups	1	0.20	0.01	.974
	Within groups	48	18.57		
	Total	49			

**p<.05.

Summary of Initial Performance Data

The analyses of initial data for measures of comprehension, motivation, and metacognitive awareness indicated statistically significant differences between instructional sessions and grades for one measure of comprehension, the WRMT-PC, but

not for the QRI-4 measure of comprehension. It also revealed statistically significant differences for metacognitive awareness on the MSI for grades, but not for sessions. There were no statistically significant differences on the motivation measure, the MRQ, for either grade or instructional session.

Initial performance data on genders showed no statistically significant differences between genders for any of the three dependent variables: comprehension, motivation, and metacognitive awareness.

The initial performance data on instructional groups of CORI-STAR and Guided Reading showed no statistically significant differences between groups for comprehension, as measured by the WRMT-PC and the QRI-4, or for metacognitive awareness, as measured by the MSI. Statistically significant differences were shown between CORI-STAR and Guided Reading instructional groups for the involvement dimension of reading motivation. However, statistically significant differences were not shown for the other four dimensions of motivation: self-efficacy, strategies for self-efficacy, challenge, or curiosity, as measured on the MRQ.

Initial performance data were analyzed to determine equivalence between grades, sessions, genders, and groups prior to the study for the purpose of insuring external validity and generalizability to other populations. Initial performance differences were not found on any measures for genders. Initial differences were not found between groups for the comprehension measures, the metacognitive awareness measure, or on four of the five dimensions of motivation; however, differences were found between groups for the involvement dimension of motivation. Although differences existed between grades and

sessions on the WRMT-PC test, and for grades on the MSI test; differences were not found on the QRI-4 measure, or on the MRQ test.

Instructional groups for the study were considered to be equivalent because statistically significant differences were not found on pretest data from the WRMT-PC and QRI-4 measures of comprehension, the MSI measure of metacognitive awareness, and the MRQ measure for four of the five dimensions of motivation. The data for grades and sessions were combined for the WRMT-PC measure in order to have a larger sample size and increase the likelihood of rejecting the null hypothesis.

In this study, the students who were randomly assigned by their grade-level classrooms to either the CORI-STAR group or the Guided Reading group appeared to be similar in their initial performance; therefore, data were combined for grades and sessions for CORI-STAR (n = 25) and Guided Reading (n = 25). Given these results, instructional groups appeared to be equivalent at the time of the pretests. It was determined that in order to meet the needs of the struggling third- and fourth-grade students in the school within small-group instruction for a period of eight weeks, it was necessary to conduct two instructional sessions. The increase in student numbers for both sessions increased the statistical power of the experimental study.

Impact of Supplemental Instruction on Groups

The first research question was multifaceted and examined the effect of supplemental group instruction on students' reading comprehension, metacognitive awareness, and motivation. Data obtained from the Maze, Woodcock Reading Mastery Test Passage Comprehension test (WRMT- PC), and QRI-4 comprehension questions and QRI-4 retelling were analyzed for comprehension effects. Data from the

Metacomprehension Strategy Index were analyzed for metacognitive awareness effects, and the data obtained from Motivations for Reading Questionnaire (MRQ) were analyzed for reading motivation effects in five areas: challenge, curiosity, involvement, self-efficacy and self-efficacy strategy use. For each investigation, I used a mixed ANOVA with one between-subjects factor (treatment group) and one within-subjects factor (time of test). A correlation table of the measures used for this study is shown in Appendix U.

Effect sizes will be reported for each mixed ANOVA using partial eta squared. Partial eta squared values range from zero to one. According to the guidelines proposed by Cohen (1988), .01 is considered a small effect size, .06 a moderate effect size, and .14 a large effect size.

Students' Performance: Reading Comprehension

This study involved three different measures of reading comprehension: the Maze, Woodcock Reading Mastery Test – Passage Comprehension, and the QRI-4 comprehension questions and retelling. The relationship among the three comprehension measures was investigated using Pearson product-moment correlation coefficient. Cohen (1988) suggests the following guidelines for interpreting the strength of the correlation relationship between two variables: r = .10 to .29 or r = -.10 to -.29 = small correlation value, r = .30 to .49 or r = -.30 to -.49 represents a medium correlation value and r = .50 to 1.0 or r = -.50 to -1.0 represents a large correlation value.

Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. Using Cohen's guidelines, the correlation between the Maze and the QRI-4 questions variables was medium [$r = .304$, $n = 50$, $p < .05$], whereas the correlation between the Maze and the WRMT-Passage Comprehension

test was small [r = .228, n = 50]. There was a large positive correlation between the WRMT- Passage Comprehension test and the QRI-4 comprehension test [r = .500, n = 50, p < .01].

Maze. The Maze was administered using two grade-level passages in counterbalanced order as pretest and posttest. The means and standard deviations are presented in Table 26. A mixed ANOVA with one between-subjects factor and one within-subjects factor was conducted to compare CORI-STAR and Guided Reading students' scores on the Maze test at Time 1 (prior to the intervention), and Time 2 (following the intervention). The error variance of the dependent variable was equal across groups as indicated by Levene's Test of Equality (F (1, 48) = .769, p = .385) for the pretest, and (F (1, 48) = .025, p = .876) for the posttest.

The results indicated that the main effect for group was not statistically significant (F (1, 48) = 3.206, p = .080), with a partial eta squared of .063. However, there was a statistically significant main effect for time (F (1, 48) = 21.79, p = .000), with a very large partial eta squared of .312. Students performed better at Time 2 than Time 1. There was not a statistically significant interaction for time and group (F (1, 48) = 1.27, p = .265), with a partial eta squared of .026. Thus, students' performance improved from Time 1 to Time 2 on the Maze, but there was no effect for group. Table 27 presents the F tables for these analyses.

Table 26 Means and Standard Deviations of Maze scores

	Group	Mean (SD)	Min.	Max.	Variance	N
Maze Pretest	CORI-STAR	12.68 (5.78)	0	21	33.48	25
	Guided Reading	10.80 (6.35)	0	21	40.33	25
	Total	11.74 (6.08)	0	21	37.05	25
Maze Posttest	CORI-STAR	16.28 (5.28)	4	22	27.87	25
	Guided Reading	13.00 (4.63)	7	22	21.42	25
	Total	14.64 (5.18)	4	22	26.88	50

Note: The highest possible score was 22.

Table 27 Mixed ANOVA for Maze Reading

Source	*df*	*SS*	*MS*	*F*	*p*	*Partial Eta Squared*
Between Subjects	1	166.41	166.41	3.21	.080	.063
Error (between)	48	2491.48	51.91			
Within Subjects						
Time	1	210.25	210.25	21.79**	.000	.312
Time x Group	1	12.25	12.25	1.27	.265	.026
Error (within)	48	463.00	9.64			

***p < .001*

Woodcock Reading Mastery Test- Passage Comprehension. The WRMT-PC was administered as a pretest (Form G) and posttest (Form H). The means and standard deviations are presented in Table 28.

Table 28 Means and Standard Deviations of the WRMT-PC Test

	Group	Mean (SD)	Min.	Max.	Variance	N
WRMT-PC Pretest	CORI-STAR	93.52 (7.06)	77	110	49.84	25
	Guided Reading	89.28 (9.63)	68	107	92.79	25
	Total	91.40 (8.62)	68	110	74.45	50
WRMT-PC Posttest	CORI-STAR	99.96 (10.34)	83	124	106.87	25
	Guided Reading	87.08 (12.66)	57	113	160.41	25
	Total	93.52 (13.16)	57	124	173.23	50

A mixed ANOVA with one between-subjects factor and one within-subjects factor was conducted to compare CORI-STAR and Guided Reading students' standard scores on the WRMT-PC at Time 1 (prior to the intervention), and Time 2 (following the intervention). The results are presented in Table 29. The error variance of the dependent variable was equal across groups as indicated by Levene's Test of Equality (F (1, 48) = 1.781, p = .188) for the pretest, and (F (1, 48) = .416, p = .522) for the posttest.

The ANOVA indicated that the main effect for group was statistically significant (F (1, 48) = 10.463, p = .002), with a very large partial eta squared of .179, while the main effect of time was not statistically significant, (F (1, 48) = 3.76, p = .058), with a partial eta squared of .073. The interaction of time and group was statistically significant

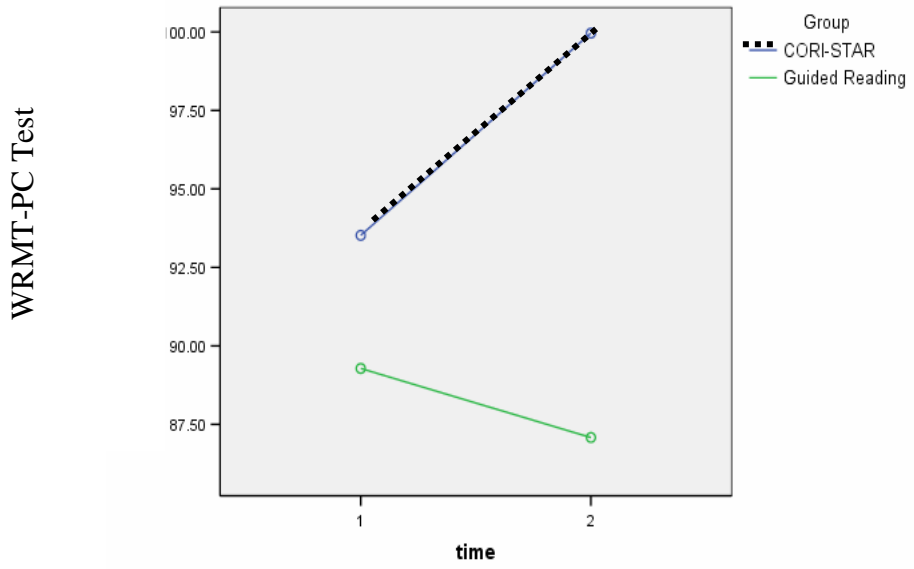
(F (1, 48) = 15.616, p = .000), with a very large partial eta squared of .245. The statistically significant interaction of time and group indicates the change in reading scores from pretest to posttest on the WRMT-PC was not the same for the 2 groups. As can be seen in Figure 3, students in the CORI-STAR group increased in reading comprehension from Time 1 to Time 2, whereas scores for the Guided Reading students appear to have changed very little. There was a very large effect size for this interaction.

Table 29 Mixed ANOVA for WRMT - Passage Comprehension Test

Source	*df*	*SS*	*MS*	*F*	*p*	*Partial eta Squared*
Between Subjects						
Group	1	1831.84	1831.84	10.46*	.002	.179
Error (between)	48	8404.00	175.08			
Within Subjects						
Time	1	112.36	112.36	3.76	.058	.073
Time x Group	1	466.56	466.56	15.62**	.000	.135
Error (within)	48	34.26				

** $p < .05$, **$p < .001$*

Figure 3 Graph of Interaction from the WRMT-PC test for CORI-STAR and Guided Reading



QRI-4 comprehension. QRI-4 comprehension was scored in two ways: by students individually answering four implicit and four explicit questions after reading a passage and by students' retelling of the main propositions of the story after reading. The explicit and implicit questions were scored and totaled to receive a QRI-4 comprehension questions score. The retelling score was determined from the number of propositions recalled during students' verbal retelling in relation to the scoring rubric (See Appendix K). The means and standard deviations for QRI-4 comprehension questions and retelling are presented in Table 30.

Table 30 Means and Standard Deviations of the QRI-4 Questions and Retelling

	Group	Mean (SD)	Min.	Max.	Variance	N
QRI-4 Pretest-Questions	CORI-STAR	3.04 (1.64)	0	2	2.71	25
	Guided Reading	2.76 (1.98)	0	2	3.94	25
	Total	2.90 (1.81)	0	2	3.27	50
QRI-4 Posttest Questions	CORI-STAR	6.92 (1.11)	0	2	1.24	25
	Guided Reading	3.48 (1.96)	0	2	3.84	25
	Total	5.20 (2.35)	0	2	5.10	50
QRI-4 Pretest Retelling	CORI-STAR	.64 (0.56)	0	6	.32	25
	Guided Reading	.60 (0.50)	0	7	.25	25
	Total	.62 (0.53)	0	7	.28	50
QRI-4 Posttest Retelling	CORI-STAR	1.64 (0.56)	3	8	.32	25
	Guided Reading	.92 (0.76)	0	7	.57	25
	Total	1.28 (0.76)	0	8	.57	50

Note: Highest possible score for questions was 8; highest possible score for retelling was 2.

Mixed ANOVAs with one between-subjects factor and one within-subjects factor were conducted to compare students' scores on the QRI-4 comprehension questions and retelling at Time 1 (prior to the intervention) and Time 2 (following the intervention). The results of the mixed ANOVAs for comprehension questions and retelling are presented in Table 31.

Table 31 Mixed ANOVAs for QRI-4 Comprehension Questions and Retelling

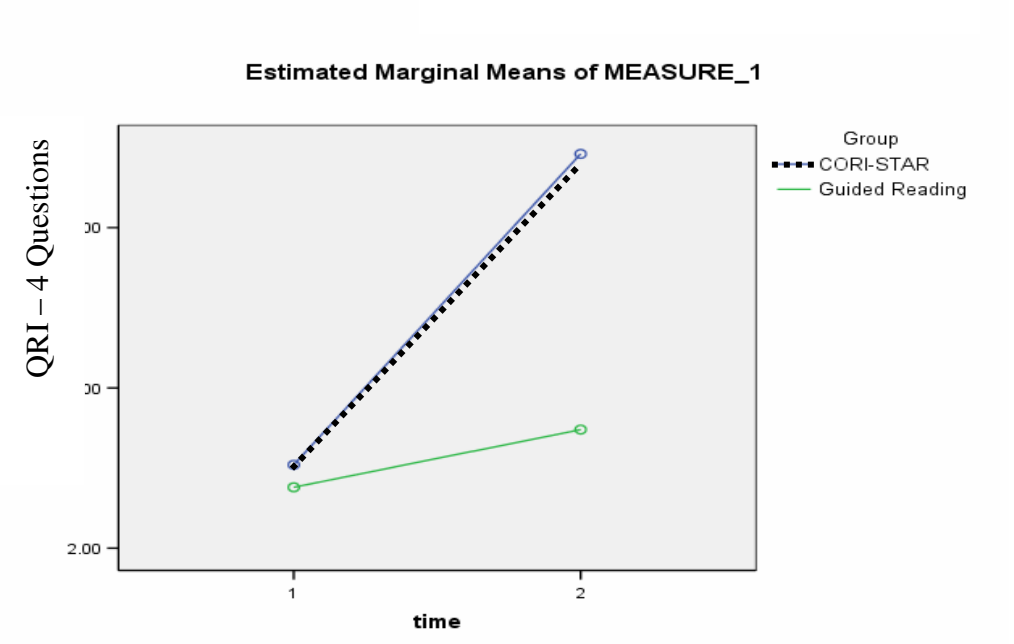
Source	*df*	*SS*	*MS*	*F*	*p*	*Partial eta Squared*
Comprehension Questions						
Between Subjects						
Group	1	86.49	86.49	19.79**	.000	.292
Error (between)	48	209.76	4.37			
Within Subjects						
Time	1	132.25	132.25	88.36**	.000	.648
Time x Group	1	62.41	62.41	41.69**	.000	.465
Error (within)	48					
Comprehension Retelling						
Between Subjects						
Group	1	3.61	3.61	10.41*	.002	.178
Error (between)	48	.347	.35			
Within Subjects						
Time	1	10.89	10.89	27.92**	.000	.368
Time x Group	1	2.89	2.89	7.41*	.009	.134
Error (within)	48					

** $p < .05$, **$p < .001$*

For QRI-4 comprehension questions, the error variance of the dependent variable was equal across groups as indicated by Levene's Test of Equality (F (1, 48) = 1.12, p = .294) for QRI-4 comprehension questions and (F (1, 48) = .425, p = .518) for QRI-4 retelling on pretest scores. The main effect for group for comprehension questions was statistically significant (F (1, 48) = 19.79, p = .000), with a very large partial eta squared of .292, and also a statistically significant main effect for time for total comprehension questions (F (1, 48) = 88.36, p = .000), with a very large partial eta squared of .648. The interaction of time and group was statistically significant (F (1, 48) = 41.69, p = .000), with a very large partial eta squared of .465.

The statistically significant interaction of time and group indicates the change in reading scores from pretest to posttest on the QRI-4 reading comprehension questions was not the same for CORI-STAR and Guided Reading. As can be seen in Figure 4, students in the CORI-STAR group increased in reading comprehension from Time 1 to Time 2, whereas scores for the Guided Reading students changed very little. Indeed, there was a very large effect size of .465 for the interaction.

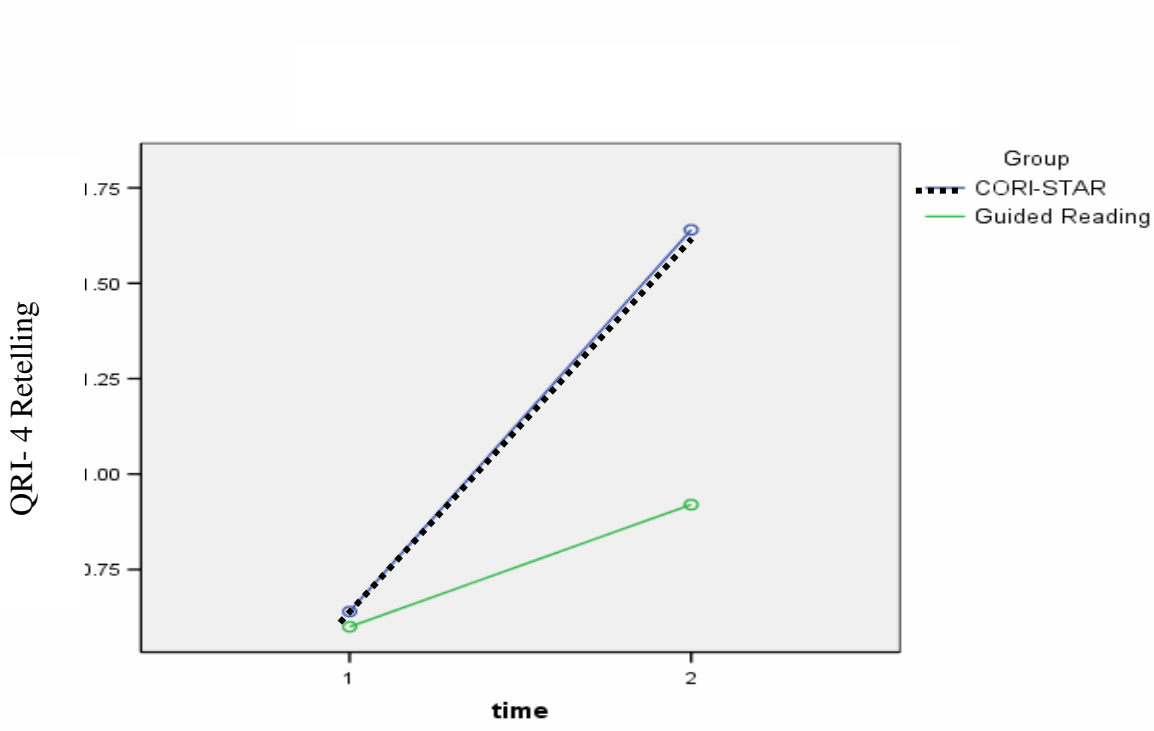
Figure 4 Graph of Interaction from QRI-4 Questions on Groups' Comprehension



For QRI-4 retelling, the main effect for group was statistically significant (F (1, 48) = 10.413, p = .002), with a very large partial eta squared of .178, and also a statistically significant main effect for time for total comprehension retelling (F (1, 48) = 27.92, p = .000), with a very large partial eta squared of .368. The interaction of time and group was statistically significant (F (1, 48) = 7.41, p = .009), with a large partial eta squared of .134.

The interaction of time and group is illustrated graphically in Figure 5. The students in the CORI-STAR group increased in reading comprehension retelling from Time 1 to Time 2, while Guided Reading students changed very little. There was a large effect size of .134 for the interaction.

Figure 5 Graph of Interaction from QRI-4 Retelling on Groups' Comprehension



Summary of the results from the comprehension measures. The results of the three comprehension measures indicated a statistically significant main effect for group for the WRMT-PC (F (1, 48) = 10.46, p = .002), QRI-4 questions (F (1, 48) = 19.79, p = .000), and QRI-4 retelling (F (1, 48) = 10.41, p = .002).

There was also a statistically significant main effect for time for the Maze test (F (1, 48) = 21.79, p = .000), QRI-4 retelling (F (1, 48) = 27.92, p = .000), and for the QRI-4 questions (F (1, 48) = 88.36, p = .000).

Finally, and most importantly for this study, there were statistically significant interactions for time and group on the WRMT-PC (F (1, 48) = 15.61, p = .000), the QRI-4 questions (F (1, 48) = 41.70, p = .000), and the QRI-4 retelling (F (1, 48) = 41.70, p = .000). Thus for all three comprehension measures, a difference was found between

CORI-STAR and Guided Reading at Time 2, even though differences were not found between groups at Time 1. These interactions reveal that students' comprehension performance increased more for the CORI-STAR group during the time of the study than for the Guided Reading group during the same time.

Students' Performance on a Measure of Metacognitive Awareness

Metacognitive awareness was examined using the Metacomprehension Strategy Index (MSI) (Schmitt, 1990). This measure assessed students' awareness of strategy use before, during, and after reading. Four mixed ANOVAs with one between-subjects factor and one within-subjects factor were conducted to compare students' MSI scores before reading, during reading, after reading, and total reading at Time 1 (prior to the intervention) and at Time 2 (following the intervention). Table 32 reveals the means and standard deviations.

Table 32 Means and Standard Deviations of the Metacomprehension Strategy Index

	Group	Pretest Mean (SD)	Posttest Mean (SD)	Total Mean (SD)	Difference	N
Before Reading	CORI-STAR	4.40 (2.34)	6.32 (2.92)	5.36 (2.63)	2.32	25
	Guided Reading	3.96 (1.86)	4.56 (2.20)	4.26 (2.03)	.60	25
	Total	4.18 (2.11)	5.44 (2.71)	4.81 (2.41)	1.26	50
During Reading	CORI-STAR	3.04 (1.86)	6.84.(2.67)	4.94 (2.26)	3.80	25
	Guided Reading	3.92 (1.82)	4.48 (2.02)	4.20 (1.92)	.56	25
	Total	3.48 (1.87)	5.66 (2.63)	4.57 (2.25)	2.18	50
After Reading	CORI-STAR	2.00 (1.32)	2.60 (1.08)	2.30 (1.20)	.60	25
	Guided Reading	1.52 (1.12)	2.16 (1.03)	1.84 (1.07)	.64	25
	Total	1.76 (1.23)	2.38 (1.07)	2.07 (1.15)	.62	50
Total Reading	CORI-STAR	9.44 (4.51)	15.76 5.82)	12.60 (5.16)	6.32	25
	Guided Reading	9.40 (4.09)	11.16 (4.06)	10.28 (4.07)	1.76	25
	Total	9.42 (4.26)	13.46 (5.48)	11.44 (4.87)	4.04	50

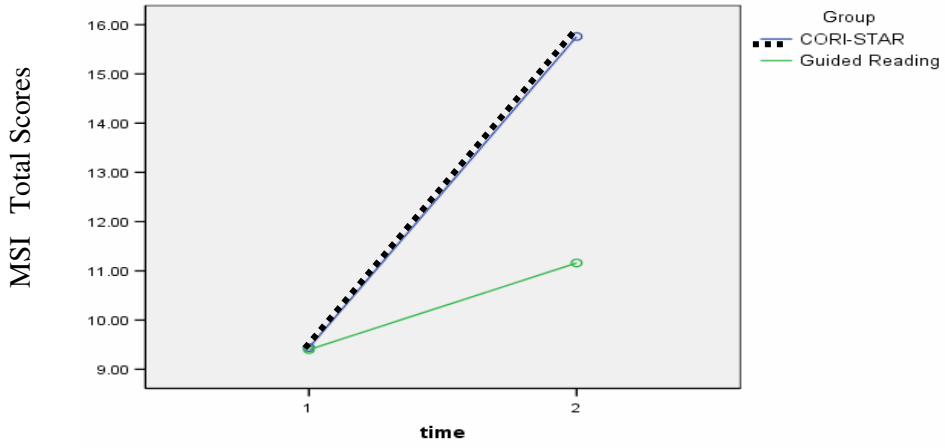
Note: Highest possible score was 10 for Before Reading, 10 for During Reading, 5 for After Reading, and 25 for Total Reading.

The error variance of the dependent variable was equal across both groups for total reading pretests as indicated by Levene's test of Equality (F (1, 48) = .866, p = .357). The MSI consists of three components: before reading strategies, during reading strategies, and after reading strategies. The total from each of these three components is known as the total score for the MSI. Four mixed ANOVAs were conducted on before reading, during reading, after reading, and total scores at Time 1 (prior to the

intervention) and Time 2 (following the intervention). The results of the mixed ANOVAs are presented in Table 32.

Total reading metacognitive awareness from MSI. For total reading metacognitive awareness, the main effect for group was statistically significant (F (1, 48) = 4.257, p = .045), with a moderate partial eta squared of .081, and the main effect for time was also statistically significant (F (1, 48) = 33.48, p = .000), with a very large partial eta squared of .411. The interaction of time and group was statistically significant (F (1, 48) = 10.66, p = .002), with a very large partial eta squared of .182. The interaction of time and group indicates the change in metacognitive awareness scores from pretest to posttest on the MSI was not the same for the two groups. As can be seen in Figure 6, students in the CORI-STAR group increased in metacognitive awareness from Time 1 to Time 2, whereas scores for the Guided Reading students appear to have changed very little. The partial eta squared of .182 represents a very large effect size.

Figure 6 Graph of the Interaction for Total Metacognitive Awareness Scores

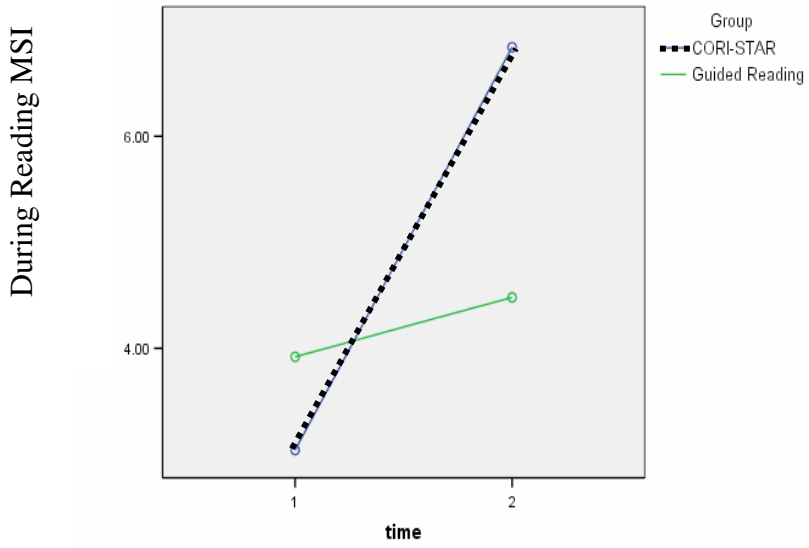


After determining that the total scores for the MSI were statistically significant, I performed further analyses on data from the three components of reading: before reading, during reading, and after reading to determine whether differences existed on metacognitive awareness.

Before reading metacognitive awareness from the MSI. A mixed ANOVA for before reading metacognitive awareness indicated that the main effect for group was not statistically significant (F (1, 48) = 3.58, p = .064), with a partial eta squared of .070, while the main effect for time was statistically significant (F (1, 48) = 14.44, p = .000), with a very large partial eta squared of .231. Students performed better at the posttest. There was no interaction for time and group (F (1, 48) = 9.95, p = .052), with a partial eta squared of .076.

During reading metacognitive awareness from the MSI. A mixed ANOVA for during reading metacognitive awareness indicated that the main effect for group was not significant (F (1, 48) = 2.35, p = .132), with a partial eta squared of .047, while the main effect for time was statistically significant (F (1, 48) = 37.25, p = .000), with a very large partial eta squared of .437. The interaction of time and group was statistically significant (F (1, 48) = 20.57, p = .001), with very large a partial eta squared of .300.

Figure 7 Graph of the Interaction for During Reading Metacognitive Awareness Scores



After reading metacognitive awareness from the MSI. A mixed ANOVA for after reading metacognitive awareness indicated that the main effect for group was not statistically significant (F (1, 48) = 3.18, p = .081), with a partial eta squared of .062, while the main effect of time was statistically significant (F (1, 48) = 10.05, p = .003), with a large partial eta squared of .173. There was no interaction for time and group (F (1, 48) = .010, p = .919), with a partial eta squared of .000.

Summary of the results of the MSI. A review of the MSI results showed a statistically significant effect for group for total reading and a statistically significant main effect for time for before reading, during reading, after reading, and total reading. There was a statistically significant interaction on metacognitive awareness for time and group for during reading and for total reading. The statistically significant interaction for during reading showed a very large partial eta squared of .300 and the interaction for total

reading had a large partial eta squared of .182. These interactions for time and group indicate positive gains for the students in the CORI-STAR group whose metacognitive awareness scores improved more from pretest to posttest than students in the Guided Reading group. Table 33 shows the results of the mixed ANOVAs.

Table 33 Mixed ANOVAs for Total Score on MSI

Source	*df*	*SS*	*MS*	*F*	*p*	*Partial Eta squared*
Total MSI Scores						
Between Subjects						
Group	1	134.56	134.56	4.25*	.045	.081
Error (between)	48	1517.08	31.60			
Within Subjects						
Time	1	408.04	408.04	33.48**	.000	.411
Time x Group	1	129.96	129.96	10.66*	.002	.182
Error (within)	48	585.00	12.18			
Before Reading Strategies						
Between Subjects						
Group	1	30.25	30.25	3.58	.064	.070
Error (between)	48	404.64	8.430			
Within Subjects						
Time	1	39.69	39.69	14.44**	.000	.231
Time x Group	1	10.89	10.89	3.96	.052	.076
Error (within)	48	131.92	2.75			
During Reading						
Between Subjects						
Group	1	13.69	13.69	2.35	.132	.047

Error (between)	48	279.32	5.82			
Within Subjects						
Time	1	118.81	118.81	37.25**	.000	.437
Time x Group	1	65.61	65.61	20.57**	.000	.300
Error (within)	48	153.08	3.19			
After Reading Strategies						
Between Subjects						
Group	1	5.29	5.29	3.18	.081	.062
Error (between)	48	79.72	1.66			
Within Subjects						
Time	1	9.61	9.61	10.05*	.003	.173
Time x Group	1	.01	.01	.01	.919	.000
Error (within)	48	45.88	.956			

* $p < .05$, **$p < .001$

Students' Reading Motivation

Reading motivation was assessed using the Motivations for Reading Questionnaire (MRQ). Students' data were analyzed for total motivation and for the five dimensions of motivation examined in this study: self efficacy, strategies for self-efficacy, challenge, curiosity, and involvement. The error variance of the students' pretest scores on the dependent variable was equal across groups for four of the five variables, as indicated by Levene's Test of Equality for self-efficacy (F (1, 48) = .08, p = .779), strategies for self-efficacy (F (1, 48) = .704, p = .406), challenge (F (1, 48) = .054, p = .817), and curiosity (F (1, 48) = .546, p = .464). However, unequal variances were found for involvement (F (1, 48) = 4.36, p = .042). Table 34 reveals the means and standard deviations of each of the dimensions of motivation examined in this study.

Table 34 Means and Standard Deviations of Groups' Pretest and Posttest Motivation Scores

	Group	Pretest Mean (SD)	Posttest Mean (SD)	Total Mean (SD)	Difference	N
Total Motivation Scores	CORI-STAR	16.35 (2.20)	16.56 (2.60)	16.46 (2.40)	.21	25
	Guided Reading	15.06 (2.40)	14.30 (3.20)	14.68 (2.80)	-.76	25
	Total	15.71 (2.40)	15.43 (3.10)	15.57 (2.80)	-.28	50
Self-efficacy	CORI-STAR	3.39 (0.63)	3.44 (0.56)	3.42 (0.59)	.05	25
	Guided Reading	3.13 (0.66)	2.94 (0.91)	3.04 (0.78)	-.19	25
	Total	3.26 (0.65)	3.19 (0.79)	3.23 (0.72)	-.07	50
Strategies for Self-efficacy	CORI-STAR	2.96 (0.63)	3.16 (0.55)	3.06 (0.59)	.20	25
	Guided Reading	2.88 (0.62)	2.76 (0.83)	2.82 (0.73)	-.12	25
	Total	2.92 (0.62)	2.96 (0.73)	2.94 (0.67)	.04	50
Challenge	CORI-STAR	3.05 (0.82)	3.18 (0.69)	3.12 (0.75)	.13	25
	Guided Reading	2.74 (0.82)	2.55 (0.87)	2.65 (0.84)	-.19	25
	Total	2.89 (0.83)	2.86 (0.84)	2.88 (0.84)	-.03	50
Curiosity	CORI-STAR	3.32 (0.56)	3.44 (0.66)	3.38 (0.60)	.12	25
	Guided Reading	3.21 (0.60)	3.05 (0.75)	3.13 (0.67)	-.16	25
	Total	3.27 (0.58)	3.24 (0.72)	3.26 (0.65)	-.03	50
Involvement	CORI-STAR	3.64 (0.46)	3.30 (0.76)	3.47 (0.61)	-.34	25
	Guided Reading	3.04 (0.69)	3.04 (0.80)	3.04 (0.75)	.00	25
	Total	3.34 (0.66)	3.17 (0.78)	3.26 (0.72)	-.17	50

Note: The highest possible score for each motivation dimension was 4.

Total motivation. Mixed ANOVAs with one between-subjects factor and one within-subjects factor were conducted to compare CORI-STAR and Guided Reading students' scores on the MRQ for total motivation score and for each of the five motivation dimensions at Time 1 (prior to the intervention) and Time 2 (following the intervention). The mixed ANOVA for total motivation showed a statistically significant main effect for group (F (1, 48) = 7.19, p = .01), with a moderate partial eta squared of .130. The CORI-STAR group scored higher on total motivation than the Guided Reading group. However, a statistically significant main effect for time was not shown (F (1, 48) = .636, p = .429), with a partial eta squared of .013. The interaction for time and group was not statistically significant (F (1, 48) = 1.978, p = .166), with a partial eta squared of .040. Analyses were also conducted on the five dimensions of motivation examined in this study: self-efficacy, strategies for self-efficacy, challenge, curiosity, and involvement.

Motivation dimension of self-efficacy. For the dimension of self-efficacy, the main effect for group was statistically significant (F (1, 48) = 4.21, p = .046), with a moderate partial eta squared of .081. The CORI-STAR group scored higher on self-efficacy than the Guided Reading group. However, the main effect for time was not statistically significant (F (1, 48) = .938, p = .338), with a partial eta squared of .019. There was no statistically significant interaction for time and group (F (1, 48) = 2.75, p = .103), with a partial eta squared of .054.

Motivation dimension of strategies for self-efficacy. For the dimension of strategies for self-efficacy, the main effect for group was not statistically significant (F (1, 48) = 2.10, p = .153), with a partial eta squared of .042, and the main effect for time was not

statistically significant (F (1, 48) = .140, p = .710), with a partial eta squared of .003. There was no statistically significant interaction for time and group (F (1, 48) =.2.9, p =.09), with a partial eta squared of .059.

Motivation dimension of challenge. For the dimension of challenge, the main effect for group was statistically significant (F (1, 48) = 6.04, p = .018), with a moderate partial eta squared of .112. The CORI-STAR group scored higher on the challenge dimension than the Guided Reading group. However, the main effect for time was not statistically significant (F (1, 48) = .049, p = .826), with a partial eta squared of .001. There was no statistically significant interaction for time and group (F (1, 48) = 1.7, p = .189), with a partial eta squared of .036.

Motivation dimension of curiosity. For the dimension of curiosity, the main effect for group was not statistically significant, (F (1, 48) = 2.62, p = .112), with a partial eta squared of .052, and the main effect for time was not statistically significant (F (1, 48) = .06, p = .807), with a partial eta squared of .001. There was no interaction for time and group (F (1, 48) = 2.1, p = .154), with a partial eta squared of .042.

Motivation dimension of involvement. For the dimension of involvement, the main effect for group was statistically significant, (F (1, 48) = 7.85, p = .007), with a large partial eta squared of .141, while the main effect for time was not statistically significant (F (1, 48) = 1.93, p = .171), with a partial eta squared of .039. There was no statistically significant interaction for time and group (F (1, 48) = 1.93, p = .171), with a partial eta squared of .039. Table 35 shows the mixed ANOVAs.

Table 35 Mixed ANOVAs for Dimensions of Reading Motivation

Source	*df*	*SS*	*MS*	*F*	*p*	*Partial eta squared*
Total Motivation						
Between Subjects						
Group	1	79.17	79.17	7.19*	.01	.979
Error (between)	48	528.56	11.01			
Within Subjects						
Time	1	1.89	1.89	.63	.43	.013
Time x Group	1	5.88	5.88	1.97	.16	.040
Error (within)	48	142.84	2.97			
Self-efficacy						
Between Subjects						
Group	1	3.61	3.61	4.21*	.046	.081
Error (between)	48	.86				
Within Subjects						
Time	1	.12	.12	.94	.338	.019
Time x Group	1	.36	.36	2.76	.103	.054
Error (within)	48	6.26	.13			
Strategies for Self-Efficacy						
Between Subjects						
Group	1	1.44	1.44	2.10	.153	.042
Error (between)	48	32.79	.68			

Within Subjects						
Time	1	.029	.029	.14	.710	.003
Time x Group	1	.623	.623	2.98	.091	.059
Error (within)	48	10.12	.209			
Challenge						
Between Subjects						
Group	1	5.59	5.59	6.04*	.018	.112
Error (between)	48	44.52	.93			
Within Subjects						
Time	1	.02	.02	.05	.826	.001
Time x Group	1	.65	.65	1.77	.189	.036
Error (within)	48	17.56	.36			
Curiosity						
Between Subjects						
Group	1	1.60	1.60	2.62	.112	.052
Error (between)	48	29.34	.61			
Within Subjects						
Time	1	.01	.01	.06	.807	.001
Time x Group	1	.47	.47	2.10	.154	.042
Error (within)	48	10.68	.22			

Involvement						
Between Subjects						
Group	1	4.62	4.62	7.85*	.007	.141
Error (between)	48	28.25	.58			
Within Subjects						
Time	1	.72	.72	1.93	.171	.039
Time x Group	1	.72	.72	1.93	.171	.039
Error (within)	48	17.93	.37			

* p < .05, **p < .001

Summary of the results of the MRQ. The main effect for group was statistically significant for total motivation (F (1, 48) = 7.19, p = .01) and for three of the five motivation dimensions: self-efficacy (F (1, 48) = 4.21, p = .046), challenge (F (1, 48) = 6.04, p = .018), and involvement (F (1, 48) = 7.85, p =.007). The CORI-STAR group scored higher on each of these motivation dimensions compared to the Guided Reading group. There were no statistically significant main effects for time for total motivation or any of the five dimensions. There was also no interaction for time and group for total motivation or for the five motivation dimensions.

Transference of Strategy Use to the Classroom

The second research question examined teachers' observations of their students' transference of strategy use from the supplementary instruction group to their classroom reading group. Classroom teachers ranked their students' strategy use in the classroom as

a result of the intervention by completing the 8-item Teacher's Perception of Students' Strategy Use Questionnaire prior to the intervention and at the conclusion of the intervention. Teachers ranked their students' use of reading strategies on a 5-point Likert scale, with possible scores ranging from 8-40. The means and standard deviations for the Teacher's Perceptions of Students' Strategy Use Questionnaire are shown in Table 36.

Table 36 Means and Standard Deviations of the Teacher's Perception of Students' Strategy Use Questionnaire

Group	Pretest Mean (SD)	Posttest Mean (SD)	Total Mean (SD)	Difference	N
CORI-STAR	19.28 (6.60)	28.04 (6.90)	23.66 (6.75)	8.76	25
Guided Reading	19.87 (6.85)	26.29 (7.38)	23.08 (7.12)	6.42	25
Total	19.57 (6.66)	27.18 (7.12)	23.37 (6.89)	7.61	50

Note: The highest possible score was 40.

A mixed ANOVA with one between-subjects factor and one within-subjects factor was conducted to compare CORI-STAR and Guided Reading students' transference of strategy use at Time 1 (prior to the intervention) and at Time 2 (following the intervention).

The error variance of the dependent variable was equal across groups for the pretest, as indicated by Levene's Test of Equality (F (1, 48) = .290, p = .593), and for the posttest (F (1, 48) = .274, p = .603).

The main effect for group was not statistically significant (F (1, 48) = .186, p = .668), with a partial eta squared of .004, while the main effect for time was statistically

significant (F (1, 48) = 153.14, p = .000), with a very large partial eta squared of .761. There was no statistically significant interaction of time and group (F (1, 48) = 2.78, p = .102).

The results of the Teacher's Perception of Students' Strategy Use Questionnaire (TPSSUQ) revealed a main effect for time. Teachers perceived an increase in students' transference of strategy use from Time 1 to Time 2 for both the CORI-STAR group and the Guided Reading group. The results of the questionnaire reflected teachers' perceptions that their students increased their use of reading strategies as a result of participation in either supplementary group. Table 37 shows the results of the mixed ANOVA.

Table 37 Mixed ANOVA for Teacher's Perception of Students' Strategy Use Questionnaire

Source	*df*	*SS*	*MS*	*F*	*p*	*Partial eta squared*
Between Subjects						
Group	1	16.00	16.00	0.18	.668	.004
Error (between)	48	4131.24	86.06			
Within Subjects						
Time	1	1489.96	1489.96	153.14*	.000	.761
Time x Group	1	27.04	27.04	2.78	.102	.055
Error (within)	48	467.00	9.73			

**p<.001.

Students' Regulation of Reading Strategies

The third research question addressed the impact of the small-group reading intervention on students' ability to regulate their use of reading strategies when reading independently. The Strategy Application Assessment (SAA) was used to assess students' ability to recall and apply reading strategies such as activating background knowledge, questioning, searching for information, organizing information, and summarizing. The SAA consisted of Form A and Form B, which were counter-balanced in their administration.

The SAA assessed students' use of the five reading strategies that were taught in this study. Mixed ANOVAs with one between-subjects factor and one within-subjects factor were conducted to compare CORI-STAR and Guided Reading students' scores for each of the five strategies assessed on the SAA at Time 1 (prior to the intervention) and at Time 2 (following the intervention). The means and standard deviations are presented in Table 38.

The error variance of the dependent variable was equal across groups as indicated by Levene's Test of Equality (F (1, 48) = 2.63, p = .111) for the pretest, (F (1, 48) = .373, p = .544) for the posttest.

Table 38 Means and Standard Deviations for the SAA

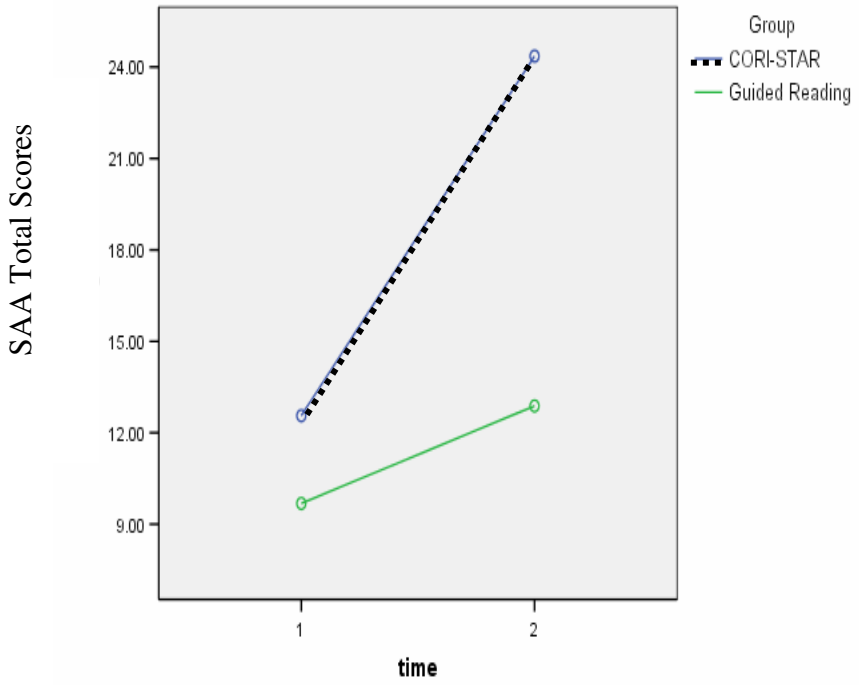
Strategy	Group	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD	Total Scores	Total SD
Activate Background Knowledge	CORI-STAR	4.36	1.77	8.28	.89	6.32	1.33
	Guided Reading	3.92	2.17	4.80	1.80	4.36	1.98
	Total	4.14	1.77	6.54	2.25	5.34	2.01
Questioning	CORI-STAR	1.08	.91	2.40	1.15	1.74	1.03
	Guided Reading	1.12	.88	1.24	.88	1.18	.88
	Total	1.10	.88	1.82	1.17	1.46	1.03
Search for Information	CORI-STAR	1.88	1.53	4.92	1.46	3.40	1.50
	Guided Reading	1.52	1.08	2.08	1.25	1.80	1.16
	Total	1.70	1.32	3.50	1.97	2.60	1.64
Organize Information	CORI-STAR	1.48	1.66	3.72	1.21	2.60	1.44
	Guided Reading	0.72	1.06	1.04	1.27	.88	1.16
	Total	1.10	1.43	2.38	1.82	1.74	1.63
Summarize	CORI-STAR	3.84	2.37	5.24	1.96	4.54	2.16
	Guided Reading	2.40	1.63	3.76	1.98	3.08	1.81
	Total	3.12	2.14	4.50	2.09	3.81	2.12
Total Reading Strategy Application	CORI-STAR	12.56	5.26	24.36	3.40	18.46	4.33
	Guided Reading	9.68	4.07	12.88	3.88	11.28	3.98
	Total	11.12	4.88	18.62	6.83	14.87	5.85

* $p < .05$, **p<.001, Note: The highest possible score for total reading was 30.

Total reading strategy application. The total scores from the SAA were analyzed using a mixed ANOVA with one between-subjects factor and one within-subjects factor. The mixed ANOVA indicates that the main effect between groups on the dependent measure of reading strategy use was statistically significant (F (1, 48) = 52.78, p = .000), with a very large partial eta squared of .524. The main effect for time was also statistically significant (F (1, 48) = 126.88, p = .000), with a very large partial eta squared of .726. The interaction of time and group was statistically significant (F (1, 48) = 41.71, p = .000), with a very large partial eta squared of .465.

For total reading, the statistically significant interaction of time and group indicates the change in students' application of strategies from pretest to posttest on the SAA was not the same for the two groups. As can be seen in Figure 8, students in the CORI-STAR group increased in application of strategies from Time 1 to Time 2, whereas scores for the Guided Reading students appear to have not changed significantly. The partial eta squared for the interaction was .465, which according to Cohen (1988) represents a very large effect size. The results of the ANOVAs for total reading and each of the five strategies examined in this study are presented in Table 39.

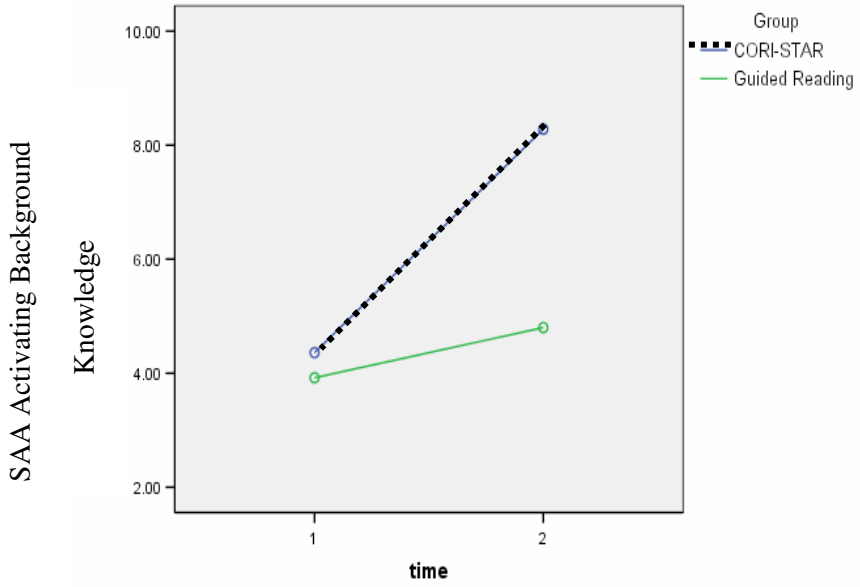
Figure 8 Graph of the Interaction for Students' Total Scores on the SAA



Mixed ANOVAs were conducted on each of the five strategies that were taught during this study: activating background knowledge, questioning, searching for information, organizing information, and summarizing.

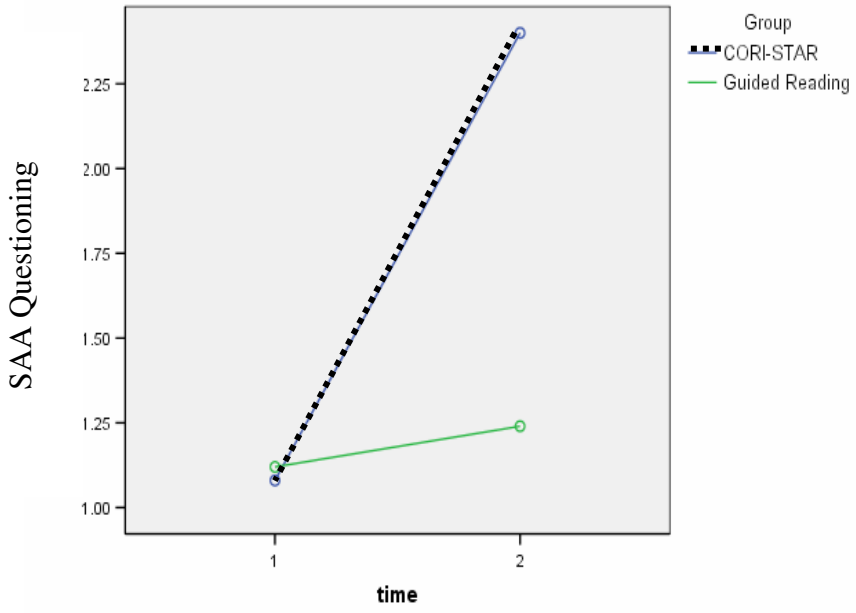
Activating background knowledge strategy. The mixed ANOVA for activating background knowledge indicates that the main effect for group was statistically significant (F (1, 48) = 22.02, p = .000), with a very large partial eta squared of .314. The main effect for time was also statistically significant (F (1, 48) = 89.5, p = .000), with a very large partial eta squared of .651. The statistically significant interaction of time and group (F (1, 48) = 35.89, p = .000), with a very large partial eta squared of .428 indicates the change in students' application of activating background knowledge from pretest to posttest on the SAA was not the same for the two groups. As can be seen in Figure 9 the CORI-STAR students increased in their application of reading strategies from Time 1 to Time 2, while scores for the Guided Reading students showed little change.

Figure 9 Graph for Activating Background Knowledge on the SAA



Questioning strategy. The results for the questioning strategy indicate the main effect for group was statistically significant (F (1, 48) = 8.55, p = .005), with a very large partial eta squared of .511, as was the main effect for time (F (1, 48) = 13.81, p = .001) with a very large partial eta squared of .223. In addition, the interaction of time and group was statistically significant (F (1, 48) = 9.59, p = .003), with a large partial eta squared of .167. The interaction of time and group is illustrated graphically in Figure 10. The CORI-STAR group increased in their use of the questioning strategy from Time 1 to Time 2, whereas scores for the Guided Reading students did not. The partial eta squared for the interaction was .167, which represents a very large effect size.

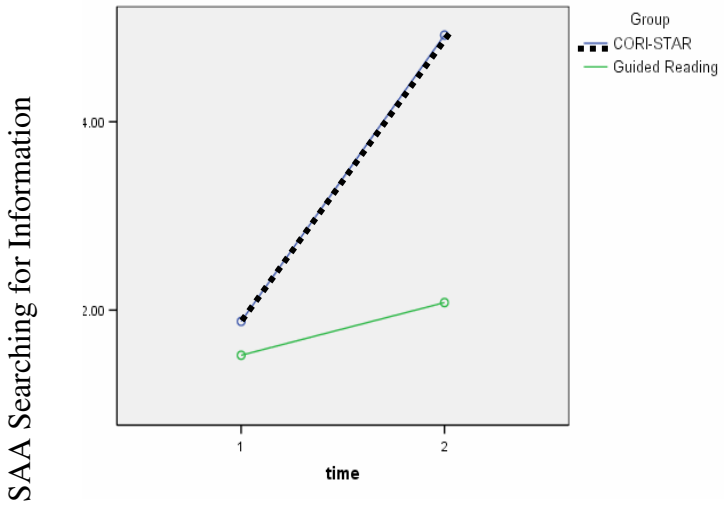
Figure 10 Graph for Questioning from the SAA



Searching for information strategy. The mixed ANOVA for searching for information indicates that the main effect for group was statistically significant (F (1, 48) = 31.67, p = .000), with a very large partial eta squared of .398 and the main effect for time was also statistically significant (F (1, 48) = 50.13, p = .000), with a very large partial eta squared of .511. The interaction of time and group was statistically significant (F (1, 48) = 23.79, p = .000), with a very large partial eta squared of .331.

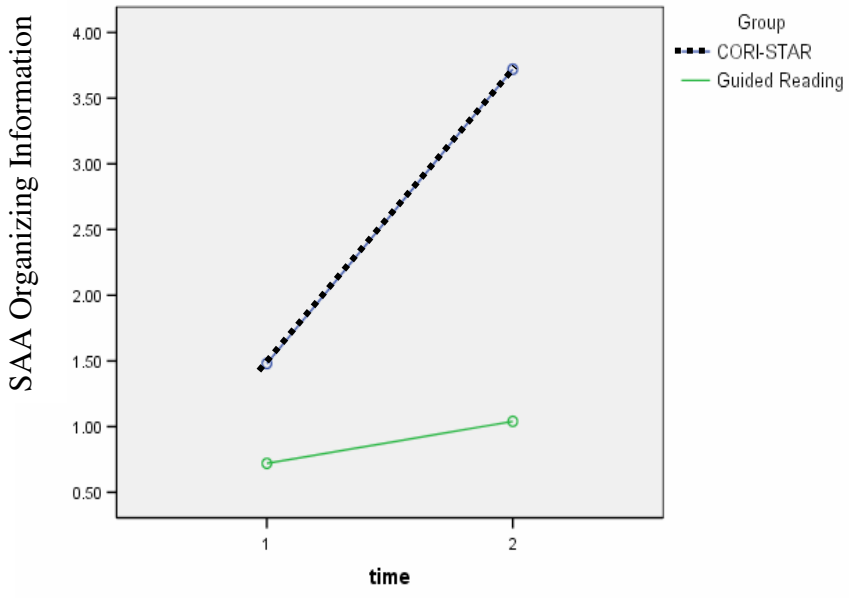
The statistically significant interaction of time and group indicates change in students' application of searching for information from pretest to posttest on the SAA was not the same for the two groups. As can be seen in Figure 11, the CORI-STAR group increased in their use of the strategy from Time 1 to Time 2, however the scores for the Guided Reading students appear to have made little change. The partial eta squared for the interaction was .331, which represents a very large effect size.

Figure 11 Graph for Searching for Information on the SAA



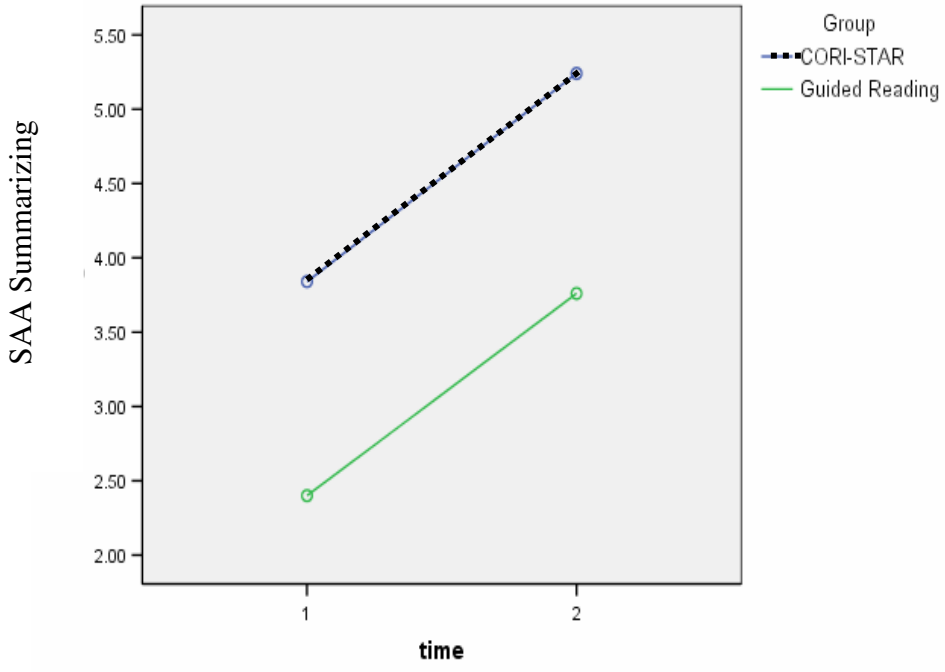
Organizing information strategy. The mixed ANOVA for organizing information indicates that the main effect for group was statistically significant (F (1, 48) = 30.014, p = .000), with a very large partial eta squared of .385. The main effect for time was also statistically significant (F (1, 48) = 40.12, p = .000), with a very large partial eta squared of .455. There was a statistically significant interaction of time and group for organizing information (F (1, 48) = 22.57, p = .000), with a very large partial eta squared of .320. The interaction indicates the change in students' application of organizing information from pretest to posttest on the SAA was not the same for both groups. As can be seen in Figure 12, the CORI-STAR group increased in their use of the strategy from Time 1 to Time 2, whereas the Guided Reading students changed little during this time. The partial eta squared for the interaction was .320, which represents a very large effect size.

Figure 12 Graph for Organizing Information on the SAA



Summarizing strategy. The mixed ANOVA for the summarizing strategy indicates that the main effect for group was statistically significant (F (1, 48) = 12.75, p = .001), with a very large partial eta squared of .210. The main effect for time was also statistically significant (F (1, 48) = 12.29, p = .001), with a very large partial eta squared of .204. However, there was no interaction for time and group (F (1, 48) = .003, p = .960), with a partial eta squared of .000. As shown in Figure 13, both groups improved from Time 1 to Time 2 with no differential effect for group. Thus, for the summarizing strategy there was not a statistically significant interaction. In contrast, each of the other four strategies (activating background knowledge, questioning, searching for information, and organizing information) showed a statistically significant interaction.

Figure 13 Graph of Summarizing on the SAA



Summary of the results of the SAA. The results of the mixed ANOVAs for the Strategy Application Assessment indicated the main effect for group was statistically significant for total reading (F (1, 48) = 52.78, p = .000) and for each of the five strategies: activating background knowledge (F (1, 48) = 22.01, p = .000), questioning (F (1, 48) = 8.55, p = .005), searching for information (F (1, 48) = 31.67, p = .000), organizing information (F (1, 48) = 30.01, p = .000), and summarizing (F (1, 48) = 12.75, p = .001). The CORI-STAR group outperformed the Guided Reading group on application knowledge for each of the five reading strategies.

The main effect for time was statistically significant for total reading (F (1, 48) = 126.88, p = .000) and each of the five strategies of activating background knowledge (F (1, 48) = 89.48, p = .000), questioning (F (1, 48) = 12.81, p = .001), searching for information (F (1, 48) = 50.13, p = .000), organizing information (F (1, 48) = 40.96, p = .000), and summarizing (F (1, 48) = 12.29, p = .001). The scores were higher at Time 2 than at Time 1 for each of the five reading strategies.

The interaction of time and group was statistically significant for total reading (F (1, 48) = 41.71, p = .000) and four out of five strategies of activating background knowledge (F (1, 48) = 35.89, p = .000), questioning (F (1, 48) = 9.59, p = .003), searching for information (F (1, 48) = 23.79, p = .000), and organizing information (F (1, 48) = 22.57, p = .000). The interaction was not statistically significant for the summarizing strategy.

The statistically significant interaction of time and group on total reading and four of the five strategies indicates the change in students' application of strategies from pretest to posttest on the SAA was not the same for the two groups on these four

strategies. The CORI-STAR group increased in their use of the strategy from Time 1 to Time 2, whereas scores for the Guided Reading students appear to have changed little for each of the strategies.

Table 39 Mixed ANOVA for Total Reading from the Strategy Application Assessment

Source	*df*	*SS*	*MS*	*F*	*p*	*Partial eta Squared*
Total Strategy Use						
Between Subjects						
Group	1	1288.81	1288.81	52.78**	.000	.524
Error (between)	48	1172.00	24.42			
Within Subjects						
Time	1	1406.25	1406.25	126.88**	.000	.726
Time x Group	1	462.25	462.25	41.71**	.000	.465
Error (within)	48	532.00	11.08			
Activating Background Knowledge						
Between Subjects						
Group	1	96.04	96.04	22.02**	.000	.932
Error (between)	48	209.40	4.36			
Within Subjects						
Time	1	144.00	144.00	89.48**	.000	.651
Time x Group	1	57.76	57.76	35.89**	.000	.428
Error (within)	48	77.24	1.61			
Questioning						
Between Subjects						
Group	1	7.84	7.84	8.55*	.005	.151

Error (between)	48	44.00	.917			
Within Subjects						
Time	1	12.96	12.96	13.81**	.001	.223
Time x Group	1	9.00	9.00	9.59*	.003	.167
Error (within)	48	45.04	.94			
Searching for Information						
Between Subjects						
Group	1	64.00	64.00	31.67**	.000	.875
Error (between)	48	97.00	2.02			
Within Subjects						
Time	1	81.00	81.00	50.13**	.000	.511
Time x Group	1	38.44	38.44	23.79**	.000	.331
Error (within)	48	77.56	1.62			
Organizing Information						
Between Subjects						
Group	1	73.96	73.96	30.01**	.000	.385
Error (between)	48	118.28	2.46			
Within Subjects						
Time	1	40.96	40.96	40.12**	.000	.455
Time x Group	1	23.04	23.04	22.57**	.000	.320
Error (within)	48	49.00	1.02			

Summarizing						
Between Subjects						
Group	1	53.29	53.29	12.75**	.001	.210
Error (between)	48	200.60	4.18			
Within Subjects						
Time	1	47.61	47.61	12.29**	.001	.204
Time x Group	1	.01	.01	.003	.960	.000
Error (within)	48	185.88	3.87			

* p < .05, **p<.001.

Students' Metacognitive Awareness of Reading Strategies

The fourth research question examined students' metacognitive awareness of reading strategies. Students were assessed on their declarative, procedural, and conditional knowledge of what, how, when, and why to self-regulate their use of the identified strategies: activating background knowledge, questioning, searching for information, organizing information, and summarizing information. The Strategy Activation Inventory (SAI) was administered as a pretest and as a posttest to determine students' metacognitive knowledge of the five reading strategies that were taught in this study. The means and standard deviations are presented in Table 40.

Table 40 Means and Standard Deviations for Students' Metacognitive Awareness of Strategy-use from the SAI

	Group	Pretest Mean (SD)	Posttest Mean (SD)	Total Mean (SD)	N
Activating Background Knowledge	CORI-STAR	0.16 (0.80)	8.84 (1.43)	4.50 (1.12)	25
	Guided Reading	0.00 (0.00)	0.16 (0.55)	0.08 (0.28)	25
	Total	0.08 (0.56)	4.50 (4.51)	2.29 (2.53)	50
Questioning	CORI-STAR	1.48 (2.34)	10.40 (0.81)	5.94 (1.57)	25
	Guided Reading	2.64 (2.65)	2.08 (2.36)	2.36 (2.51)	25
	Total	2.06 (2.55)	6.24 (4.55)	4.15 (3.55)	50
Searching for Information	CORI-STAR	1.36 (1.44)	9.88 (1.45)	5.62 (1.45)	25
	Guided Reading	1.56 (2.29)	1.52 (1.92)	1.54 (2.11)	25
	Total	1.45 (1.89)	5.70 (4.54)	3.57 (3.22)	50
Organizing Information	CORI-STAR	0.36 (0.95)	8.92 (2.10)	4.64 (1.23)	25
	Guided Reading	0.52 (1.26)	.96 (1.56)	0.74 (1.41)	25
	Total	0.44 (1.11)	4.94 (4.42)	2.69 (2.76)	50
Summarizing	CORI-STAR	1.96 (2.71)	8.92 (2.04)	5.44 (2.37)	25
	Guided Reading	1.24 (2.57)	1.64 (2.46)	1.44 (2.52)	25
	Total	1.60 (2.64)	5.28 (4.30)	3.44 (3.47)	50
Total	CORI-STAR	5.32 (5.35)	47.04 (5.33)	2.61 (5.34)	25
	Guided Reading	5.92 (6.54)	6.36 (5.92)	6.14 (6.23)	25
	Total	5.62 (5.92)	26.70 (21.28)	16.16 (13.60)	50

Note: The highest possible score for each strategy is 11 points.

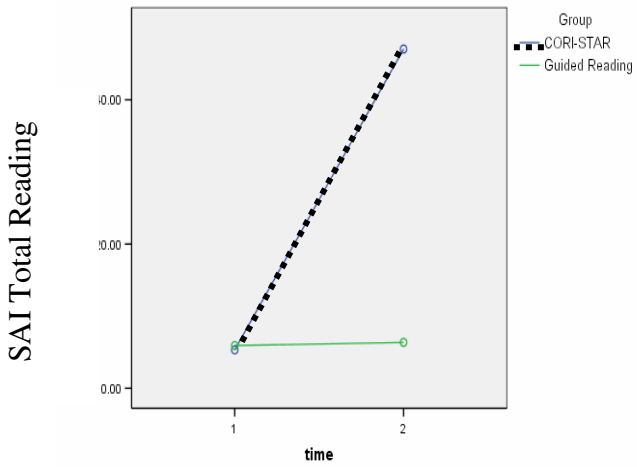
Mixed ANOVAs with one between-subjects factor and one within subjects factor were conducted to compare CORI-STAR and Guided Reading students' scores for total reading strategy knowledge and for the five reading strategies on the SAI at Time 1 (prior to the intervention) and Time 2 (following the intervention). The results are presented in

Table 41. The error variance of the dependent variable was equal across groups as indicated by Levene's Test of Equality (F (1, 48) = .643, p = .427) for the pretest, and (F (1, 48) = 1.84, p = .181) for the posttest.

Metacognitive awareness of total reading strategies. Effects of group and time on total reading strategy knowledge were assessed using a mixed ANOVA. The results indicated the main effect for group was statistically significant (F (1, 48) = 198.37, p = .000), with a very large partial eta squared of .805. The main effect for time was statistically significant (F (1, 48) = 659.46, p = .000), with a very large partial eta squared of .932. The interaction of time and group was statistically significant (F (1, 48) = 632.218, p = .000), with a very large partial eta squared of .929.

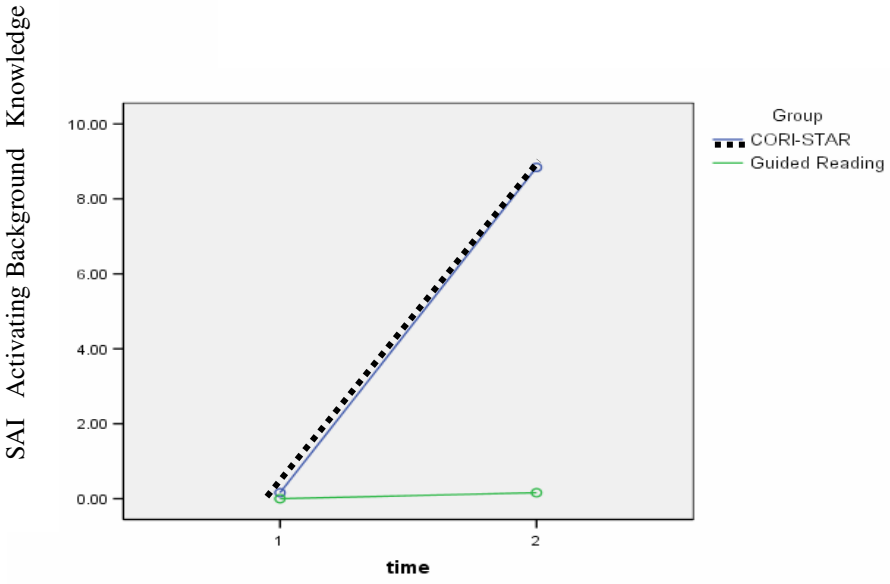
The interaction of time and group indicates the change in students' scores from pretest to posttest on the SAI was not the same for both groups. As can be seen in Figure 14, students in the CORI-STAR group increased in their total reading strategy knowledge from Time 1 to Time 2, whereas scores for the students in the Guided Reading group appear to have made little change.

Figure 14 Graph of Total Reading Strategy Knowledge from the SAI



Metacognitive awareness of activating background knowledge. For the activating background knowledge strategy, a mixed ANOVA indicates that the main effect for group was statistically significant (F (1, 48) = 524.702, p = .000), with a very large partial eta squared of .916. The main effect for time was statistically significant (F (1, 48) = 855.61, p = .000) with a very large partial eta squared of .947. The interaction of time and group was also statistically significant (F (1, 48) = 794.78, p = .000), with a very large partial eta squared of .943. The statistically significant interaction of time and group indicates the change in students' scores from pretest to posttest on the SAI was not the same for the two groups. As can be seen in Figure 15, students in the CORI-STAR group increased in their knowledge of activating background knowledge from Time 1 to Time 2, whereas the scores for students in the Guided Reading group appear to have changed very little.

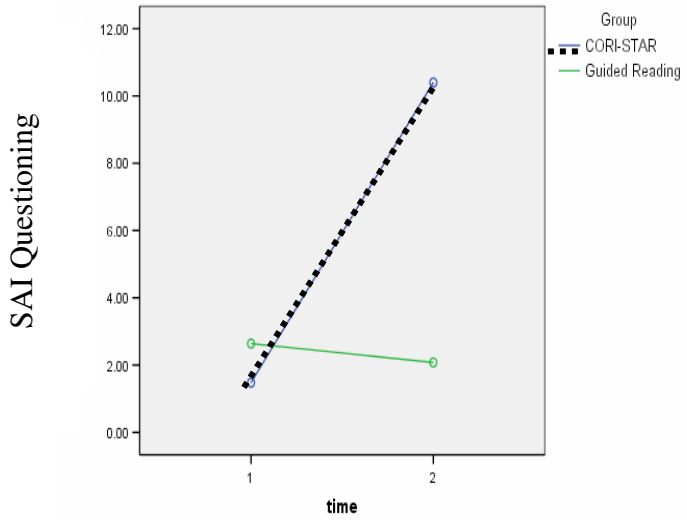
Figure 15 Graph of Activating Background Knowledge Strategy from the SAI



Metacognitive awareness of questioning. For the questioning strategy, a mixed ANOVA indicates that the main effect for group was statistically significant (F (1, 48) = 49.80, p = .000), with a very large partial eta squared of.509. The main effect for time was statistically significant (F (1, 48) = 146.62, p = .000), with a very large partial eta squared of .753. The interaction of time and group was statistically significant (F (1, 48) = 188.54, p = .000), with a very large partial eta squared of .797.

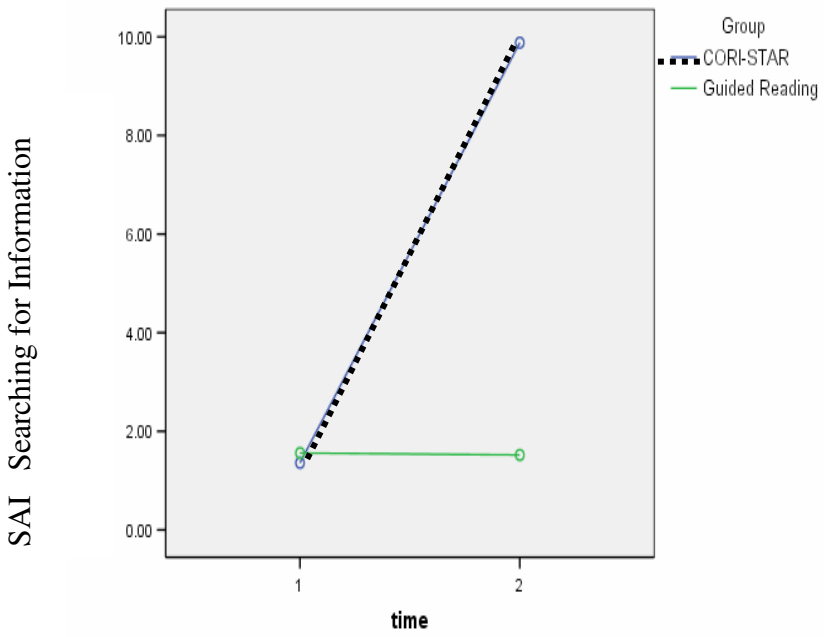
The statistically significant interaction of time and group indicates the change in students' scores from pretest to posttest on the SAI was not the same for the two groups. As can be seen in Figure 16, students in the CORI-STAR group increased in their questioning knowledge from Time 1 to Time 2, however scores for the Guided Reading students appear to have changed very little.

Figure 16 Graph of Questioning Strategy from the SAI



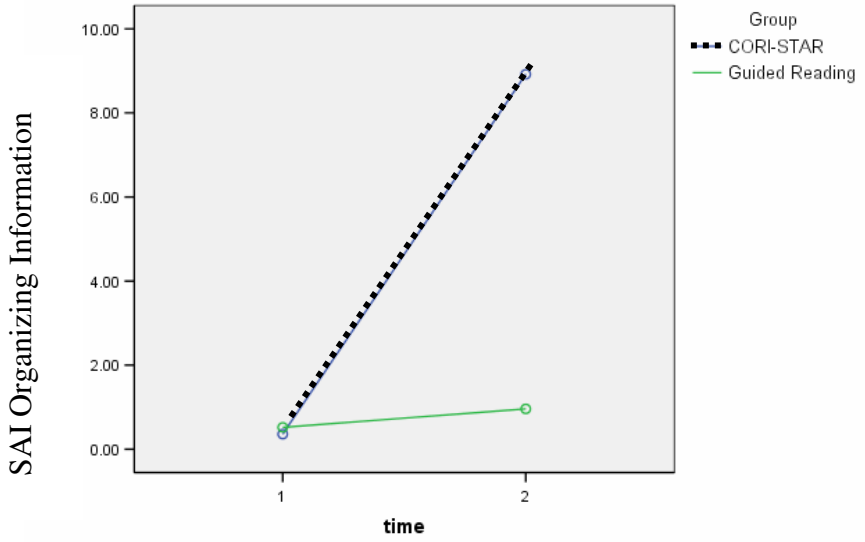
Metacognitive awareness of searching for information. For the searching for information strategy, a mixed ANOVA indicates that the main effect for group was statistically significant (F (1, 48) = 116.68, p = .000), with a very large partial eta squared of .709. The main effect for time was statistically significant (F (1, 48) = 150.23, p = .000), with a very large partial eta squared of .758. The interaction of time and group was statistically significant (F (1, 48) = 153.08, p = .000), with a very large partial eta squared of .761. The interaction of time and group is illustrated graphically in Figure 17. The CORI-STAR group increased in their knowledge of searching for information from Time 1 to Time 2, whereas scores for the Guided Reading students did not.

Figure 17 Graph of Searching for Information Strategy from the SAI



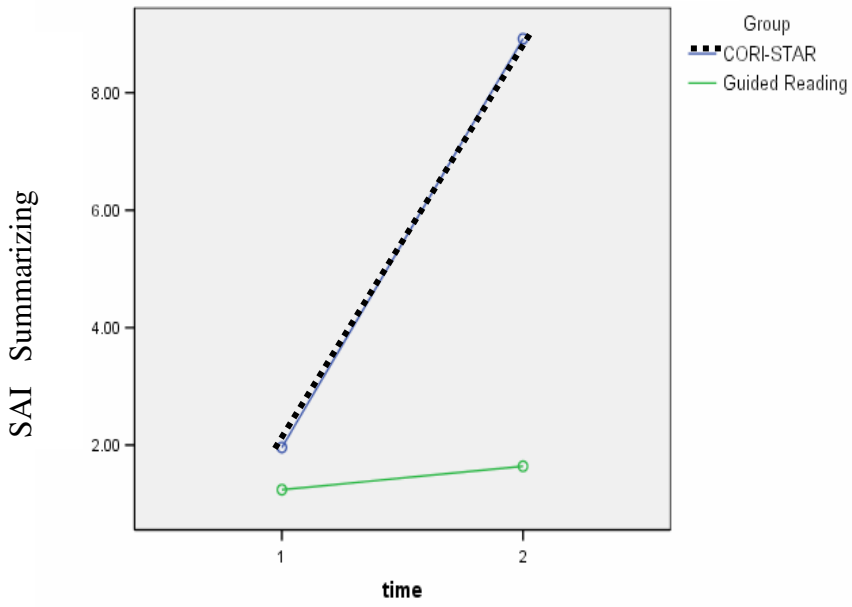
Metacognitive awareness of organizing information. For the organizing information strategy, a mixed ANOVA indicates that the main effect for group was statistically significant (F (1, 48) = 145.27, p = .000), with a very large partial eta squared of .752. The main effect for time was also statistically significant (F (1, 48) = 245.058, p = .000), with a very large partial eta squared of .836. The interaction of time and group was statistically significant (F (1, 48) = 199.48, p = .000), with a very large partial eta squared of .806. The interaction of time and group indicates the change in students' scores from pretest to posttest on the SAI was not the same for both groups. As can be seen in Figure 18, students in the CORI-STAR group increased in their knowledge of organizing information from Time 1 to Time 2, however scores for the Guided Reading students appear to have made little change.

Figure 18 Graph of the Organizing Information Strategy from the SAI



Metacognitive awareness of summarizing. For the summarizing strategy, a mixed ANOVA indicates that the main effect for group was statistically significant (F (1, 48) = 45.97, p = .000), with a very large partial eta squared of .489, and the main effect for time was statistically significant (F (1, 48) = 99.406, p = .000), with a very large partial eta squared of .674. The interaction of time and group was statistically significant (F (1, 48) = 78.97, p = .000), with a very large partial eta squared of .622. There was a statistically significant interaction of time and group which indicates the change in students' scores from pretest to posttest on the SAI was not the same for the two groups. As can be seen in Figure 19, students in the CORI-STAR group increased in their knowledge of the summarizing strategy from Time 1 to Time 2, whereas scores for the Guided Reading students appear to have changed very little.

Figure 19 Graph of the Summarizing Strategy from the SAI



Summary of the results of the SAI. To summarize the findings of the SAI, the main effect for group was statistically significant for each of the five strategies: activating background knowledge (F (1, 48) = 524.70, p = .000), questioning (F (1, 48) = 49.78, p = .000), searching for information (F (1, 48) = 116.68, p = .000), organizing information (F (1, 48) = 145.27, p = .000), and summarizing (F (1, 48) = 45.97, p =.000).

The main effect for time was statistically significant for all of the strategies: activating background knowledge (F (1, 48) = .855.61, p = .000), questioning (F (1, 48) = 146.62, p = .000), searching for information (F (1, 48) = 150.23, p = .000), organizing information (F (1, 48) = 245.06, p = .000), and summarizing (F (1, 48) = 99.41, p = .000).

There was also a statistically significant interaction of time and group for each of the five strategies: activating background knowledge (F (1, 48) = 794.78, p = .000), questioning (F (1, 48) = 188.54, p = .000), searching for information (F (1, 48) = 153.08, p = .000), organizing information (F (1, 48) = 199.48, p = .000), and summarizing (F (1, 48) = 78.97, p = .000).

Thus, the results revealed a statistically significant interaction of time and group for total knowledge of reading strategies, and for all five individual reading strategies. The CORI-STAR group increased in metacognitive awareness of the declarative, procedural, and conditional knowledge of the five strategies from Time 1 to Time 2, whereas the scores for Guided Reading appear to have changed very little.

Table 41 Mixed ANOVA for Strategy Activation Inventory

Source	*df*	*SS*	*MS*	*F*	*p*	*Partial eta squared*
Total Scores						
Between Subjects						
Group	1	10040.04	10040.04	198.37**	.000	.805
Error (between)	48	2429.40	50.61			
Within Subjects						
Time	1	11109.16	11109.16	659.46**	.000	.932
Time x Group	1	10650.24	10650.24	632.22**	.000	.929
Error (within)	48	808.60	16.85			
Activating Background Knowledge						
Between Subjects						
Group	1	488.41	488.41	524.70**	.000	.916
Error (between)	48	44.68	.931			
Within Subjects						
Time	1	488.41	488.41	855.61**	.000	.947
Time x Group	1	453.69	453.69	794.78**	.000	.943
Error (within)	48	27.40	.57			

Questioning						
Between Subjects						
Group	1	320.41	320.14	49.79**	.000	.509
Error (between)	48	308.84	6.43			
Within Subjects						
Time	1	436.81	436.81	146.62**	.000	.753
Time x Group	1	561.69	561.69	188.54**	.000	.797
Error (within)	48	143.00	2.98			
Searching for Information						
Between Subjects						
Group	1	416.16	416.16	116.68**	.000	.709
Error (between)	48	171.20	3.56			
Within Subjects						
Time	1	449.44	449.40	150.23**	.000	.758
Time x Group	1	457.96	457.96	153.08**	.000	.761
Error (within)	48	143.60	2.99			
Organizing Information						
Between Subjects						
Group	1	380.25	380.25	145.27**	.000	.752
Error (between)	48	125.64	2.62			
Within Subjects						
Time	1	506.25	506.25	245.06**	.000	.836
Time x Group	1	412.09	412.090	199.48**	.000	.806

Error (within)	48	99.16	2.06			
Summarizing						
Between Subjects						
Group	1	400.00	400.00	45.97**	.000	.489
Error (between)	48	417.64	8.70			
Within Subjects						
Time	1	338.56	338.56	99.41**	.000	.674
Time x Group	1	268.96	268.96	78.97**	.000	.622
Error (within)	48	163.48	3.41			

**p<.001

Book Club for Engaging Readers

All students in the study were given opportunities to select and sign out books from the All-Star Book Club library for additional reading. Students in the CORI-STAR group selected expository and narrative books about ponds and pond animals to support their learning, and students in the Guided Reading group chose from a variety of expository and narrative books at their reading levels. I collaborated with classroom teachers to determine the most appropriate time of the day for their students to sign out books. Two mutually convenient time blocks were set aside for this to occur. Data were collected for each group in relation to the number of books that were signed out during this period.

Three-hundred two books were signed out by participants during the study, with 78% of the students choosing to sign out books over the course of their participation in

the study. CORI-STAR students signed out 200 books compared to 102 books signed out by students in the Guided Reading group. The mean number of books signed out by CORI-STAR students was $M = 8.16$ (SD = 4.78) compared to $M = 3.92$ (SD = 4.59) for the Guided Reading group. Table 42 presents the means and standard deviations of students' participation in the All-Star Book Club.

Table 42 Means and Standard Deviations for Students' Participation in the All-Star Book Club

	M Books signed out by Group	SD	Range-Number of Books per Student Signed out	Total Number of Books Signed Out by Group	N Students Participating	Percentage of Students Participating
CORI-STAR	8.16	4.78	0-15	200	22	88%
Guided Reading	3.92	4.59	0-20	102	16	64%
Total	6.04	5.11	0-20	302	38	76%

A one way ANOVA was conducted to compare differences in students' interest and engagement in additional reading, as measured by students' participation in the book club program. The error variance of the dependent variable was equal across groups as indicated by Levene's Test of Equality ($F (1, 48) = .000$, $p = .99$). The results, presented in Table 43, show that the main effect for group was statistically significant ($F (1, 48) = 10.22$, $p = .002$).

Table 43 One-Way ANOVA of Differences in Groups' Participation in the All-Star Book Club

Source	*SS*	*df*	*MS*	*F*	*p*
Between groups	224.72	1	224.72	10.22*	.002
Within group	1055.20	48	21.98		
Error	1279.92	49			

*p<.01, N = 50.

Thus, more students in the CORI-STAR group signed out additional books to read than those students in the Guided Reading group. These results suggest students in the CORI-STAR group were more engaged in outside reading than students in the Guided Reading group.

Fidelity of Treatment Measures

For the study, I provided instruction to both instructional groups: the CORI-STAR group and Guided Reading group. In order to maximize fidelity of treatment for both conditions and to assure that instruction closely adhered to the described procedures established for that instructional approach, I established a specification sheet for both groups which noted their distinct sequential instructional components. (See Appendix T) Each of the six instructional components was further identified by a list of instructional tasks which would be observable during that component of instruction. Although both

groups received 40 minutes of instruction, the CORI-STAR specification sheet differed from the Guided Reading specification sheet.

Prior to beginning this study, I introduced teachers to the research project during their grade-level staff development sessions. One of my responsibilities as reading specialist is to provide daily 80-minute staff development sessions to grade-level teams on topics generated from the county curriculum goals and assessments or school-based language arts objectives.

During staff development, teachers in grades 2-5 were given an overview of the study and the qualifiers for identifying students for supplementary instruction. The two instructional approaches, CORI-STAR and Guided Reading were described, and teachers were given a chance to examine the students' materials, notebooks, instructional texts, and instructional materials that would be used for each approach. The teachers were shown the students' notebooks, organizers, journals, and word study activities that would accompany the different approaches. Teachers were also introduced to the All-Star Book Club texts that were housed in my room for students to sign out as a part of the study.

During the orientation to the study, teachers examined the specification sheets I designed for both approaches of the study. I explained what each component of the lesson would look like. Teachers were given an explanation of how the two approaches differ from one another. Teachers and staff within the school were invited to participate as raters by making unannounced observations of either the CORI-STAR or Guided Reading instructional approaches.

Specification sheets for each condition were housed in the reading group instructional area for teachers to access upon their arrival to observe instruction. Teachers

used the specification sheets to evaluate the specific criteria for each component of the lesson they were observing. The specification sheets for both conditions identify six general headings which serve as guidelines for the main components of instruction, such as: lesson introduction, teacher responsibility, student responsibility, checking student understanding, student writing, and extensions of the lesson. Under these headings, the specific features are explained more fully, with examples of what they should be observing during each component of the lesson. The specification sheets differ according to the instructional approach that was observed. As teachers observed, they completed a Fidelity of Treatment specification sheet by checking off, or initialing the blank line beside each component of the lesson they observed.

A total of 33 observations were made by 12 teachers. Eleven of these teachers were from second-grade through fifth-grade, and one was a special education teacher. Fidelity of treatment specification forms were completed by classroom teachers who observed instruction while another teacher covered their class, teachers making observations during their planning time, and new teachers who wanted to observe how to implement the Guided Reading or CORI-STAR approaches within the newly introduced county language arts curriculum. Third- and fourth-grade teachers made the majority of the observations: 9 observations of the CORI-STAR approach and 16 observations of the Guided Reading approach. All observers who completed the fidelity of treatment specification sheets stayed to observe the whole lesson. Several other staff members, who are not included in the count, were only able to observe a lesson for a short period of time, so they did not choose to complete the specification sheet.

Several teachers made more than one observation. Thirty-three fidelity of treatment specification sheets were completed by observers during the study: 15 observations of CORI-STAR instruction, and 18 observations of Guided Reading instruction. Observers checked or initialed each of the six components that were identified on the Fidelity of Treatment specification sheets. A score of 6 points from an observer indicated that all components of that type of instruction were observed. The means and standard deviations for the fidelity of treatment observations are presented in Table 44. The results of the Fidelity of Treatment observations revealed that instruction in both instructional approaches was observed by raters to adhere to the procedures described in Chapter III of this paper with 100% agreement.

Table 44 Means and Standard Deviations for Fidelity of Treatment

	M	SD	Variance	% of Total	N
CORI-STAR	6.00	.00	.00	45.5%	15
Guided Reading	6.00	.00	.00	54.5%	18
Total	6.00	.00	.00	100.%	33

Attendance

Records of students' attendance were analyzed to determine whether students' attendance affected the internal validity of the study. Often students' absences contribute to deficits in their knowledge base. In this study, students kept an attendance chart in their notebooks. The information from the attendance charts was used to determine whether internal validity was violated by experimental mortality, which is often the effect of student absences during instructional sessions.

The attendance chart contained 40 cells, with five rows across and eight rows down. Each cell was identified by the instructional lesson that was presented to the instructional group. Lessons for the first week were labeled from 1.1 to 1.5, followed by the second week which progressed from 2.1 to 2.5, and so on. Information on the students' attendance charts helped to identify lessons that were missed by students for the purpose of reinstructing missed instruction of a particular strategy. Students put a small sticker in the appropriate cell on the chart each day at the conclusion of instruction. The means and standard deviations of students' attendance are presented in Table 45.

A one-way analysis of variance was conducted to determine whether differences existed between groups in attendance. The results of the one-way ANOVA are in Table 46. The analysis revealed no significant differences in attendance between groups (F (1, 48) = 3.026, p = .088). Therefore, one group was not more adversely affected by student absences than the other.

Table 45 Means and Standard Deviations of Groups' Attendance

	M	SD	Minimum	Maximum	Variance	N
CORI-STAR	38.54	(1.83)	33.00	40.00	3.34	25
Guided Reading	37.48	(2.36)	30.00	40.00	5.59	25
Total	38.00	(2.16)	30.00	40.00	4.65	50

Table 46 Groups' Attendance

Source	*SS*	*df*	*MS*	*F*	*p*
Between Groups	13.52	1	13.52	3.026	.088
Within Groups	214.48	48	4.468		
Total	228.00	49			

$p < .05$

Summary

Chapter IV presented the data from the research study in relation to the research questions that were posed. The data were analyzed for statistical differences at posttest between the instructional groups in reading comprehension, metacognitive awareness, reading motivation, students' transference of strategy use, students' independent performance using strategies, and students' metacognitive awareness of the declarative, procedural, and conditional knowledge necessary to self-regulate their use of reading strategies. Table 47 summarizes the results of this study.

Statistically significant interactions revealed differences favoring students in the CORI-STAR group compared to the Guided Reading group on (a) the WRMT-PC, QRI-4 questions, and QRI-4 retelling measures of comprehension, (b) total reading metacognitive awareness, (c) students' application of reading strategies when reading as assessed by the SAA, and (d) students' metacognitive awareness of the declarative, procedural, and conditional knowledge of regulating their use of reading strategies as assessed by the SAI. In addition, the CORI-STAR group outperformed the Guided Reading group in engagement in extra reading through the All-Star Book Club.

No interaction of time and groups was found for the Maze comprehension measure or the MRQ measure. The interactions were also not statistically significant differences for one subscore of the MSI and one subscore of the SAA.

Chapter V discusses the results of the study and their implications toward developing successful supplementary programs for struggling readers.

Table 47 Results of the Study

Measure	Main Effect Group	Main Effect Time	Interaction Time x Group
Maze	--	yes	--
WRMT-PC	yes	--	yes
QRI-4 Questions	yes	yes	yes
QRI-4 Retelling	yes	yes	yes
MSI-Total	yes	yes	yes
MSI- Before	--	yes	--
MSI- During	--	yes	yes
MSI- After	--	yes	--
MRQ- Total	yes	--	--
MRQ-Self-Efficacy	yes	--	--
MRQ-Strategies for Self-Efficacy	--	--	--
MRQ-Challenge	yes	--	--
MRQ-Curiosity	--	--	--
MRQ-Involvement	yes	--	--
TPSSUQ	--	yes	--
SAA- Total	yes	yes	yes
SAA-Activate Background Knowledge	yes	yes	yes
SAA-Questioning	yes	yes	yes
SAA-Searching for Information	yes	yes	yes
SAA-Organizing Information	yes	yes	yes
SAA-Summarizing	yes	yes	--
SAI- Total	yes	yes	yes
SAI- Activate Background Knowledge	yes	yes	yes
SAI-Questioning	yes	yes	yes
SAI- Searching for Information	yes	yes	yes
SAI – Organizing Information	yes	yes	yes
SAI- Summarizing	yes	yes	yes

Measure	One-Way ANOVA – Statistically Significant
All-Star Book Club	yes
Attendance	--

Chapter V: Summary and Discussion

Introduction

In an age of high-stakes testing and increasing accountability, schools must improve instruction for all students in order to meet the stringent demands of "No Child Left Behind" legislation. No longer are schools throughout the country able to make instructional decisions without first considering the long-range impact these decisions will have on their students' ability to make substantial progress.

In most school systems throughout the country, state-wide testing is administered yearly to measure students' progress and to determine whether students are meeting grade-level standards in reading and mathematics. Students' test scores are categorized as 'basic' for below grade-level, 'proficient' for on-grade level, and 'advanced' for above-grade level performance. Students' achievement is evaluated to determine whether individual schools are successful in providing high quality instruction to maintain or exceed the established grade-level standards for each student.

State-wide achievement goals incrementally increase each year, holding schools accountable for producing substantial progress for all of their students at levels which exceed the expectations from the previous year. In order to meet the ever-increasing demands for improving student achievement, schools must increase the instructional rigor and explore options for improving student engagement with learning. Along with state-wide examination of individual students' test data, school performance is also evaluated by determining the proficiency levels of students within specified state-established student subgroups, such as: specified ethnic subgroups, special education students, students receiving free and reduced meals (FARM), and English Language Learners

(ELL), all of whom historically perform below their peers. Schools are held accountable for the performance levels of all identified subgroups; therefore, low achievement performance in any identified subgroup affects their annual yearly progress (AYP). The school's failure to demonstrate increased performance levels of students within various subgroups can result in the implementation of drastic school improvement measures toward restructuring the school's classroom and supplementary instruction methods in hopes of improving students' performance and regaining compliance with established state standards.

School systems are becoming extremely conscious of the overwhelming task of establishing effective classroom instruction to provide all of their students with the required academic skills to demonstrate proficiency at accomplishing grade-level standards as measured by state-wide testing. As schools intensify the rigor of instruction to meet the ever-increasing demands necessary to make annual yearly progress (AYP), educators must also make decisions regarding effective instructional methods for their struggling readers. School systems are becoming increasingly more diligent in their pursuit of research-based instructional methods and programs to help them effectively meet the diverse needs of their student populations.

The reality of "No Child Left Behind" legislation has increased accountability for all school systems, requiring them to provide high-grade instruction to insure that their students can perform at proficient or advanced levels on state-wide tests. Consequently, school systems have made efforts to analyze their school test data and increase the rigor of instruction for the purpose of supporting curricular goals, accelerating the progress of struggling readers, and closing the achievement gap between basic and proficient

students. In order to support struggling readers' development, schools need to carefully examine the effectiveness of supplementary instructional approaches.

Study Summary

Purpose of the Study

This quasi-experimental study explored the effect of two supplementary instructional approaches, CORI-STAR and Guided Reading, on struggling readers' growth in reading comprehension, reading motivation, metacognitive awareness, their transference of strategies to their classroom reading groups, their application of reading strategies, and their knowledge of *what, how, when*, and *why* to use strategies. Struggling third-graders and fourth-graders who scored basic, or equivalent to basic in reading on the previous year's tests, the SAT-10 standardized test for third-graders, or the state-wide achievement test for fourth-graders, were identified and invited to participate in an 8-week small-group supplementary instructional reading group.

The CORI-STAR small-group instructional approach was based on the Concept-Oriented Reading Instruction (CORI) approach with additional components which emphasize students' development of comprehension strategies and metacognitive awareness known as Strategic Thinking Applied to Reading, or STAR. CORI-STAR integrates reading strategy instruction with science content knowledge to increase students' reading motivation and engagement. The Guided Reading approach is a small-group teaching approach which emphasizes students' development of strategic reading strategies. In Guided Reading, teachers guide their students as they learn to monitor their reading processes while reading a variety of leveled expository and narrative texts.

Research Questions

Several questions were posed which guided this study involving struggling third- and fourth-grade readers: (1) What influence will each reading approach, CORI-STAR and Guided Reading, have on students' reading comprehension, metacognitive awareness, and motivation?, (2) What impact will CORI-STAR and Guided Reading have on students' transference of strategy-use to their classroom?, (3) What impact will CORI-STAR and Guided Reading instruction have on struggling readers' ability to regulate their use of reading strategies when reading independently?, and (4) How will instruction using self-regulation strategies in relation to declarative, procedural, and conditional knowledge impact students' ability to remember what, how, when and why to apply strategies to specific situations?

Fidelity of Treatment

Treatment fidelity was assessed throughout the study to determine whether the instructional procedures executed for both the CORI-STAR group and the Guided Reading group followed the criteria identified for that specific instructional approach. Specification sheets were designed for each instructional group prior to the study which identified each component of that instructional approach. The specification sheets contained six general headings, with specific details of what type of instruction would be observed within that instructional approach during that period of the lesson.

Intermediate-grade level teachers were trained in how to use the specification sheets when making an observation. They were also taught about what instructional components they should expect to see within each instructional group. As teachers observed the lessons, they checked or initialed each component that they observed.

Teachers' observation ratings were compiled and scored. Reviews of fifteen CORI-STAR observations and eighteen Guided Reading observations resulted in 100% confirmation from the teachers that the instruction they observed met the criteria set for each condition (M = 6.00 SD = .00). The purpose of the fidelity of treatment measures within this study guarded against the possibility that any differences between the CORI-STAR group and Guided Reading group were the result of the instruction not being implemented appropriately. The observation ratings from teachers indicate that instruction provided to each instructional group conformed to the criteria for each condition.

Major Findings from the Study

Struggling readers often lack appropriate comprehension strategies (August, Flavell & Clift, 1984; Baker, 1979; Garner, 1990; Pearson & Gallagher, 1983), metacognitive awareness (Myers & Paris, 1978; Paris & Jacobs, 1984; Paris & Myers, 1981), and motivation to read (Guthrie et al., 1996, Guthrie, Wigfield, Barbosa, et al., 2004; Wigfield & Guthrie, 1997). The rationale for this study was formulated in response to the quandary faced by educators who struggle to meet the demands of "No Child Left Behind" legislation by searching for effective supplementary programs to accelerate their struggling readers. I hypothesized that students who received CORI-STAR instruction would show larger gains in reading comprehension, metacognitive awareness, and motivation than students in the Guided Reading group. This section discusses the results of the study and how they support the theoretical base and current empirical research.

Question 1: Reading Comprehension, Metacognitive Awareness, and Motivation

The first question of this investigation was multi-faceted and compared the impact of two instructional approaches on students' reading comprehension, metacognitive

awareness, and reading motivation. Four measures were used to assess students' reading comprehension: the QRI-4 comprehension questions and QRI-4 retelling (Leslie & Caldwell, 2006), the Maze (Guthrie, 1973, Parker, Hasbrouck, & Tindal, 1992), and the Woodcock Reading Mastery Test- Passage Comprehension Test (WRMT-PC) (Woodcock, 1987). Metacognitive awareness was assessed by the Metacomprehension Strategy Index (MSI) (Schmitt, 1990). The Motivations for Reading Questionnaire (MRQ) (Wigfield & Guthrie, 1997) was used to assess students' reading motivation on students' self-efficacy, strategies for self-efficacy, and motivation dimensions of challenge, curiosity, and involvement.

For the first question, data were analyzed to determine whether the hypothesis was supported by a statistically significant interaction for time and group on three comprehension measures, a measure of metacognitive awareness, and a measure of motivation. A statistically significant interaction shows differential change from pretest to posttest between the instructional groups; therefore, whenever the statistical analysis indicates an interaction, those results are presented instead of reporting the main effects for group and for time. However, if a statistically significant interaction was not found on a variable, the main effect for group and the main effect for time will be reported. The next sections review the results and discussion of the analysis for each of the variables: reading comprehension, metacognitive awareness, and motivation.

Results of analysis of students' reading comprehension. The results of the comprehension measures revealed that students in the CORI-STAR group made greater gains in reading comprehension during the study than did students in the Guided Reading group, as determined by the statistically significant time by group interaction on the

WRMT-PC test, QRI-4 questions, and QRI-4 retelling measures. A main effect for time was found for the Maze test, but there was no interaction for this measure.

It should be noted that the WRMT-PC and QRI-4 measures are both stronger comprehension measures than the Maze. The WRMT-PC is a standardized test which has high concurrent validity, indicating relative effectiveness when compared to an independent criterion measure (Woodcock, 1987). It is used to for diagnostic, progress monitoring, and outcome measures. The QRI-4 is an informal test with high internal consistency that as been shown to be a reliable and valid measure of students' reading (Leslie & Caldwell, 2006). The QRI-4 can be used as a diagnostic reading test to determine students' reading levels, their reading growth, their appropriate text levels, and any suspected reading problems.

The Maze is a multiple-choice cloze task that requires the reader to choose the correct word out of three given choices for a grade-level passage. The Maze was shown to have high internal consistency in Guthrie's (1973) study, but since the Maze is not a standardized instrument there may be differences in the results received from different passages used for the test. After finding a wide range of variability (.70 to .93) across texts, Parker, Hasbrouck, and Tindal (1992, p. 206) stated, "If similar variability exists among Maze tests produced from the same basal reader, progress monitoring may not be reliable." Maze tests could vary depending on whether they are commercially-constructed or designed by teachers and researchers. Consistency between Maze instruments could also be affected by differences in the complexity of the sentence structure used within the passages chosen for the test, as well as differences in the student's familiarity with the content of the passages. For this study, the Maze passages were constructed by the

researcher using the criteria established for developing the Maze. The grade-level Maze passages were counterbalanced when administered to students as a pretest and a posttest, but they were not examined prior to the study to determine their reliability.

The WRMT-PC and QRI-4 are standardized measures that have high internal consistency reliability criterion referenced validity, whereas the Maze has moderately high internal consistency (Parker, Hasbrouck, & Tindal, 1992). Further, the WRMT-PC and QRI-4 both have a format more familiar to the students than the Maze measure.

The correlation of posttest scores from this study revealed a small positive correlation between the Maze test and the WRMT-PC test [r = .228]; a medium positive correlation between the Maze test and the QRI-4 test [r = .304]; and a large positive correlation between the WRMT-PC and the QRI-4 comprehension measures [r = .500]. There was a large correlation between the WRMT-PC and the QRI-4 measures, suggesting quite a strong relationship between these measures for comprehension for his study. The WRMT-PC and QRI-4 are research-based measures that have been shown to be reliable and valid instruments in assessing students' reading comprehension. In this study, the Maze measure was constructed by the researcher using grade-level text that had been adapted to meet the Maze test specifications; therefore, the results of the WRMT-PC and QRI-4 should be viewed as more reliable than the Maze test.

Discussion of reading comprehension findings. The CORI-STAR approach consists of explicit small-group strategy instruction which includes teacher modeling, teacher and student think-alouds, and metacognitive awareness instruction. Research shows that students benefit from explicit strategy instruction (Duffy, Roehler, & Mason, 1984), which includes metacognitive training (Lipson, 1982, Pearson, Hansen, & Gordon, 1979,

Paris, Wixson, & Lipson, 1984), modeling (Bandura, 1986; Davey, 1983; Schunk, 1991) and think-alouds (Afflerbach & Johnson, 1984; Baumann, Seifert-Kessell, & Jones, 1992; Olshavsky, 1976-77).

Students in the CORI-STAR group received metacognitive awareness training where they were explicitly told *what, how, when*, and *why* to use a particular strategy as the teacher modeled it and explained it in a think-aloud. Students in the Guided Reading group received implicit instruction, whereby the teacher's observations of the students' reading behaviors strongly influenced the teaching point of the lesson. Fountas and Pinnell (1996) asserted that the purpose of Guided Reading is not to teach strategies, but to guide students' use of self-monitoring strategies to comprehend the text. Even though Fountas and Pinnell insisted that reading strategies cannot be observed or explicitly taught, research has found that struggling readers benefit from explicit instruction (Baumann et al., 1993; Dole et al., 1991; Duffy, 2002; Duffy et al., 1986; Guthrie, 2003) which guides their understanding of strategy use.

According to socio-cognitive theory, students learn from the behaviors modeled by others (Bandura, 1986). As the students observed the teacher they gained knowledge to help them perform the strategy and discuss their thinking in a think-aloud. Modeling can provide both information and motivation to observers. Observational learning has been found to be effective in increasing the rate and range of students' learning over that which could be accomplished by learning if learning needed to be performed and reinforced to be learned (Pintrich & Schunk, 2002).

Research supports teacher modeling of strategies within the actual reading task as an effective way to introduce students to a new strategy, especially when it is followed by

scaffolded support from the teacher (Bandura, 1986; Davey, 1983; Wilhelm, 2001). Bandura (1986) believed that much of what is learned is self-regulated by the learner. When children observe the teacher modeling a reading behavior, they establish performance standards upon which they evaluate their own behaviors toward accomplishing the modeled behavior. If learners achieve or surpass the standard they set for the "modeled" behavior, they evaluate their performance positively. However, if learners have difficulty achieving the performance standard, they most likely evaluate their performance negatively.

Learners acquire new behaviors from their observations of a more competent model that shows them how to perform a strategy. Bandura's (1986) social cognitive theory emphasized that people gain new behaviors from their observations of others that they had little probability of independently displaying prior to the modeling. An integral component of CORI-STAR instruction was teacher modeling. During each lesson I modeled reading strategies for the students while I performed a think-aloud to explain to them what I was thinking as I followed each of the steps of the reading strategy. I explained to the students the metacognitive knowledge necessary to perform the strategy, such as the declarative knowledge of *what* I was doing, the procedural knowledge of *how* I would do each step of the strategy, the conditional knowledge of *when* and *why* I would use this strategy when reading.

Students learn from teacher modeling and think-alouds that help them take control of their learning. The task was gradually released to the students as they were further supported within their 'zone of proximal development' as they performed think-alouds to verbalize their thinking of the strategies they used while reading (Vygotsky, 1976). The

student think-alouds helped students think about, and talk about, how they used a particular strategy while reading as they assimilated the new strategy knowledge into their existing schema (Anderson & Pearson, 1984). The students' active participation in performing think-alouds during reading provided an ongoing informal assessment of their application of strategic reading behaviors, which further informed the amount of teacher scaffolding necessary to support their understanding of strategies (Wood, Bruner, & Ross, 1976).

According to Pearson and Gallagher's (1983) early work on comprehension instruction and the development of the gradual release model, instruction begins with the teacher taking the primary role of modeling and providing direct instruction to the students. Teachers move gradually from the position of assuming all the responsibility for performing the task and modeling to providing the students with guided practice as the responsibility for learning is shared between teacher and students. Through teacher scaffolding students practice and apply the strategies that were taught in the lesson. The students gradually assume the primary responsibility for their learning by independently applying what they have learned (Pearson & Gallagher, 1983).

In 1978, Dolores Durkin published her study which documented the infrequency of comprehension instruction and explicit strategy explanations in elementary level classrooms. Twenty years later, Pressley, Wharton-McDonald, Mistretta, and Echevarria (1998) confirmed that little reading comprehension instruction is occurring in elementary schools. Although both Durkin's (1978) and Pressley, et al.'s (1998) studies enlightened educators to the inadequacy of explicit comprehension instruction for elementary-aged readers, the fact remains that teachers often replace comprehension instruction with

evaluation of students' understanding. Comprehension instruction has become more evaluative than instructive, whereby teachers evaluate their students' comprehension of text, even though they did not provide comprehension instruction.

Instead of the explicit strategy instruction and metacognitive awareness training shown in the CORI-STAR approach, teachers may select implicit instructional methods which emphasize teachers' observations of students' behaviors to determine appropriate mini-lessons for instruction; therefore, they take a risk and gamble that their students will develop strategic reading behaviors more by chance instruction than by intentional instruction. Fountas and Pinnell (1996, p. 149) asserted that "Just as strategies cannot be directly observed, neither can they be directly taught. We teach *for* a strategy…even modeling and showing is insufficient." In this study, students in the Guided Reading group received a complete explanation of how to implement strategies and they were guided and supported in their use of strategies. The students were taught within their zone of proximal development and supported in their acquisition of strategies within authentic reading experiences, without emphasis on think-alouds and teacher modeling of each of the strategies.

This study reveals convincing experimental support that CORI-STAR instruction can enhance children's reading comprehension and use of reading strategies. Students in the CORI-STAR group showed more growth from the pretest to the posttest than students in the Guided Reading group on WRMT-PC, the QRI-4 comprehension questions and the QRI-4 retelling.

The Maze results did not support the findings that the CORI-STAR group made greater gains than Guided Reading group in reading comprehension as a result of the study; however, the Maze measure is not as reliable as the WRMT-PC and the QRI-4.

Results of analysis of students' total metacognitive awareness. The MSI was used to assess students' metacognitive awareness of when to use specific reading strategies. The analysis examined students' knowledge of before, during, and after reading strategies and total score. CORI-STAR students made larger gains on total score from pretest to posttest than the Guided Reading group as shown by a statistically significant interaction of time and group. There was also a statistically significant interaction of time and group for during reading metacognitive awareness. However, there was no interaction on the MSI subscores for before reading and after reading.

Overall, these results support the view that CORI-STAR positively influences metacognitive awareness. Although there was no interaction for two of the three subscores on the MSI, there was a statistically significant interaction with a large effect size of .182 for the total MSI scores. Since the MSI total scores involve more items than the subscores, the results for the MSI total score are most likely more reliable than those for the subscores.

Discussion of metacognitive awareness findings. Students who are metacognitively aware are also better at comprehending text (Paris & Jacobs, 1984; Schmitt, 1988). Paris and Jacobs (1988) found that third-graders and fifth-graders improved in their reading awareness and use of comprehension strategies as a result of metacognitive instruction. Metacognition, which refers to thinking about one's own thinking, focuses on learners' self-regulated thinking of *what* they know and *how* they apply knowledge to various

reading tasks (Jacobs & Paris, 1987). Brown (1980, p. 453) described metacognitive awareness as the "deliberate conscious control of one's own cognitive actions." Studies have shown that students can be taught metacognitive awareness strategies. Baumann, Seifert-Kessell, and Jones (1987) found that students could be taught to monitor their comprehension by using think-aloud procedures. Paris, Cross, and Lipson (1984) found that children could be taught how and when to implement strategies when reading.

The results show that CORI-STAR students benefited from explicit metacognition awareness instruction that focused their attention on developing metacognitive awareness of their reading. Although students' subscores for before reading and after reading only revealed a main effect for time, the total scores for the MSI revealed a statistically significant interaction indicating differential effects over time on metacognitive awareness favoring CORI-STAR students.

When students are metacognitively aware they exhibit control over their learning and thinking (Baker & Brown, 1984). Research has shown that younger readers and struggling readers often lack metacognitive awareness, which may impact their comprehension for various tasks. Struggling readers often fail to monitor their comprehension, or to evaluate text information (Baker, 1979; Garner, 1980; Markman, 1977). Comprehension monitoring requires readers to actively construct meaning from the text. Good readers are better at distinguishing between incomprehensible text and comprehensible text, compared to struggling readers who have difficulty recognizing that in order for text to make sense and they must adjust their processing strategies when reading (Garner, 1990).

Students who are metacognitively aware of their learning are more actively and cognitively engaged. They are better able to self-regulate their use of reading strategies, which leads to gains in their reading comprehension and reading motivation. Even though metacognition is important for all readers, it may be especially important to struggling readers who are not as proficient as skilled readers in understanding when to use various strategies when reading. Students who are metacognitively aware are better able to reflect on their own thinking and actions, which helps them to monitor and regulate their learning (Linnenbrink & Pintrich, 2003).

Metacognitive awareness refers to the declarative knowledge of knowing *what,* the conditional knowledge of knowing *how,* and the conditional knowledge of knowing *when* and *why* to perform a particular strategy. Paris et al. (1983) asserted that declarative and procedural knowledge are not sufficient to enable readers to process text strategically. When students lack the conditional knowledge of *when* and *why* to use a given strategy, they are unable to understand the purpose of implementing a strategy to make sense of the text. Students have difficulty developing independence in using comprehension strategies when they are unaware of *when* and *why* it is important to put forth the effort to use them. Students' awareness of conditional knowledge plays an important role in their strategic processing.

A lack of metacognitive awareness is evident when readers have difficulty knowing what they already know and how they can regulate or monitor their own cognitive activity. Brown (1978) found that students' metacognitive awareness while performing tasks can vary from novices, who are minimally aware of the problems they are experiencing, to experts who are able to identify a specific problem they are experiencing

within a task. Novice readers often do not possess enough metacognitive awareness to know what they understand when performing a task; therefore, they are less able to take action to correct their confusions.

Results of analysis of students' motivation. This study examined the effect of two different supplemental reading approaches on students' motivation. The MRQ was used to assess students' self-efficacy, strategies for self-efficacy, challenge, curiosity and involvement as a pretest and a posttest. The results of the MRQ revealed a main effect for group for total motivation scores, and for dimensions of self-efficacy, challenge, and involvement. However, no statistically signification interactions for time and group were found for the MRQ.

Discussion of motivation findings. The motivation to read is a critical issue in reading instruction (Baker, Dreher, & Guthrie, 2000). Often, intermediate-level struggling readers lack the motivation to read because of their past failures and lower feelings of self-efficacy to perform reading tasks. Students' beliefs about their academic abilities strongly influence their efforts and self-esteem when performing tasks (Paris & Winograd, 1990).

Struggling readers often gain little motivation as a result of reading instruction, especially when they lack sufficient comprehension strategies to help them understand what they read. Many times struggling readers conceal their reading difficulties and their embarrassment to read, opting to expend little effort on tasks they feel uncomfortable performing. Comparatively, their more successful peers are self-efficacious in persevering with challenging reading tasks, because they believe they can accomplish them (Paris & Winograd, 1990).

Differences were not found between groups for total motivation or on any of the five dimensions of motivation during this study. However, in previous research, the MRQ measure has revealed statistically significant improvements in reading motivation for students receiving Concept-Oriented Reading Instruction (Guthrie, Wigfield, Barbosa, Perencevich et al., 2004; Wigfield & Guthrie, 1997; Wigfield, Guthrie, Tonks, & Perencevich, 2004).

The context for instruction in the current study differed from past CORI studies. In this study, the MRQ measure was used to assess students' motivation to read as a result of supplementary reading instruction. In prior CORI studies, the instruction was delivered as the regular reading instruction in whole classrooms. In this study, however, the results may actually strongly reflect students' motivation to read across several classroom reading experiences. The statements that were used for the MRQ did not ask students to only think about their motivation to read within their supplementary reading group; therefore, students' responses are a reflection of their reading experiences within the school day: whole-group reading instruction, small group reading instruction, independent reading, media center visits, content area reading from textbooks, and the supplemental reading group.

The MRQ has been successfully used with whole grade-levels and classrooms to assess students' reading motivation (Guthrie, Wigfield, Humenick, Perencevich et al., 2006; Wigfield, Guthrie, Tonks, & Perencevich, 2004). However, in this study, struggling students' responses on the MRQ may have been impacted by reading experiences within the students' classrooms; therefore, the MRQ results were most likely influenced by the presence of extraneous variables, in addition to supplementary reading instruction.

Extraneous variables may include students' classroom reading experiences, the type and complexity of classroom reading tasks, the levels of reading materials used for classroom instruction, the availability of interesting books in the classroom library, level of teacher support for students when reading grade-level content materials, the classroom structure, and the teachers' rapport with the students.

The MRQ was used to determine students' reading motivation; however, classroom reading experiences may have contributed more to students' motivation than did the supplemental reading group experience. The range of students' reading engagement and motivation to read most likely varied between the supplementary reading groups and the classroom reading experiences. Students' reading experiences were strongly impacted by their myriad of literacy experiences outside of the supplementary reading group time. If the classroom teacher's style of instruction supported students' reading motivation within the classroom, their students may have completed the questionnaire differently than students who had unpleasant classroom reading experiences. Classroom reading experiences could have had a large impact on students' reading motivation, especially given the fact that more time was spent in classroom reading instruction and content area reading than the students experienced in supplementary reading instruction.

During this study I was in every third- and fourth-grade classroom throughout the day as I picked up or returned students to their classrooms, tested students and conducted instructional groups within classrooms, and when I conferred with teachers about their students' progress within the supplemental group. There were evident differences between teachers' levels of instructional support and their rapport with their struggling readers which would undoubtedly explain students' varying perceptions of themselves as

readers and their motivation to read. Struggling readers often experienced embarrassing verbal reprimands or classroom humiliation over incomplete assignments, off-task behaviors, or delayed responses to teachers' demands. These negative classroom experiences could have influenced students' motivation to read and their feelings of self-efficacy, which also could have affected their responses on the MRQ.

Struggling readers often receive instruction which emphasizes decoding practice and repetitive drill instruction (Allington, 1983) compared to their more proficient classmates who have motivating opportunities to: read exciting texts, conduct their own science investigations, satisfy their own curiosities through reading, make choices, become leaders within a group, collaborate with others about their learning, challenge themselves to take risks as learners, share their thoughts with others in think-alouds, make connections between what they are reading and what they are observing, develop confidence and self-efficacy while they view themselves as valued learners within the smaller community, and develop depth in reading comprehension by working on conceptual understanding within a theme. However, in the CORI-STAR approach, struggling students had opportunities to develop reading strategies within a motivating environment that looked much like that which was just described.

During reading group, struggling readers often confront lower level texts on topics or themes that are uninteresting to them. Allington (1977) argued that the best way for children to develop reading ability and become proficient readers is to be given opportunities to read motivating materials. Students in the CORI-STAR group were given opportunities to select books, topics, and questions they were interested in reading about. They chose from engaging texts with colorful photographs and interesting headings

which served to intrigue students to browse and ask themselves questions. Students in the CORI-STAR group were observed to b engaged in reading and searching texts. The CORI-STAR students accepted the challenge to learn how to perform think-alouds to talk about their thinking when reading. Their confidence increased as they became involved in reading and shared their knowledge with others.

Students in the CORI-STAR group were challenged to read a variety of texts at differing levels of difficulty as they signed out more books from the All-Star Book Club lending library than the students in the Guided Reading group. Many CORI-STAR students gained interesting facts about pond animals and how they survive through their extra reading from books they signed out from the All-Star Book Club. They also enjoyed opportunities to share what they learned with others in the group.

The CORI-STAR instructional approach provided students with opportunities to develop ownership over their learning through their think-alouds and reflections. Students were able to satisfy their curiosities as they made choices in selecting books, materials, topics to read about, and in selecting portions of text to share their strategy use with other students in the group. Students also gained confidence in caring for their aquarium and pond animals, a job which they quickly acquired when helping to set up the aquarium.

CORI-STAR instruction helped students become active thinkers, and this was powerful for many struggling readers who were previously more passive in their classroom reading groups. The CORI-STAR students took leadership roles within their group as they performed think-alouds and shared how they used strategies when reading. Although statistically significant results were not found to confirm differences in

motivation between groups, the students in the CORI-STAR group demonstrated a high degree of excitement and involvement during their group experience. Unlike the students in the Guided Reading group, many of the students in the CORI-STAR asked to be in another group when the sessions were over because they enjoyed CORI-STAR instruction so much. Several of these students shared that they have already decided on various conceptual themes they would like to explore within CORI-STAR group instruction. This excitement for continuation of supplemental groups was only evident from students in the CORI-STAR group.

Question 2: Students' Transference of Strategies from the Intervention to the Classroom

Results of analysis of students' transference of strategy use. The second question examined the classroom teachers' perceptions of their students' transference of reading strategies from the supplemental group to their classroom reading group. The Teachers' Perception of Students' Strategy Use Questionnaire (TPSSUQ) reported teachers' perceptions of their students' use of reading strategies in the classroom as a result of supplementary reading instruction. I hypothesized that, as a result of participation within the CORI-STAR group, students would be more likely to transfer their use of reading strategies from the intervention group to their classroom reading group.

The results of the TPSSUQ revealed that classroom teachers of students in both instructional groups perceived that their students made gains in using reading strategies in the classroom as a result of supplementary instruction. Although an interaction was not found on this measure, there was a statistically significant main effect for time which

shows that teachers believed that their students improved from the pretest to the posttest as a result of their involvement in the supplementary reading group.

Discussion of students' transference of strategy-use. Regardless of which type of supplemental instruction their students received, classroom teachers perceived that their students made gains in their use of reading strategies. The teachers' perceptions may have been a result of the Hawthorne effect. The Hawthorne effect refers to experimental conditions in which the individuals participating in the study may be influenced by their prior knowledge of the hypothesis.

Within this study, classroom teachers were involved with the process of identifying their struggling students to receive extra reading strategy instruction for the purpose of increasing their reading comprehension. The teachers' perceptions of their students' improvements in using reading strategies may have been influenced by their understanding that the purpose of supplementary instruction was to increase their students' comprehension and use of reading strategies.

However, since strategy instruction was incorporated in both the CORI-STAR and Guided Reading approaches of instruction, it could be expected that teachers would observe their students using strategies in their classroom reading groups. It was also highly probable that, as a result of their involvement in supplementary reading groups, students would demonstrate observable differences in their knowledge of the five strategies that were taught in this study.

Supplemental reading instruction may have positively influenced students' use of strategies because the struggling readers in either group received more instructional time and guided practice using reading strategies than they would have received during

independent reading time in the classroom. Although independent reading provides students with time to practice reading, often struggling readers have difficulty selecting appropriate text and managing their time; therefore, supplemental reading could serve to help students' focus on reading for that period of time. Research has shown that in order to accelerate reading development for struggling students, efforts must be made to increase both the quantity and quality of reading instruction (Walmsley & Allington, 1995). Since school districts are required to teach all students to be successful readers, it is necessary to provide remediation programs for students who fall behind their peers.

If the results of TPSSUQ actually reflect students' transference of reading strategies to their classroom reading group, then the question may arise as to whether students in the CORI-STAR group and the Guided Reading group varied in their application of reading strategies in the classroom. Within this study, students were randomly assigned by classroom to a particular intervention. Classroom teachers quantified their perceptions of their students' transference of reading strategies by using Likert score values. Although the Likert scores were based on teachers' perceptions of what their students could do as a result of supplementary groups, they were not aware of what students in the other supplemental group were doing as a result of supplemental instruction. Teachers' rankings were not used to make comparisons between supplemental groups, but instead they served to evaluate their own students' performance before and after the intervention. Teachers did not keep a copy of their pretest Likert scores for their students, so as they ranked their students at the end of the study, they did so 'blindly' without reference to their pretest scores. Since the main effect for time was shown on the TPSSUQ, it is apparent that teachers perceived that their students improved

in their use of strategies, regardless of their students' assignment to a particular supplemental group.

Question 3: Students' Application of Reading Strategies

The third question examined whether differences existed between students' application of reading strategies as a result of their participation in CORI-STAR or Guided Reading instruction. Since students in both groups received instruction using the same five strategies: activating background knowledge, questioning, searching for information, organizing information, and summarizing, it was important to determine which instructional approach more effectively influenced students' independent application of the strategies they were taught.

Results of analysis of students' application of reading strategies. The Strategy Application Assessment (SAA) was used to determine students' independent application of reading strategies as a result of the intervention. This measure revealed statistically significant time and group interactions for total reading strategy application and for four of the five reading strategies that were taught in the study: activating background knowledge, questioning, searching for information, and organizing information. A statistically significant main effect for group and for time was found for the summarizing strategy using the SAA measure. The students in the CORI-STAR group revealed higher gains in their application of reading strategies than the students in the Guided Reading group. The statistically significant interactions for time and group for four of the five reading strategies supports my research hypothesis that CORI-STAR students would more effectively apply reading strategies than Guided Reading students. Although a

statistically significant interaction was not found for the summarizing strategy, there were statistically significant main effects for group and for time, showing that both instructional groups changed from the pretest to the posttest as a result of instruction. The CORI-STAR group revealed gains from pretest to posttest on all five strategies, even though an interaction was not found for the summarizing strategy.

Discussion of students' application of reading strategies. I hypothesized that, as a result of explicit comprehension strategy instruction, students in the CORI-STAR group would outperform students in the Guided Reading group in their independent application of reading strategies. Students in the CORI-STAR group received explicit instruction which included teacher modeling, metacognitive awareness training, and think-alouds, compared to the Guided Reading group which had verbal explanations of the strategies and guided practice time. An interaction was not found for the summarizing strategy on the SAI, which may reveal that students in both groups made improvement as a result of the intervention.

In order to prepare struggling readers for the demands of state-wide reading assessments, it is essential that students gain the metacognitive knowledge toward developing self-regulation of their application of reading strategies. CORI-STAR students received explicit strategy instruction where they had opportunities to practice using each of the reading strategies while they performed think-alouds to promote their verbal accounts of how they used the strategy to read a portion of text that they selected. At the end of each lesson, the CORI-STAR students reflected on how they used the strategy in their reflection journals. Students in the Guided Reading group received implicit instruction in using the reading strategies. Students were guided to use the

strategies within the context of the texts that were reading. The teacher provided a mini-lesson to focus on the reading strategies and how they were used when reading.

Duffy et al., (1987) found that explicit teaching of strategies occurs when teachers describe the mental processes that good readers use while reading the text. The use of teacher think-alouds has been shown to be effective in helping students develop comprehension strategies (Bereiter & Bird, 1985; Davey, 1983). During the think-aloud, the teacher communicates the declarative knowledge, procedural knowledge, and conditional knowledge of performing a particular strategy. For students to develop self-regulating reading behaviors they must be given opportunities to gain control over the thinking involved in applying the strategies. Think alouds, which have been shown to be effective in revealing the cognitive processes involved in reading, are especially important for struggling readers who may often be unaware of how and when to use strategies (Almasi, 2003).

Reading strategies are not skills that can be taught by drill, but instead they are plans that the reader uses to construct meaning from the text (Duffy, 1993). Being strategic requires that readers know more than individual strategies; it requires them to be able to coordinate and balance their use of strategies to construct meaning of the text (National Reading Panel, 2001). Students in both supplemental reading groups had opportunities to practice implementing strategies before, during, and after reading.

Comprehension strategies are specific learned procedures that readers use to self-regulate their reading (Trabasso & Bouchard, 2002). Struggling readers need strategy instruction to show them how to self-regulate their use of strategies when reading. Before the Durkin's (1978-79) study, the explicit teaching of comprehension strategies was not

observed in formal reading instruction. Almost twenty years later, Pressley et al.'s (1998) study also revealed difficulties in finding comprehension strategy instruction in fourth- and fifth-grade classrooms. Even though it seemed that teachers were more knowledgeable in comprehension process research, the tasks they asked students to complete, such as responding to short-answer questions, summarizing what they read, identifying confusing parts in the text, and making predictions about what might happen next in the story, revealed that although students were given opportunities to practice comprehension strategies, they actually did not receive comprehension strategy instruction (Pressley et al, 1998). Strategy instruction requires the teacher to explicitly explain the strategy, and to demonstrate, or model, how to perform the strategy when reading, followed by opportunities for students to practice using the strategies.

Strategic reading requires teachers to be strategic teachers (Duffy, 1993). Many teachers find it difficult to implement instruction which emphasizes teacher modeling and metacognitive instruction; therefore, many teachers fail to help their students evolve into strategic readers (National Reading Panel, 2001). In order for students to improve in their use of reading strategies teachers need to employ instructional methods that have been shown to increase students' application of reading strategies. They need to model the appropriate reading strategies for meeting particular purposes and provide relevant authentic tasks for students to practice using their newly acquired strategies. Through scaffolded support from the teacher, students gradually take control over the reading tasks and are able to demonstrate them independently.

Question 4: Students' Declarative, Procedural, and Conditional Knowledge

The fourth question sought to discover whether differences existed between groups' metacognitive awareness of reading strategies. The Strategy Activation Inventory (SAI) was used to measure students' metacognitive awareness of the declarative, procedural, and conditional knowledge necessary to self-regulate their use of each of the strategies taught during the study.

Even though both groups receive strategy instruction, I hypothesized that, as a result of instruction, students in the CORI-STAR group would be more metacognitive than students in the Guided Reading group in their use of declarative, procedural, and conditional knowledge of reading strategies.

Results of analysis of students' metacognitive knowledge of strategy use. The results of the SAI showed a statistically significant interaction for time and group for total metacognitive knowledge scores and for each of the five reading strategies assessed: activating background knowledge, questioning, searching for information, organizing information, and summarizing. In each case, CORI-STAR students showed greater growth on their knowledge of *what, how, when,* and *why* to use each of the reading strategies than the Guided Reading students.

Discussion of students' metacognitive knowledge of strategies. The SAI was used to interview students concerning their knowledge of *what* each strategy was, *how* they used the strategy, *when* they used the strategy, and *why* they used the strategy during the reading process.

The results of the SAI showed that students in the CORI-STAR group outperformed students in the Guided Reading group on their metacognitive awareness

knowledge of using each of the reading strategies. The struggling readers in the CORI-STAR group who received explicit strategy instruction and metacognitive awareness training were more knowledgeable of the declarative, procedural, and conditional knowledge necessary for them to implement the reading strategies that they were taught than students in the Guided Reading group who only received strategy instruction.

Interventions that provide explicit training in using various reading strategies have been shown to be effective, especially for struggling readers (Hansen, 1981; Paris & Cross, 1983). Children are better able to overcome reading difficulties when they receive instruction which helps them understand *what* strategies they are using, *how* those strategies help them be better readers, and *when* and *why* they should use those strategies (Paris & Flukes, 2005). Good strategy users are knowledgeable of the declarative, procedural, and conditional knowledge connected to their strategies and they are more metacognitively aware of how to monitor their progress when they are reading (Almasi, 2003).

Students need both the skill and will to achieve (McCombs & Marzano, 1990) which affirms that students need both quality instruction and motivation for them to be successful. A relationship exists between students' metacognitive, cognitive, and motivational processes which helps them develop self-regulation of their mental processes (Butler & Winne, 1995). Research has shown that students engage longer at literacy tasks when they are metacognitive, use more cognitive strategies, and believe they are capable of achieving the task, than students who lack those qualities (Paris & Oka, 1986). The inclusion of metacognitive awareness training within a motivating small-group reading instruction approach combines many elements known to help

students develop self-regulation. Self-regulated learners are considered as those students who are metacognitively skilled regarding their awareness and use of strategies (Butler & Winne, 1995).

Students in the CORI-STAR group received explicit strategy instruction that supported students' knowledge of how to use each of the strategies. Explicit instruction consisted of teacher modeling, explanation of the strategies, and teacher think alouds as to *what, how, when*, and *why* a strategy was used. Within the CORI-STAR instructional approach, the teacher modeled each strategy and performed a think-aloud about the process of using the strategy. The students practiced using the strategy as they read the text, and they performed think-alouds to discuss their thinking as they proceeded through the process of implementing the strategy. At the end, the students reflected on their use of the strategy in their reflection journals. Students' reflection journals helped them become metacognitive about their learning during each lesson. The journals were twofold: (1) students' responded to a question that was related to their thinking as they implemented the reading strategy during the lesson, and (2) students' responded to *the what, how, when,* and *why* for using the reading strategy.

Students' responses on the SAI revealed the benefits of metacognitive awareness instruction that provides students with the knowledge necessary to perform the strategies independently. Struggling readers' lack of metacognitive awareness often leads to their disengagement with classroom tasks that they are asked to perform. When students are not sure *what* strategy to use as they read, or *how* to perform the strategy, they become disabled learners. This does not even account for students' conditional knowledge of

when and *why* to perform strategies that students need to be aware of in order to take control of their own learning.

The SAI revealed valuable information about students' knowledge that can be acquired by student self-report measures. The SAI was created as a suggestion from a student who participated in the pilot for this study. When the pilot was over and I was doing post-assessments the student wanted to know when I was going to ask about the *what*, *how, when,* and *why* of using the strategies. The student shared that she learned a lot by thinking about the declarative, procedural, and conditional knowledge while learning each new strategy during CORI-STAR instruction. She felt that finally reading was beginning to make sense because she knew how to think about using strategies. After her involvement in the pilot study, this struggling third-grade reader scored in the proficient range on the state assessments. The next school year she was reported as reading on-grade and did not need further remediation.

The results of students' performance on the SAI measure supports metacognitive theory which asserts that as students become metacognitive, they take control over their own thinking and learning activities (Baker, 2002; Baker & Brown, 1984). Through CORI-STAR instruction, students developed metacognitive awareness and learned *what, how, when,* and *why* to use each of the reading strategies to accomplish their goals for reading.

Metacognitive theory is concerned with how readers plan, monitor, and evaluate what they read in order to comprehend. Good readers are more metacognitively aware than struggling readers, but struggling readers who receive metacognitive strategy training can become more efficient and metacognitively aware with practice (Pressley &

Afflerbach, 1995). This study supports existing research that struggling readers' reading performance improves as a result of metacognitive strategy instruction (Palincsar & Brown, 1984). Within this study, struggling readers improved in their knowledge and self-regulation of reading strategies as a result of CORI-STAR instruction which included metacognitive strategy training.

Book Club Involvement

Reading engagement is important for students' text comprehension and their long-term reading achievement (Baker, Dreher, & Guthrie, 2000). As educators plan literacy instruction, they should also consider whether the structure of their classrooms help their students become engaged readers. Engaged readers read for many purposes: for information, to gain new knowledge on a topic of interest, or to read for enjoyment. Each day successful readers read more words than struggling readers (Baker, Dreher, & Guthrie, 2000). Often, struggling readers have fewer opportunities to engage in reading outside of their reading group than more proficient readers. Often text that is interesting and readable is not available on the classroom bookshelves for struggling readers. They also may lack access to books at home, or they may not have families that model good reading behaviors to them at home. Struggling readers often feel uncomfortable selecting books at the school library, especially when they realize that their book choices may be different from their more successful peers.

Students become engaged readers when they choose to read for their own interest, enjoyment, or learning. Students' ability to choose books that interest them is paramount to their reading engagement. Many grade-level content area books are difficult for struggling readers to decode and comprehend; therefore, struggling readers lack the

content knowledge from texts that their peers can easily access. For struggling readers to improve reading, they need multiple opportunities to choose what they want to read.

Many struggling readers who would benefit the most from engaging in reading at home often find homework reading assignments to be uninteresting, or too difficult to comprehend. The availability of interesting, readable books increases students' motivation to become engaged readers. When students have opportunities to choose their own books to read, they become more invested in their reading.

In this study, students in both instruction groups became members of the All-Star Book Club. Students were given opportunities each day to select books that correlated with the type of books they were reading in their reading instruction group: CORI-STAR students could choose books to extend their learning about ponds and pond animals, and Guided Reading students could choose leveled Guided Reading books on a variety of narrative and expository topics. The results showed that students in the CORI-STAR group signed out more than twice as many books as students in the Guided Reading group. Differences between groups were statistically significant in the number of students signing out books from the All-Star Book Club.

Literacy instruction should provide readers with the skill, motivation, and access to interesting texts to become engaged readers who choose to read for their own enjoyment. The All-Star Book Club extended reading opportunities to struggling readers in order to help them become engaged readers. CORI-STAR students enjoyed signing out books related to the topic of ponds that they were learning about in their supplemental group. Signing out books empowered CORI-STAR readers to become 'experts' on topics that they were reading about in group. In several cases, students chose books to read at home

so they could share something they learned about ponds with others in the group. The additional resource books enhanced students' learning and understanding of pond life. Access to expository texts in the All-Star Book Club served dual purposes: helping students gain background knowledge, and extending students' learning beyond the reading group.

A variety of leveled expository and narrative texts were made available for the Guided Reading group. The Guided Reading leveled texts matched students' readability levels and were chosen on a variety of topics. Many of the Guided Reading students who signed out books were able to use the books for classroom independent reading time.

The book bins for the CORI-STAR group and the Guided Reading group were labeled with the names of the classroom teachers so that students could easily find the book bins for their reading group. Many students discussed what they learned from books they signed out; therefore, other students in their group wanted to sign out the same book when it was returned. Multiple copies were made available for some of the most popular book titles. Students who participated in signing out books for either supplemental group seemed to be comfortable with the selection of books that they could sign out. The frequency of students' signing out books was higher for CORI-STAR students than Guided Reading students.

Study Limitations

This study involved an eight-week supplementary intervention involving two differing instructional approaches, CORI-STAR and Guided Reading. Several possible limitations of the study are identified as: time available for instruction may have been insufficient to impact students' reading motivation and feelings of self-efficacy,

insufficient sensitivity of the MRQ measure to specifically identify motivation resulting from the intervention, school schedule interruptions, and one instructor for both groups.

Instructional Time Opportunities to Impact Students' Motivation Through Sharing

Time was a possible limitation in this study. A given student participated in a daily 40-minute supplementary intervention session over an 8-week instructional period. The students in both groups received instruction to help them increase their reading comprehension; however, if additional time had been allotted for students to share what they learned with others, there may have been increases in their reading motivation and feelings of self-efficacy.

The CORI-STAR students may have been intrinsically motivated to teach their classmates about the survival concepts of the pond animal they chose to search for information about for their reports. The Guided Reading students may have benefited from opportunities to share their journal writing with other students in their classrooms. When students who have struggled with reading tasks have the opportunity to change roles and teach someone else what they have learned, their motivation increases and they take ownership over their learning. Additional time would have given students opportunities to present their knowledge to others, which may have increased their motivation or their *will* to persist with literacy tasks.

Even though the results of this study showed that this amount of time was sufficient for CORI-STAR students to show positive growth in reading comprehension and metacognitive awareness, their performance on the MRQ did not differ from Guided Reading students. It is possible that with a longer intervention, CORI-STAR students may have also shown statistically significant growth in reading motivation on the MRQ.

Sensitivity of the MRQ measure

The MRQ has been successfully used by researchers to determine students' reading motivation as a result of classroom reading instruction (Baker & Wigfield, 1999; Wigfield & Guthrie, 1997); however, it has not been used to measure students' motivation resulting from their involvement in a supplementary reading approach which only encompassed a fractional portion of daily instruction. For this study, the MRQ consists of eighteen statements used to identify five dimensions of reading motivation: self-efficacy, strategies for self-efficacy, challenge, curiosity, and involvement. The students used a Likert scale to rate the statements on the MRQ from one to four. The statements asked them how they feel about themselves as readers, how they select books to read, what kinds of strategies they use during reading, and what kinds of books they like to read.

One possible explanation for the lack of positive results on the MRQ measure was that it was not sensitive enough to isolate students' reading motivation as a result of their participation in supplementary instruction, due to the fact that students were also involved in a variety of daily reading experiences within their classrooms. Since the MRQ statements were not specific to the students' reading within the intervention group, this measure may have reported students' reading motivation within their classroom reading groups rather than their motivation as a result of the intervention. The reliability of the MRQ measure may possibly have been limited in this study because the questionnaire statements were not specific to students' feelings about their reading motivation as a result of the intervention.

School Schedule Interferences

Time was also a factor in adapting small-group instruction around the overall interferences within a school schedule: guest speakers, field trips, state-wide testing, county testing, IEP meetings, snow days, early dismissals, school holidays, field day, and staff developments. Even though school scheduling limited the continuity of instruction at times, this would most likely be the case for anyone choosing to replicate this instructional approach as a supplementary model within another setting.

Group Instruction Given by Same Teacher

Another limitation of the study may have been that both groups were taught by the same instructor. In such a case, it is possible that the instructor could inadvertently or purposefully provide instruction that does not adhere to the intended intervention, thus affecting the results. Since I instructed both groups I used fidelity of treatment measures to insure that the type of instruction which students received matched that instructional approach. The teachers within the school were asked to make unannounced observations of the supplementary groups. During their observations, the teachers used specification sheets to check off or initial each instructional component that they observed for that instructional approach. The results of the fidelity of treatment measure revealed that teachers had 100% agreement that what they observed was in compliance with the type of instruction the students within that group were to receive. The unannounced observations also helped to insure that quality instruction was given to each instructional group, to guard against researcher bias.

Implications for Research

This study examined the timely issue of instructional approaches for the purpose of accelerating reading growth in struggling readers. The study revealed statistically significant differences between the CORI-STAR and Guided Reading groups in areas of: reading comprehension; metacognitive awareness; students' application of four out of five of the reading strategies that were taught; and students' declarative, procedural, and conditional knowledge of strategy use. The data gathered from this study supported the hypothesis that differences existed between the instructional approaches. The CORI-STAR approach was more effective in accelerating struggling readers' strategic reading than the Guided Reading approach. The CORI-STAR approach also revealed a stronger impact on students' metacognitive knowledge about reading strategies, as well as their application of reading strategies.

This research could be further extended to examine the impact of the CORI-STAR approach as a complement to the whole class instructional approach known as Concept-Oriented Reading Instruction, or CORI. The CORI-STAR approach was designed to help students develop strategic reading behaviors and motivation within a small-group. The CORI instructional approach has been found to be an effective whole-class model for improving students' reading comprehension, engagement, and motivation. Within this study, the CORI-STAR approach was effective in improving struggling students' reading comprehension, metacognitive awareness, and use of reading strategies when they read.

The CORI-STAR approach should also be examined as an instructional model for small-group reading for all students within the classroom. Less effective instructional approaches may not assist students' development of strategic reading behaviors, which

results in students falling behind their peers. Eventually as teachers become aware that several students need help, they are recommended for supplementary reading instruction programs within the school to bring them back to grade-level. Elementary schools may benefit from CORI-STAR small-group instruction to support their students' development and self-regulation of reading comprehension.

In this study, all students received Guided Reading instruction within their classrooms. A future study could further explore differences between the CORI-STAR approach and other existing supplementary reading programs in terms of reading comprehension, metacognitive awareness, and motivation.

This study was based on researched methods that have been shown to be effective in improving students' reading comprehension, metacognitive awareness, and reading motivation. Unlike the Guided Reading approach, the CORI-STAR approach combined metacognitive strategy instruction and motivating components to assist students in their development of self-regulative strategic reading behaviors. CORI-STAR instruction could also be examined as a supplementary instruction approach for struggling middle school readers to determine its effectiveness in helping older students manage and appraise their abilities to perform reading strategies.

This study could also be extended as longitudinal study to determine the long-term impact of the CORI-STAR approach on students' acquisition and independent application of reading strategies after a period of time.

Implications for Instruction

When educators determine that supplementary instruction is needed to accelerate their struggling readers, they should examine the research on the instructional approaches to determine their effectiveness. This study revealed the importance of investigating supplementary approaches by showing that the CORI-STAR approach was more effective than another commonly used approach in helping struggling readers become self-regulated readers. This study has three implications for instruction: (1) metacognitive awareness instruction helps students regulate and monitor their strategic reading behaviors, (2) students' involvement in CORI-STAR instruction may impact their desire to engage in additional reading outside of their reading groups, and (3) students benefit from instruction which helps them develop self-regulation strategies.

The first implication is that metacognitive awareness instruction helps students regulate and monitor their strategic reading behaviors. Research has shown that metacognition helps readers become active participants in their own learning (Paris & Winograd, 1990). Although metacognitive awareness instruction is not often used in supplementary reading approaches, it was shown to be effective in helping CORI-STAR students self-regulate their thinking while they performed reading tasks. Classroom teachers and intervention teachers may find metacognitive awareness training to be valuable for helping their students develop control of their cognitive and metacognitive processes.

At the beginning of CORI-STAR instruction the students in the CORI-STAR group had difficulty learning how to talk about what they were thinking about as they read. It was evident that the students were unfamiliar with tasks that required them to (1) think

about *how* they used reading strategies while they were reading, and (2) share their knowledge with others in a think-aloud. Initially students' think-alouds more closely resembled a retelling of what they read in the text, which revealed that they were struggling with their development of metacognitive awareness by reverting back to more familiar recall responses. However, as a result of their observations of my modeling and use of think-alouds, the students began to understand what was being asked of them. They began to jot down their thinking on sticky notes as they read so that they could remember what thinking they remembered using as they used a particular strategy while reading. The CORI-STAR students began to display metacognitive thinking as they shared their knowledge of using the strategies.

Research shows that in order for elementary-age students to become metacognitively skilled readers it is important that their teachers are metacognitively aware of their use of strategies when reading (Pressley, 2002). Metacognitive awareness instruction required me, as the teacher, to first become aware of the declarative, procedural, and conditional knowledge I needed to perform a specific reading strategy. When I planned and prepared for CORI-STAR instruction, I thought about each reading strategy I wanted to model and the thinking that would accompany the process of implementing it while reading. I also understood that to teach the students to be metacognitive meant that I needed to share my mental processes in a think-aloud so that the obscure in-the-head strategies become more obvious and understood.

Before modeling the strategy, I introduced the strategy to the students by identifying *what* strategy I was using*, how* I would use the strategy in a step-by-step procedure*, when* I would use this strategy for before, during, or after reading tasks, and

why I would use this strategy to help me comprehend what I read. I modeled each strategy while I performed a think-aloud to explain the mental processes I used to read the text. After I modeled a particular strategy, I gave students an opportunity to practice the strategy as they read. The students were then asked to model their strategy use and think-aloud on a portion of text that they chose.

This study supports existing research that students acquire knowledge by observing teacher modeling and think-alouds that helps them understand what a particular behavior looks like (Bandura, 1977). Classroom teachers and intervention teachers could use modeling and think-alouds to show their students how to implement strategic reading behaviors. Through instruction that provides a combination of modeling, guided practice, and corrective feedback, the teacher may find that students are better able to learn complex skills (Bandura, 1977).

Within each CORI-STAR lesson, students received explicit instruction using the gradual release of responsibility model (Pearson & Gallagher, 1983; Taylor, Harris, Pearson, & Garcia, 1995). Group instruction began with me assuming total responsibility as I modeled a strategy and provided a think-aloud to tell what I was doing. This was followed by guided practice, whereby, both the students and I shared responsibility for learning. The final step was the teachers' observation that their students were capable of performing the strategy that they were taught; therefore, they showed that they could assume total responsibility for the application of their new learning.

Second implication of this research is that students' involvement in CORI-STAR instruction may impact their desire to engage in additional reading outside of their reading groups. The students in the CORI-STAR group chose to sign out significantly

more books from the All-Star Book Club for extra reading than the students in the Guided Reading group. As the students in the CORI-STAR students participated in reading about ponds and pond animals during reading instruction, they also showed an interest in discovering more about the animals by signing out books to share at home with their families. Several CORI-STAR students shared their newly acquired knowledge with others in their reading group; therefore, it helped them to gain 'expert' status on the subject.

In this study, the MRQ did not reveal a statistically significant interaction for students' motivation as a result of supplementary instruction. The MRQ has been used successfully in other studies to determine differences in students' reading motivation as a result of whole-class instruction; however, this measure may not have been sensitive enough to detect differences in students' reading motivation as a result of this intervention since the students participated in many reading activities within their classrooms each day that were in addition to supplementary instruction. However, the results from the All-Star Book Club provide strong evidence that CORI-STAR students were more motivated to sign out books for additional reading than the students in the Guided Reading group.

In addition, there was informal evidence to support group differences in motivation. For example, students in the CORI-STAR group were very motivated to engage in the group activities that were a part of the CORI-STAR approach. According to the theoretical framework of the CORI-STAR approach, which is based on Concept Oriented Reading Instruction, or CORI, students are given opportunities to observe and personalize their learning through their experiences with real world interactions. The

CORI-STAR students set up a real-world example of pond life in classroom aquariums beside their reading area so that they could observe pond animals and their survival concepts as they were reading about them in texts. The CORI-STAR students willingly took responsibility for caring for the aquariums and the pond animals. The students initiated and maintained a feeding schedule which gave each of the students an opportunity to share in feeding and cleaning up after the animals. Students' enthusiasm for their pond project was evident as they kept me informed of low food supplies, escaping crickets, the declining health of the fiddler crabs, or leaks from the large aquarium. Further, many CORI-STAR students were quite anxious to meet each day and would look for me at school to tell me about new things they learned in books they signed out from the All-Star Book Club or things that they thought about from what we read about in group.

The third implication from this study is that students benefit from instruction that helps them become self-regulated readers. The students in the CORI-STAR group developed self-regulating strategies as they became aware of the declarative, procedural, and conditional knowledge of using the strategies. Self-regulated learning is described as "the outcome of choosing to engage in self-directed metacognitive, cognitive, affective, and behavioral processes and skills" (McCombs & Marzano, 1990, p. 52). Self-regulated readers are strategically aware of their thinking and are able to direct their motivation toward accomplishing their goals.

This study found that students benefited from instruction which helped them develop both the *skill* and *will* to learn (McCombs & Marzano, 1990). Although students' development of skills and strategies is important for their acquisition of knowledge, this

may not be enough if they lack the will, or desire to engage in a particular task. As students in the study became metacognitively aware, they were better able to control their learning and intentionally choose which strategies they wanted to use to achieve their goals. The CORI-STAR students were able to appraise what they knew and what they needed to know to help them achieve their goals for reading. They also were better able to manage their use of strategies as they read. As the CORI-STAR students became more aware of their ability to control their use of strategies, they became more motivated to read and share their learning with others in the group during their think-alouds.

This study indicates that educators should select supplemental reading approaches that can help their students actualize their potential as strategic readers and thinkers. The CORI-STAR approach was developed to help struggling readers become self-regulated readers. As a result of metacognitive awareness instruction, the CORI-STAR students demonstrated greater proficiency in using and controlling reading strategies that they were taught.

For students to develop self-regulated reading behaviors, they need to be given instruction which provides them with the knowledge and motivation to be successful. Students benefit from explicit instruction that shows them strategies to be good readers. As the students in this study observed the teacher modeling and think-alouds, they became metacognitively aware of how to implement and regulate their use of reading strategies as they read. It is through students' observations of more competent models that they learn to think about their reading processes and gain control to self-regulate their use of strategies (Bandura, 1969).

This study revealed that students who received CORI-STAR instruction outperformed the students who received Guided Reading instruction in reading comprehension, metacognitive awareness, application of reading strategies, and knowledge of reading strategies. The CORI-STAR students revealed that they were better able to regulate and monitor their strategic reading behaviors as a result of metacognitive awareness instruction. CORI-STAR instruction may help students become self-regulating readers as they gain control over their cognitive and metacognitive processes

Conclusion

This study examined the impact of two types of supplementary instruction, CORI-STAR and Guided Reading, on the students' reading comprehension, metacognitive awareness, motivation, use of strategies, transference of strategy use to the classroom, and knowledge of strategies. Students in this study each received 8 weeks of instruction, or 40 lessons. The results of the study indicate that the CORI-STAR group made statistically significant gains over the Guided Reading group for the WRMT-PC and QRI-4 measures of reading comprehension, total scores for the MSI measure of metacognitive awareness, students' application of four out of five of the reading strategies that were assessed by the SAA, students' declarative, procedural, and conditional knowledge of each of the five reading strategies, as well as their participation in signing out books from the All-Star Book Club lending library.

The results of the TPSSUQ measure revealed that a statistically significant difference was found between groups for students' transference of reading strategies to their classroom reading. Classroom teachers perceived that their students were more strategic as a result of their involvement in supplementary instruction. The posttest means

for the CORI-STAR group was higher than the means for the Guided Reading group, which reveals that the teachers of students receiving CORI-STAR instruction perceived that their students were more successful in transferring their use of strategies to the classroom than the teachers of students in the Guided Reading group.

The MRQ was used to assess students' reading motivation. The results showed a main effect for group for total motivation scores, self-efficacy, challenge, and involvement. The absence of a statistically significant interaction between groups on the MRQ could possibly be attributed to classroom factors which influenced students' reading motivation throughout the school day, rather than specifically focusing on reading motivation that resulted from their involvement in the intervention. Since students were involved in classroom reading activities for more time than they spent in the intervention, the results of the MRQ may not actually reveal the influence of the interventions on students' reading motivation. Consequently, the MRQ measure may have measured more than it was intended to measure. All of the students in the study were influenced by Guided Reading instruction in their classroom reading groups; therefore, the students in both instructional groups were influenced by Guided Reading instruction, as well as other reading experiences in the classroom. However, it could be speculated that if the motivational attributes of the CORI-STAR approach had been incorporated into the classrooms of students participating in the study, differences may have been found between groups on reading motivation.

Although the study did not show differences between groups for motivation, the CORI-STAR students demonstrated their motivation and involvement within each lesson as they took responsibility for performing think-alouds, discussing their learning with

others, caring for the animals in the aquariums, as well as their participation in the All-Star Book Club as they signed out many books. The CORI-STAR students were excited about the books that they read, and the confidence they seemed to gain during the group. Many of them asked if they could be a part of a reading group with me for the next school year. Compared to the Guided Reading students, the CORI-STAR students readily reminded me of their group whenever they saw me.

The results of this study confirmed the need for closer examination of supplementary instructional approaches for struggling readers. If struggling readers are to meet the demands set forth in "No Child Left Behind" legislation, they need instruction which teaches them how to think about and monitor their reading. Struggling readers need an instructional approach that empowers them to become strategic readers who know how to control their use of strategies to self-regulate their reading. Effective self-regulation requires both the goals and motivation to attain those goals (Bandura, 1986). As students implement the strategies they learned, they acquire confidence in themselves as learners (Pintrich & Schunk, 2002).

For too long, many instructional programs have allowed struggling readers to be more passive in their learning. Struggling readers often receive isolated skill instruction rather than strategic reading instruction; therefore, the reading instruction that struggling readers receive may do little to help them understand how to regulate their reading. Often struggling readers receive supplementary instruction throughout their elementary years, without any evidence that they have made subsequent progress toward achieving grade-level standards. Allington (2006, p. 155) asserted, "Schools must enhance classroom instruction so that the number of struggling readers is minimized and then put into place

an organizational strategy that ensures children who need intensive, expert instruction receive it."

In order for schools to decrease the number of their students reading below grade-level they will need to make huge instructional decisions concerning their students' progress. CORI-STAR instruction has been shown to increase students' comprehension and metacognitive knowledge of how to perform reading strategies, yet often this type of instruction is not found in remedial programs. If educators are to expect their 'basic' students to perform as 'proficient' readers, it is time for them to consider instructional methods that have been researched and shown to be effective in helping struggling readers become metacognitive, self-regulated readers.

Appendix A Maze Passages

Maze Reading Task

Description of the Maze

- The Maze is a multiple-choice CLOZE task that students complete while reading silently.
- The first sentence of the 150-300 word passage is left intact. Thereafter, every 7th word is replaced with three word choices. One word is the exact word that was taken from the original passage. The other two words are distracters. One of the distracters is a near distracter which is of the same type (noun, verb, adjective, etc.) as the original word but it does not make sense or preserve meaning in the text. The other word is far distracter, a word that is not of the same type and does not make sense in the sentence.

Administration of the Maze

- The Reading Passages A and B will be counterbalanced in their administration to the students. One-half of the students will take Form A before the study and Form B at the conclusion. The other half of the students will take Form B before the study and Form A at the conclusion.
- The Readability of the passages was examined using the Flesch-Kincaid Grade level readability statistics. The readability for each grade level was identical. The readability for Forms A and B of the third-grade passages was 2.9, compared to the fourth-grade passages which had a readability of 4.0 for Forms A and B.
- Pass the Maze task out to the students. Have the students write their names on the top of the passage.
- Say to the students:
  1) "When I say 'Begin' I want you to silently read a story. You will have 5 minutes to read the story and complete the task. Listen carefully to the directions. Some of the words are replaced with a group of three words.Your job is to circle the word that makes the most sensed in the story. Only one word is correct."
  2) Administer a practice question to the students.

"The dog (apple, broke, ran) after the cat.

Say, “The three choices are apple, broke, and ran.

‘The dog *apple* after the cat.’ That sentence does not make sense. ‘The dog *broke* after the cat’, doesn’t make sense. “The dog *ran* after the cat.’ That sentence does make sense, so circle the word ‘ran’.”

3) Say, “Let go to the next sentence. Read it silently while I read it out loud. ‘The cat ran (fast, green, for) up the hill.’ The three choices are fast, green, and for. Which word is the correct word for the sentence?” Check to be sure the students answer is “fast.” Ask students to circle the word “fast” on their practice portion of the Maze.
4) Start the test by saying…
    a. “When I say “Begin”, turn to the story and start reading silently. When you come to a group of three words, circle only the **one** word that makes the most sense in the sentence. Work as quickly as you can without making mistakes. If you finish the page before the time is up, you may look over your answers. You have **five** minutes to read and fill in the blanks with the most appropriate word.
    b. Ask, “Do you have any questions?” (Answer student questions.)
    c. Say “Begin” and start the stopwatch.
    d. Monitor the students and be sure they understand that they are to circle only 1 word.
    e. At the end of 5 minutes say, “Stop, Put your pencils down.”
    f. Collect the Maze tasks.

Maze Reading Task

Student Name _____ Date _____

Teachers Name _____ Grade _____

1. Today you will complete the Maze task. When I say 'Begin' I want you to silently read a story. You will have 5 minutes to read the story and complete the task. Listen carefully to the directions. Some of the words are replaced with a group of three words. Your job is to circle the word that makes the most sense in the story. Look carefully at the three word choices and select the word that best fits in the sentence. Circle only one word choice. Only one word is correct.

2. Read the sample question silently to yourself as I read it aloud.

Sample:

1. The dog (apple, broke, ran) after the cat.

2. The cat ran (fast, green, for) up the hill.

3. When I say 'Begin' turn to the story on the next page and start reading silently. When you come to a group of three words circle only the **one** word that makes the most sense in the sentence. Work as quickly as you can without making mistakes. If you finish the page before the time is up, you make look over your answers. You have **five** minutes to read and fill in the blanks with the most appropriate word.

Student Name _____ Date _____

Third Grade Passage A Hungry Sharks

These are blue sharks. They are far out at sea (move, hunting, quickly) for food. Suddenly they pick up (many, these, the) smell of blood. The sharks speed (dashing, behind, up) and they shoot through the water like (dashing, basketball, torpedoes). In a few minutes they find (many, a, out) dead whale. The blue sharks tear (really, along, off) big chunks of whale meat. Now (much, that, the) water is full of biting sharks.

(Only, And, If) one shark gets hurt, the others (warning, turn, leave) on it. They will eat (the, every, that) shark too. In a short time (the most, those) whale is all gone. The sharks (chase, hungry, swim) away. Nothing is left but (whales, bloody, bones).

Blue sharks are called the wolves (about, of, hunters) the sea. This is because they (biting, stay, smell) together in packs. Blue sharks often (hunting, quickly, swim) after a ship for days. A (follow, long, last) time ago sailors thought this meant (this, that, because) someone was going to die.

Why (hungry, do, swimming) blue sharks really follow ships? The (sharks, whales, swiftly) come because of noises from the (house, ship, together). Then they stay to eat garbage (those, that, because) is thrown into the water. (22 choices)

Third Grade Passage A Hungry Sharks

Maze Answer Key

These are blue sharks. They are far out at sea (hunting) for food. Suddenly they pick up (the) smell of blood. The sharks speed (up) and they shoot through the water like (torpedoes). In a few minutes they find (a) dead whale. The blue sharks tear (off) big chunks of whale meat. Now (the) water is full of biting sharks.

(If) one shark gets hurt, the others (turn) on it. They will eat (that) shark too. In a short time (the) whale is all gone and the sharks (swim) away. Nothing is left but (bones).

Blue sharks are called the wolves (of) the sea. This is because they (stay) together in packs. Blue sharks often (swim) after a ship for days. A (long) time ago sailors thought this meant (that) someone was going to die.

Why (do) blue sharks really follow ships? The (sharks) come because of noises from the (ship). Then they stay to eat garbage (that) is thrown into the water.

(22 choices)

Student Name _____ Date _____

Third Grade Passage B Why I Sneeze and Yawn

You are playing hide-and seek. You've found a good hiding place. (We, You, Then) want to be as quiet as you (can, are, be). All of a sudden – KA-CHOO- (everyone, you, playing) sneeze!

Everyone knows where you are. Why (are, surprised, do) you sneeze- even when you don't (work, want, around) to? You are eating lunch with (his, your, think) friends and you are in middle of (telling, asking, quiet) them a story. All at once (knows, you, she) hiccup HIC! Your friends start to (want, laugh, telling). HIC! You try to stop, (am, but, because) you can't.

Why do you hiccup- even when (we, you, laugh) don't want to? A sneeze is (a, and, always) reflex. So is a hiccup You (friends, don't, can't) have to think about making reflexes (happen, came, hiccup). They happen whether you want them to (or, and, though) not. They happen very fast and (so, it, was) is very hard to stop them. (Another, All, When) reflexes work through your nervous (system, was, happen).

Your nervous system is made up (on, of, reflexes) two parts. One part is the nerves. (That, The, Wasn't) nerves look like long, thin threads. They (reach, catch, about) all over your body. The other (once, part, work) is the spinal cord and the brain. (22 choices)

Third Grade Passage B Why I Sneeze and Yawn

Maze Answer Key

You are playing hide-and seek. You've found a good hiding place. (You) want to be as quiet as you (can). All of a sudden – KA-CHOO- (you) sneeze!

Everyone knows where you are. Why (do) you sneeze- even when you don't (want) to? You are eating lunch with (your) friends and you are in middle of (telling) them a story. All at once (you) hiccup and your friends start to (laugh). HIC! You try to stop, (but) you can't.

Why do you hiccup- even when (you) don't want to? A sneeze is (a) reflex. So is a hiccup You (don't) have to think about making reflexes (happen). They happen whether you want them to (or) not. They happen very fast and (it) is very hard to stop them. (All) reflexes work through your nervous (system).

Your nervous system is made up (of) two parts. One part is the nerves. (The) nerves look like long, thin threads. They (reach) all over your body. The other (part) is the spinal cord and the brain.

(22 choices)

Student Name _____ Date _____

Fourth Grade Passage A Germs Make Me Sick

You wake up one morning. But you don't feel like getting (around, out, small) of bed. Your arms and legs (felt, like, ache). Your head hurts. You have a fever (and, if, ask) your throat is sore. I'm sick, (he, you, hurt) say. "I must have caught a (bed, germ, one)." Everyone knows that germs can make (she, you, sore) sick. But not everyone knows how. Germs (is, are, around) tiny living things. They are far (tiny, too, because) small to see with your eyes (around, alone, every). In fact, a line of one (went, arms, thousand) germs could fit across the top of (those, a, away) pencil.

There are many different kinds (for, of, to) germs. But the two that usually (caught, make, must) you sick are bacteria and viruses. (Around, Under, Germs) a microscope, some bacteria look like (only, things, little) round balls. Others are as straight (is, as, over) rods. Still others are twisted in spiral (sick, shapes, how).

Viruses are tinier than bacteria. Some (line, knows, look) like balls with spikes sticking out (far, on, kinds) all sides. Others look like loaves (with, about, of) bread or like tadpoles. There are (every, even, because) some that look like metal screws (from, with, when) spider legs.

(22 choices)

Fourth Grade Passage A Germs Make Me Sick

Maze Answer Key

You wake up one morning. But you don't feel like getting (out) of bed. Your arms and legs (ache) and your head hurts. You have a fever (and) your throat is sore. I'm sick, (you) say. "I must have caught a (germ)." Everyone knows that germs can make (you) sick. But not everyone knows how. Germs (are) tiny living things. They are far (too) small to see with your eyes (alone). In fact, a line of one (thousand) germs could fit across the top of (a) pencil.

There are many different kinds (of) germs. But the two that usually (make) you sick are bacteria and viruses. (Under) a microscope, some bacteria look like (little) round balls. Others are as straight (as) rods. Still others are twisted in spiral (shapes).

Viruses are tinier than bacteria. Some (look) like balls with spikes sticking out (on) all sides. Others look like loaves (of) bread or like tadpoles. There are (even) some that look like metal screws (with) spider legs.

(22 choices)

Student Name _____ Date _____

Fourth Grade Passage B Follow That Trash!

Every day you throw out about four (pounds, this, problem) of trash. So does everybody else (with, out, in) America. In one year we have 180 (million, what, dangerous) tons of trash. That is enough to fill a line (or, of, and) garbage trucks halfway to the moon. But (always, make, after) you put out your trash, what (has, happens, fills) to it? Getting rid of garbage (it, is, has) a problem. Most trash is buried in (airplanes, outside, places), called landfills. But landfills fill up (Then, Them, They) are ugly and dangerous, too. Some (like, landfill, leak) poisons that pollute our water. Yuck! (Who, When, Why) wants to drink water that can (of, drop, make) you sick? Some people are trying (with, out, to) pass laws to stop landfills.

Trash (has, is, inside) also burned in incinerators that (much, make, call) smoke. People don't want to have them (where, why, when) they live. Would you? Some of the smoke is (landfills, poisonous, noisy). No one wants to breathe that (lazy, smelly, laws) stuff)! Burning trash also makes soot (at, because, and) ashes. Soot makes our clothes dirty, and (she, our, was) faces, too! Recycling is (be, those, a) better way to get rid of (trash, burned, one). It means turning used things into new things.

(22 choices)

Fourth Grade Passage B Follow that Trash!

Maze Answer Key

Every day you throw out about four (pounds) of trash. So does everybody else (in) America. In one year we have 180 (million) tons of trash. That is enough to fill a line (of) garbage trucks halfway to the moon.

But (after) you put out your trash, what (happens) to it? Getting rid of garbage (is) a problem. Most trash is buried in (places), called landfills. But landfills fill up (They) are ugly and dangerous too. Some (leak) poisons that pollute our water. Yuck! (Who) wants to drink water that can (make) you sick? Some people are trying (to) pass laws to stop landfills.

Trash (is) also burned in incinerators that (make) smoke. People don't want to have them (where) they live. Would you? Some of the smoke is (poisonous). No one wants to breathe that (smelly) stuff! Burning trash makes soot (and) ashes. Soot makes our clothes dirty, and (our) faces too!

Recycling is (a) better way to get rid of (trash). It means turning used things into new things.

(22 choices)

Appendix B QRI-4 Rubric for Scoring

Vocabulary (page 51)

0 = Frustration - 65 % or less

1 = Instructional – 70 – 85 %

2 = Independent – 90% or greater

Total Accuracy (page 76)

0 = Frustration 89% and lower

1 = Instructional 90-97% accuracy

2 = Independent 98% and higher

Comprehension Implicit Questions

0 = 0-2 correct answers - Frustration

1 = 3 correct answers - Instructional

2 = 4 correct answers- Independent

Comprehension Explicit Questions

0 = 0–2 correct answers - Frustration

1 = 3 correct answers - Instructional

2 = 4 correct answers - Independent

Fluency

0 = 31 and lower (3^{rd}) and 26 and lower (4^{th})

1 = 32-86 wcpm (3^{rd}) and 27-87 wcpm (4^{th})

2 = 87 wcpm and higher (3^{rd}) 88 wcpm and higher (4^{th})

Retelling

0 = unable to retell, minimal, some errors in retelling

1 = partial understanding, may have some distortion, minimal details 1-2

2 = accurate, main idea and details more than 3 concepts presented

Appendix C Metacomprehension Strategy Index

Student Name _____ Date _____

Directions: Think about what kinds of things you can do to help you understand a story better before, during, and after you read it. Read each of the lists of four statements and decide which one of them would help you the most. There are no right answers. It is just what you think would help the most. Circle the letter of the statement you choose.

I. In each set of four, choose the one statement that tells a good thing to do to help you understand a story better before you read it.

1. Before I begin reading, it's a good idea to:
   A. See how many pages are in the story.
   B. Look up all of the big words in the dictionary.
   C. Make some guesses about what I think will happen in the story.
   D. Think about what has happened so far in the story.

2. Before I begin reading, it's a good idea to:
   A. Look at the pictures to see what the story is about.
   B. Decide how long it will take me to read the story.
   C. Sound out the words I don't know.
   D. Check to see if the story is making sense.

3. Before I begin reading, it's a good idea to:
   A. Ask someone to read the story to me.
   B. Read the title to see what the story is about.
   C. Check to see if the most of the words have long or short vowels in them.
   D. Check to see if the pictures are in order and make sense.

4. Before I begin reading, it's a good idea to:
   A. Check to see that no pages are missing.
   B. Make a list of words I'm not sure about.
   C. Use the title and pictures to help me make guesses about what will happen in the story.
   D. Read the last sentence so I will know how the story ends.

5. Before I begin reading, it's a good idea to:
   A. Decide on why I am going to read the story.
   B. Use the difficult words to help me make guesses about what will happen in the story.
   C. Reread some parts to see if I can figure out what is happening if things aren't making sense.
   D. Ask for help with the difficult words.

6. Before I begin reading, it's a good idea to:
   A. Retell all of the main points that have happened so far.
   B. Ask myself questions that I would like to have answered in the story.
   C. Think about the meanings of the words which have more than one meaning.
   D. Look through the story to find all of the words with three or more syllables.

7. Before I begin reading, it's a good idea to:
   A. Check to see if I have read this story before.
   B. Use my questions and guesses as a reason for reading the story.
   C. Make sure I can pronounce all of the words before I start.
   D. Think of a better title for the story.

8. Before I begin reading, it's a good idea to:
   A. Think of what I already know about the things I see in the pictures.
   B. See how many pages are in the story.
   C. Choose the best part of the story to read again.
   D. Read the story aloud to someone.

9. Before I begin reading, it's a good idea to:
   A. Practice reading the story aloud.
   B. Retell all of the main points to make sure I can remember the story.
   C. Think of what the people in the story might be like.
   D. Decide if I have enough time to read the story.

10. Before I begin reading, it's a good idea to:
   A. Check to see if I am understanding the story so far.
   B. Check to see if the words have more than one meaning.
   C. Think about where the story might be taking place.
   D. List all of the important details.

II. In each set of four, choose the one statement which tells a good thing to do to help you understand a story better while you are reading it.

11. While I'm reading, it's a good idea to:
   A. Read the story very slowly so that I will not miss any important parts.
   B. Read the title to see what the story is about.
   C. Check to see if the pictures have anything missing.
   D. Check to see if the story is making sense by seeing if I can tell what's happened so far.

12. While I'm reading, it's a good idea to:
    A. Stop to retell the main points to see if I am understanding what has happened so far.
    B. Read the story quickly so that I can find out what happened.
    C. Read only the beginning and the end of the story to find out what it's about.
    D. Skip the parts that are too difficult for me.

13. While I'm reading, it's a good idea to:
    A. Look all of the big words up in the dictionary.
    B. Put the book away and find another one if things aren't making sense.
    C. Keep thinking about the title and the pictures to help me decide what is going to happen next.
    D. Keep track of how many pages I have left to read.

14. While I'm reading, it's a good idea to:
    A. Keep track of how long it is taking me to read the story.
    B. Check to see if I can answer any of the questions I asked before I started reading.
    C. Read the title to see what the story is going to be about.
    D. Add the missing details to the pictures.

15. While I'm reading, it's a good idea to:
    A. Have someone read the story aloud to me.
    B. Keep track of how many pages I have read.
    C. List the story's main character.
    D. Check to see if my guesses are right or wrong.

16. While I'm reading, it's a good idea to:
    A. Check to see that the characters are real.
    B. Make a lot of guesses about what is going to happen next.
    C. Not look at the pictures because they might confuse me.
    D. Read the story aloud to someone.

17. While I'm reading, it's a good idea to:
    A. Try to answer the questions I asked myself.
    B. Try not to confuse what I already know with what I'm reading about.
    C. Read the story silently
    D. Check to see if I am saying the new vocabulary words correctly.

18. While I'm reading, it's a good idea to:
    A. Try to see if my guesses are going to be right or wrong.
    B. Reread to be sure I haven't missed any of the words.
    C. Decide on why I am reading the story.
    D. List what happened first, second, third, and so on.

19. While I'm reading, it's a good idea to:
    A. See if I can recognize the new vocabulary words.
    B. Be careful not to skip any parts of the story.
    C. Check to see how many of the words I already know.
    D. Keep thinking of what I already know about the things and ideas in the story to help me decide what is going to happen.

20. While I'm reading, it's a good idea to:
    A. Reread some parts or read ahead to see if I can figure out what is happening if things aren't making sense.
    B. Take my time reading so that I can be sure I understand what is happening.
    C. Change the ending so that it makes sense.
    D. Check to see if there are enough pictures to help make the story ideas clear.

III. In each set of four, choose the one statement which tells a good thing to do to help you understand a story better after you have read it.

21. After I've read a story it's a good idea to:
    A. Count how many pages I read with no mistakes.
    B. Check to see if there were enough pictures to go with the story to make it interesting.
    C. Check to see if I met my purpose for reading the story.
    D. Underline the causes and effects.

22. After I've read a story it's a good idea to:
    A. Underline the main idea.
    B. Retell the main points of the whole story so that I can check to see if I understood it.
    C. Read the story again to be sure I said all of the words right.
    D. Practice reading the story aloud.

23. After I've read a story it's a good idea to:
    A. Read the title and look over the story to see what it is about.
    B. Check to see if I skipped any of the vocabulary words.
    C. Think about what made me make good or bad predictions.
    D. Make a guess about what will happen next in the story.

24. After I've read a story it's a good idea to:

A. Look up all of the big words in the dictionary.
B. Read the best parts aloud.
C. Have someone read the story aloud to me.
D. Think about how the story was like things I already knew about before I started reading.

25. After I've read a story it's a good idea to:

A. Think about how I would have acted if I were the main character in the story.
B. Practice reading the story silently for practice of good reading.
C. Look over the story title and pictures to see what will happen.
D. Make a list of the things I understood the most.

Appendix D Metacomprehension Strategy Index Scoring Guide

Metacomprehension Strategy Index Administration and Scoring

Strategies Measured by the MSI

The MSI assesses student awareness of strategies used before, during, and after reading narrative text. The strategies assessed include (1) predicting and verifying, (2) previewing, (3) purpose setting, (4) self-questioning, (5) drawing on background knowledge, and (6) summarizing and using fix-up strategies.

Predicting and Verifying
Predicting the content of a story promotes active comprehension by giving readers a purpose for reading. Evaluating predictions and generating new ones as necessary enhances the constructive nature of the reading process.
Item Nos. 1, 4, 13, 15, 16, 18, 23,

Previewing
Previewing the text facilitates comprehension by activating background knowledge and providing information for making predictions
Item nos. 2, 3,

Purpose Setting
Reading with a purpose promotes active, strategic reading.
Item nos. 5, 7, 21

Self questioning
Generating questions to be answered promotes active comprehension by giving readers a purpose for reading. (i.e. to answer the questions)
Item nos. 6, 14, 17,

Drawing from background knowledge
Activating and incorporating information from background knowledge contributes to comprehension by helping readers make inferences and generate predictions.
Item nos. 8, 9, 10, 19, 24, 25,

Summarizing and applying fix-up strategies
Summarizing the content at various points in the story serves as a form of comprehension monitoring. Rereading or suspending judgment and reading on when comprehension breaks down represents strategic reading.
Item nos. 11, 12, 20, 22,

Metacomprehension Strategy Index
(Schmitt, 1990)

Scoring Guide

The 25-item multiple-choice assessment includes four response options that are coded as either correct (1 point) or incorrect (0 points). Scores on the MSI range from a low of 0 to a high of 25. Scores may be grouped by the strategies measured by the MSI, or grouped by before, during, and after reading strategies to determine student awareness.

Scoring
1. C
2. A
3. B
4. C
5. A
6. B
7. B
8. A
9. C
10. C
11. D
12. A
13. C
14. B
15. D
16. B
17. A
18. A
19. D
20. A
21. C
22. B
23. C
24. D
25. A

Appendix E Motivations for Reading Questionnaire

September 2003

Your first and last name_____

Teacher_____

School_____

The Motivations for Reading Questionnaire

We are interested in your reading. The sentences tell how some students feel about reading. Listen to each sentence and decide whether it talks about a person who is like you or different from you. There are no right or wrong answers. We only want to know how you feel about reading.

<u>For many of the statements, you should think about the kinds of things you read in your class.</u>

Here are some to try before we start on the ones about reading:

I like ice cream

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

If the statement is **very different from you**, circle a 1.

If the statement is **a little different from you**, circle a 2.

If the statement is **a little like you,** circle a 3.

If the statement is **a lot like you**, circle a 4.

I like to swim

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

If the statement is **very different from you**, circle a 1.

If the statement is **a little different from you**, circle a 2.

If the statement is **a little like you,** circle a 3.

If the statement is **a lot like you**, circle a 4.

I like spinach

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

If the statement is **very different from you**, what should you circle?

If the statement is **a little different from you**, what should you circle?

If the statement is **a little like you,** what should you circle?

If the statement is **a lot like you**, what should you circle?

Okay, we are ready to start on the ones about reading. Remember, when you give your answers you should think about the things you are reading in your class. There are no right or wrong answers. We just are interested in YOUR ideas about reading. To give your answer, circle ONE number on each line. The answer lines are right under each statement. Let's turn the page and start. Please follow along with me while I read each of the statements, and then circle your answer.

1. I am confident I can learn a lot by reading books.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

2. I am good at asking questions about things I read.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

3. I like hard, challenging books.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

4. I enjoy a long, involved story or book.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

5. If the teacher discusses something interesting I might read more about it.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

6. I know that I will do well in reading next year.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

7. I am good at searching for new information in books.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

8. I like it when the questions in books make me think.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

9. I have favorite subjects that I like to read about.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

10. I am a good reader.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

11. I can tell if I understand what I read.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

12. I usually learn difficult things by reading.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

13. I read to learn new information about topics that interest me.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

14. I make pictures in my mind when I read.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

15. I am good at understanding new words when I read.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

16. When I read a new book, I think about what I already know about the book's topic.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

17. I learn more from reading than most students in the class.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

18. I like to read about new things.

Very Different From Me	A Little Different From Me	A Little Like Me	A Lot Like Me
1	2	3	4

Appendix F Scoring Guide for Motivations for Reading Questionnaire

Scoring Guide for the Motivations for Reading Questionnaire

Scoring

Each item is scored on a 1 to 4 scale: higher scores mean stronger endorsement of the item. A total score can be derived by summing the scores of all the items (with the exception of Work Avoidance items; these should NOT be included in a summary score). However, we strongly recommend deriving separate scores for each of the proposed dimension of reading motivations. The scale scores provide much more information that a total score does. Specifically, they provide information about the pattern of children's responses and how they rate different aspects of their motivation for reading. These profiles could be quite useful for teachers and reading specialists interested in understanding what things children like about reading and what things they don't like about it.

Specific Steps for Scoring the instrument by hand

1. Check each questionnaire to be sure that each student completed each item. If some items are left blank, they of course should not be included in the scoring of the instrument. Each item that is completed should be scored from 1 to 4.
2. If a student circled more than one answer for an item and the answers are adjacent (e.g., circled both 1 or 2; or 3 or 4), take the number closer to the middle. However, if both 1 and 4 were circled, that item should not be counted.
3. If a student added numbers to the scale (e.g., the student wrote in numbers less than 1, or greater than 4), convert them to the scale. Numbers less than 1 can be scored as a 1; numbers greater than 4 can be scored as 4.
4. To create scale scores, use the table below to identify the items in each scale. Add the students' responses to the items in each scale (e.g., in the case of the Efficacy items, add the scores from the four items shown below) and divide by the number of items completed (e.g. in the case of the efficacy scale, divide by 4, if all the items were completed by the student). Dividing by the number of items on each

scale means that all the scale scores also will have a range of 1 to 4, which makes them easier to compare.

Scales on the Motivations for Reading Questionnaire

Reading Efficacy	1, 6, 10, 17,
Reading Challenge	3, 8, 12,
Reading Curiosity	5, 9, 13, 18,
Reading Involvement	4, 14,
Strategies (Self-Efficacy)	2, 7, 11, 15, 16,

Appendix G Teacher's Perception of Students' Strategy Use Questionnaire

Teacher ___________________ Date ______________________

Directions:
This is a questionnaire on students' engagement in reading throughout the day in your classroom. Write the student's name on the spaces provided and fill out the column under each.

This Student____

		Not true				Very True
1	Often reads independently	1	2	3	4	5
2	Is metacognitive in using strategies	1	2	3	4	5
3	Uses comprehension strategies well in reading group	1	2	3	4	5
4	Thinks deeply about the content of text	1	2	3	4	5
5	Works hard in reading	1	2	3	4	5
6	Enjoys discussing texts with peers in reading group	1	2	3	4	5
7	Uses comprehension strategies well	1	2	3	4	5
8	Is motivated to select and read a variety of texts	1	2	3	4	5

This Student____

		Not true				Very True
1	Often reads independently	1	2	3	4	5
2	Is metacognitive in using strategies	1	2	3	4	5
3	Uses comprehension strategies well in reading group	1	2	3	4	5
4	Thinks deeply about the content of text	1	2	3	4	5
5	Works hard in reading	1	2	3	4	5
6	Enjoys discussing texts with peers in reading group	1	2	3	4	5
7	Uses comprehension strategies well	1	2	3	4	5
8	Is motivated to select and read a variety of texts	1	2	3	4	5

This Student____

		Not true				Very True
1	Often reads independently	1	2	3	4	5
2	Is metacognitive in using strategies	1	2	3	4	5
3	Uses comprehension strategies well in reading group	1	2	3	4	5
4	Thinks deeply about the content of text	1	2	3	4	5
5	Works hard in reading	1	2	3	4	5
6	Enjoys discussing texts with peers in reading group	1	2	3	4	5
7	Uses comprehension strategies well	1	2	3	4	5
8	Is motivated to select and read a variety of texts	1	2	3	4	5

Adapted from Guthrie (2004d)

Appendix H Strategy Application Assessment

Student Name _____ Date _____

Teacher's Name _____

Strategy Application Assessment A

1. What do you know about ponds? Tell me what you know.

_____

_____

_____

_____

_____

2. Have you read any books about ponds? If so, tell me what the book or books were about.

_____

_____

_____

_____

3. Have you ever been to a pond? If so, where was it?

_____

_____

4. List some animals you would expect to find in or around the pond.

_____

_____

_____

_____

_____

_____

5. Write a question you have about ponds or the animals that live at a pond?

   _____

   _____

   _____

6. Read the selection titled, Pond Hunters. Summarize what you read.

   Summary about herons:

   _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

7. Read the two paragraphs below. Make a chart to compare the two animals to one another.

Frogs don't hunt for their food. They have big eyes on top of their heads so they can see all the way around. They stay very still and wait for insects to crawl or fly by. Then, they stick out their long sticky tongues to catch it. Frogs swallow their prey alive. Frogs use their powerful hind legs to help them push themselves through the water and to jump on land. Frogs are amphibians. Their enemies are foxes, snakes, rats, and birds.

Snakes hunt for their food. Snakes can't see or hear well, but they can sense where their prey is by using their pit organs to sense their prey's body heat. Snakes eat frogs, salamanders, turtles, lizards, rabbits, and small fish. Most snakes swallow their prey alive. A snake moves by sliding its body along on the ground. Snakes are reptiles. Their enemies are birds, eagles, buzzards, some mammals, and larger snakes.

8. Look at the book, *How Snails Live*, by Chris Brough.

Where would you look in the book to help you find information about how a snail moves? What did you find?

_____

_____

_____

_____

_____

9. Look at the book, *How Snails Live* by Chris Brough.

Where would you look in the book to help you find information about the snail's enemies? What did you find?

_____

_____

_____

_____

_____

Strategy Application Assessment Form A

Student Passage for Question 6

Pond Hunters

Herons are water birds. When herons come to the pond, they will stand motionless in the water for hours waiting to catch their dinner. They are very quiet as they watch for their prey. The heron will use its long, sharp bill to stab underwater for fish, frogs, or toads. Their long necks make them look different from other birds. Herons are the only bird that will fly with its neck bent back and their heads tucked between their shoulders.

Student Name _____Date _____

Teacher's Name _____

Strategy Application Assessment B

1. What do you know about ponds? Tell me what you know.

_____

_____

_____

_____

_____

_____

2. Have you read any books about ponds? If so, tell me what the book or books were about.

_____

_____

_____

_____

_____

3. Have you ever been to a pond? If so, where was it?

_____

_____

4. List some animals you would expect to find in or around the pond.

_____

_____

_____

_____

5. Write a question you have about ponds or the animals that live at a pond?

_____

_____

_____

6. Read the selection, Snakes. Summarize what you read.

   Summary about snakes:

_____

_____

_____

_____

_____

_____

_____

7. Read the two paragraphs below. Make a chart to compare the two animals to one another.

Snails are mollusks that have a shell to cover their bodies. The snail moves along on its long, flat foot and leaves a silver trail of slime behind it as it moves. Snails eat live plants, rotting plants, and some even eat dead animals. Snails lay eggs and bury them in the soil to hatch. Birds, beetles, centipedes, and earwigs like to eat snail eggs.

Turtles are the only reptile that has a shell. Most turtles can pull their legs and head into their shells for protection. Turtles walk using their four legs. Turtles eat tadpoles, small water creatures, crayfish, snails, frogs, and fish. Turtles lay eggs and bury them in the soil to hatch. Birds, skunks, raccoons, and snakes like to eat turtle eggs.

8. Look at the book, *The Survival of Fish*, by Fred and Jeanne Biddulph.

    1) Where would you look in the book to help you to find information about the clownfish?

    2) What did you find?

_____

_____

_____

_____

9. Look at the book, The Survival of Fish by Fred and Jeanne Biddulph.

    a. Where would you look in the book to find information about the archerfish?

    2) What did you find?

_____

_____

_____

_____

Strategy Application Assessment Form B

Student's Passage Question 6

Snakes

Snakes are hunters. They mostly use their senses to hunt for their prey. Snakes cannot hear sounds like we do but they can sense the ground shaking when an animal hops or runs by. The snake uses its forked tongue to smell the scent of animals. It flicks its tongue in and out of its mouth to taste the scent of other animals in the air. Snakes can open their jaws very wide to swallow their prey whole. Snakes eat amphibians, mice, birds, eggs, and fish.

Appendix I: Scoring Rubric for Strategy Application Assessment Forms A and B

Scoring Rubric for the Strategy Application Assessment- A and B

1. Pond Knowledge

    0 = Do not know, Response is confusing and lacks one clear concept about a pond

    1 = Contains 1 clear, accurate concept about ponds

    2 = Contains 2 clear, accurate concepts about ponds

    3 = Contains 3 or more clear, accurate concepts about ponds

2. Books about ponds

    0 = have not read books on ponds, no, or don't know

    1 = yes

    2 = yes, and student lists one thing he or she read about ponds

3. Been to a pond

    0 = no

    1 – yes, and student said something about its location

4. List of Pond Animals

    0 = none, I don't know any, or an inaccurate response

    1 = 1 or 2 animals listed

    2 = 3 or 4 animals listed

    3 = 5 or more animals listed that live in a pond

5. Pond Questions

    0 = don't know, wrote a statement instead of a question

    1 = yes/no question, a question that requires a simple answer to a fact

    2 = question that needs a simple explanation

    3 = complex explanation that involves mention of survival concepts

6. Summary about a pond animal: Snakes or Herons

0 = nothing, wrote a summary not related to the information they read

1 = one detail (no main idea or key words)

2 = two or more details or key words (no main idea)

3 = Main idea stated with 1 supporting detail

4 = Main idea stated with 2 supporting details

5 = Main idea stated with 3 supporting details

6 = Main idea stated with 4 supporting details

7 = Main idea stated with 5 supporting details

Snakes Key Words: hunters, prey, senses its prey

Herons Key Words: water birds, pond or water + bird, prey

7. Organized chart to compare information about animals

0 =don't know response,

-student wrote a random fact not included in the reading

-student wrote a true fact in a sentence, <u>not</u> a chart

-student compared animals that were not a part of the written paragraphs

1 =student made a chart to compare the information from the two paragraphs,

-one accurate item in a chart *with* or *without* a parallel comparing fact

-chart with weak comparisons between animals- may list ideas but they do not parallel them to one another,

-comparison of 2 parallel ideas without using a chart,

2 =chart that compares 2 accurate parallel ideas from the text about the animals

-comparison of 3 parallel ideas without using a chart

-comparison of 1 paralleled, accurate idea with additional information

3 = chart that compares 3 or more accurate parallel ideas

-comparison with 2 paralleled, accurate ideas in a chart plus other unparalleled information,

-comparison of 4 parallel ideas without using a chart

4 = comparison with 4 or more accurate, paralleled ideas in a chart

-comparison of 5 parallel ideas without using a chart

-comparison with 3 paralleled, accurate ideas in a chart plus additional unparalleled information

5 = comparison with 5 or more accurate ideas in a chart

-comparison of 6 parallel ideas without using a chart

-comparison with 4 paralleled, accurate ideas in a chart plus additional unparalleled information

8. Searching for Information: Clownfish and How a Snail Moves

0 = Don't know, or information incorrect or incomplete

1 =Response tells one of following: (1) the location of where to find the information, or (2) what information the student found

2 =Response includes 2 of the following: (1) the location of where to find the information, (2) How the child found the page, such as the Table of Contents or the Index, (3) Information that the student found when searching the text

3 = Response includes all three of the following: (1) the location of where to find the information, (2) How the child found the page, such

as the Table of Contents or the Index, (3) Information that the student found when searching the text**.**

9. Searching for Information: Archerfish and a snail's enemies

0 = Don't know, or information incorrect or incomplete

1 =Response tells one of following: (1) the location of where to find the information, or (2) what information the student found

2 =Response includes 2 of the following: (1) the location of where to find the information, (2) How the child found the page, such as the Table of Contents or the Index, (3) Information that the student found when searching the text

3 = Response includes all three of the following: (1) the location of where to find the information, (2) How the child found the page, such as the Table of Contents or the Index, (3) Information that the student found when searching the text**.**

Appendix J Strategy Activation Inventory

Name _____ Date _____

Please explain what each strategy is, how it is used, when you use it, and why you choose to use this strategy. Give an example of you using this strategy to learn.

Strategy Activation Inventory

What is this strategy? Describe what it looks like when you do this strategy.	**How** do you use this strategy? Tell someone how to do this strategy when they read.	**When** would you use this strategy? Think of when it would be a good time for you to use this strategy when you read.	**Why** would you use this strategy? Think of why this strategy is important for you to use when you read.

Give an example to tell what, how, when, and why you used this strategy.

Appendix K: Scoring Guide for Strategy Activation Inventory (SAI)

1. Rubric for Activating Background Knowledge

	0	1	2
What	• Don't know • Reader *does not* understand what the strategy is in relation to reading • Reader has *a limited response*	• Reader's response is limited or does not have an complete understanding of ABK	• Reader shows an understanding that ABK is important to get the reader thinking about the topic before and/ or during reading. • The reader is aware of the importance of using what is already known about a given topic when reading.
How	• Don't know • Reader's response *does not* connect thinking with ABK • Reader *does not* tell how to do ABK	• Reader mentions briefly how it is done, but does not demonstrate the knowledge needed to guide someone else or himself/herself to do the task	• Reader's explanation includes something about thinking or looking through the text to see what it is about. • The reader explains how he/she does it- possibly giving steps or procedure
When	• Don't know • Reader *does not* understand when to use this strategy in reading	• Reader's response is too specific and limits ABK to only when reading about ____subject • Reader's response does not refer to reading process	Reader understands that ABK can be done Before Reading- start thinking and/or During Reading- make predictions about what will happen next, or connect new to old during reading.
Why	• Don't know • Reader *does not* understand why this strategy helps him or her be a better reader • Reader *does not* relate activating background knowledge to reading.	• Reader has a vague understanding of why ABK is a good reading strategy • Relates ABK to reading	Reader understands that it is important to ABK to: -to think about what is being read, -to make connections between old and new information. -to help learn, remember and understand what is being read

2. Rubric for Questioning

	0	1	2
What	• Don't know • Reader *does not* understand strategy is in relation to reading, but what you do when you need help • Reader has *a limited response* • Reader understands questioning as what the teacher does,	• Reader does not have an accurate understanding of using questioning when reading • Reader knows you or someone else can ask questions about what is being read	• Readers understand that Questioning helps: • - get them thinking about the topic • -to find answers when reading • Readers understand that questions come from within themselves to help guide learning and to satisfy their curiosity
How	• Don't know • Reader's response *does not* connect questioning with reading	• Brief mentioning of how it is done, but doesn't appear to have the knowledge to guide someone to use the strategy	• Readers understand that they use questions as a strategy to help them understand or make sense of the text, or to help to find out things that aren't known • Readers may explain the steps to do questioning
When	• Don't know • Reader *does not* understand when to use this strategy in reading • Only refers to questions others ask him or her, not questions he or she has developed to learn more	• Reader's response is too specific and limits the range of Questioning only when reading about ____subject • Reader doesn't refer to using questioning as a strategy.	• Before Reading- Questions readers have before reading • During Reading- Questions about predictions, searches for answers, or questions to make sense of the text. • After Reading- Questions that were left unanswered that the reader is still curious about or new questions that developed when reading
Why	• Don't know • Reader *does not* understand why this strategy helps him or her be a better reader	• Reader has a vague understanding of why questioning is a good reading strategy- but may not know that questions guide the readers' actions.	• Reading is a self-initiated process that the students use to become learners • Questioning helps them to become smarter, understand what is read, and satisfy their curiosities

3. Rubric for Searching for Information

	0	1	2
What	• Don't know • Reader *does not* understand how the strategy relates to actual reading • Reader has *a limited response* • Reader refers to strategy as searching for words- as in dictionary skills	• Reader's response is limited in explanation as to what it is but knows that readers search to find information they want to know	• Readers are aware that books, the library, and/or the internet are good sources of information. • Readers make connections that they search for information for a purpose, such as learning about something they are learning or want to know. • Reader knows that you choose the relevant portions of the text to meet the goal for reading.
How	• Don't know • Reader's response *does not* connect the strategy with reading but at the word study level • Reader *does not* describe how to use the strategy	• Readers briefly state how it is done, but do not demonstrate the knowledge needed to complete task Readers mention using key words, and text, computer, or the library to help with the search	• Readers state that they use text features to help search for information (ex. table of contents, index, key words) • Readers explain how to search for information- possibly giving steps or procedure, or telling about using key words to help with the search
When	• Don't know • Reader *does not* understand when to use this strategy in reading • Refers to strategy use as a location (i.e. in school)	• Readers identify a limited understanding of when to do this strategy • Readers state that it is done when they want to find out information about something	• Readers use this strategy: • Before Reading- when looking in the index or table of contents. • During Reading: they search and possibly record information before returning to the text to search for more. • After Reading- questions from the reading they want answered
Why	• Don't know • Reader *does not* understand why this strategy helps him or her be a better reader	• Readers have a vague to general understanding of why it helps them search for information	Readers search for information • to find what they want to know or learn about • to meet their goals for reading • to satisfy their natural curiosity • to find answers to question

4. Rubric for Organizing Information Graphically

What	• Don't know • Reader *does not* understand what the strategy is in relation to reading • Reader refers to strategies cleaning up something	• Limited understanding of strategy • Reader knows that you use a chart to organize information into groups	• Reader understands that readers organize information for a purpose: to learn more about the topic • Readers are aware that books, the library, and/or the internet are good sources of information.
How	• Don't know • Reader's response *does not* connect strategy to reading, but may refer to it as organizing their desk, or papers • Reader *does not* describe how to use the strategy	• Reader gives brief indication of some knowledge but not enough to do strategy independently • Reader may mention using a chart	• Readers state that they use text features to help organize information • Readers explain how to organize information- possibly giving steps or procedure • Readers talk about putting things into groups or categories, or a chart.
When	• Don't know • Reader *does not* clearly understand when to use this strategy in reading • Only refers to organizing their desk, or a time they cleaned up	• Readers identify a limited understanding • Readers can identify that it is done when they want to find out information about something	• Readers do this strategy: • Before Reading- as they look in the index or table of contents. • During Reading: as they search and possibly record what they were searching for and return to the text to search for more. • After Reading- if they have information or questions from the reading that they want to organize
Why	• Don't know • Reader *does not* understand why this strategy helps • Reader *does not* relate strategy to actual reading but at the word level or dictionary skill	• Reader has a vague to general understanding of why it helps them to organize information • Relates strategy to actual reading	• Readers explain that organizing information helps them learn better • Readers organize information to help them remember it or study it for tests • Readers organize information to use for stories or reports

5. Rubric for Summarizing

	0	1	2
What	• Don't know • Reader *does not* understand what the strategy is in relation to reading	• Limited understanding of summarizing • Reader says you summarize by telling the main ideas of the text	• The readers know that they tell the main points when they summarize. • Reader knows that summarizing means to take out the fluff and tell the important information.
How	• Don't know • Reader's response *does not* connect strategy to reading • Reader *does not* describe how to use the strategy	• Reader may briefly mention how it is done, but does not demonstrate the knowledge to do it alone.	• Readers know and demonstrate that they would delete redundant information or fluff • Readers explain how to summarize, possibly giving steps/ procedure.
When	• Don't know • Reader *does not* clearly understand when to use this strategy in reading	• Limited understanding • Reader identified that you do it when you finish reading	• Readers use this strategy: • During Reading: Readers identify summarizing sections of text as they read. • After Reading: Readers identify summarizing as something they do to help them think about what they read.
Why	• Don't know • Reader *does not* understand why this strategy helps him or her be a better reader	• Reader has a vague to general understanding of why they summarize	• Readers summarize to think about what they read or to find what they want to know or learn about

Rubric for Scoring Examples of Strategies

0	**1**	**2**	**3**
• Don't know • Example lacks relevance to the strategy or reading • Example does not show how the strategy affects reading	• Given example briefly show understanding of the strategy • Example tells at least 1 element (what, how, when, or why)	• Given example tells at least 2 elements (what, how, when or why) • Student's example shows an understanding of strategy	• Same as 2, except Example includes 3 or 4 elements: what, how, when, and why

Appendix L CORI-STAR Daily Lesson Plan Sample

CORI-STAR lessons Week 1 Day 5

CORI phase	Observe and Personalize
Reading Strategy	-Activating Background Knowledge -Questioning
Science-Inquiry	-Team builds an aquarium for snails, fish, newts, insects, and plants. -Observe animals in aquarium
Reading Science	-Relating understanding of aquatic animals and pond community in text to live specimens in aquarium
Curricular Connection	Standard: General Reading Processes- Comprehension: Indicator: 4.Use strategies to demonstrate understanding of the text (after reading); Sub-indicator: **(b) identify and explain what is directly stated in the text, (h). Connect the text to prior knowledge or personal experience**
Explicit Instruction: Modeling, Think-Aloud, Metacognitive Awareness, and Student guided practice	1. Metacognitive Instruction: Teacher explicitly states the purpose of the day's lesson and the declarative (*what), procedural (how), and conditional knowledge (when* and *why)* for the strategy used for instruction. 2. The teacher models the think-aloud to show the strategy: (demonstrates the procedure and the thinking involved in performing the strategy): **(b) Identify and Explain what is directly stated in the text** **(h) Connect the text to prior knowledge or personal experience** Model Think-Aloud*: Making Connections: What do I already know about how animals live and survive in a pond community? What do I think a pond community is? Pull together background knowledge and new information to make sense of CORI Survival Concepts. (Introducing icons)* 3. Read *Wonders of the Pond* pp.16-23. 4. Student Think-alouds: Students select a pond animal and through a think-aloud present the description of their animal to their partner. Partner tries to identify the animal from their clues. "I'm thinking of an animal that…" 5. Add to list of pond community animals 6. Add information to KWL- Ponds *7. Journal: How did you connect what you already knew (KWL) about ponds and your new learning?* 8. Metacognitive Reflection-what, how, when, and why 9. Fluency Reading
Writing	KWL
Materials	Text: *Wonders of the Pond,* Think-aloud guide: I'm thinking of an animal, KWL
Journaling	Making Connections*: How did you connect what you already knew (KWL) about ponds and your new learning?*
Motivation	Collaboration with partners in learning; Concept development (ponds and pond community); Connections (live animals and text about animals- new knowledge); Curiosity learning about animals in our aquariums Challenge: Think-alouds with Guess who I am?; Choice-animal selection for Guess who I am?; Confidence-coaching one another

Sample Weekly Lesson Plan

CORI-STAR Study Week 1

Day	Instructional Comprehension Focus
1	1. Metacognitive Instruction: Teacher explicitly states the purpose of the day's lesson and the *what, how, when*, and *why* for the strategy used for instruction. 2. The teacher models the think-aloud to show the strategy: (demonstrates The procedure and the thinking involved in performing the strategy: Teacher models the identified strategy: **Activating Background knowledge and Periodically paraphrase important ideas or information** 3. KWL – Ponds 4. Teacher performs a think-aloud for the text, *The Ponds* *-What is a think-aloud? Using a think-aloud to model what I read or what strategy I used when reading, how to use a strategy, when and why to use a strategy to help me become a good reader.* 5. Students will practice think-alouds with partners with several pages in *The Ponds. What were you thinking as you read this?* 6. Observe Aquarium: Write observation 7. Journal Writing: How can doing think-alouds help me read better? 8. Metacognitive Awareness Journal 9. Fluency Reading
2	1. Metacognitive Instruction: Teacher explicitly states the purpose of the day's lesson and the declarative (*what), procedural (how), and conditional knowledge (when* and *why)* for the strategy used for instruction. 2. The teacher models the think-aloud to show the strategy: (demonstrates the procedure and the thinking involved in performing the strategy: **Previewing the text and setting a purpose for reading the text**. 3. Think-Aloud: *Overviewing the text: Looking over the text, Talking through my KWL –what I know and what I want to know* *- State the purpose of my reading- to find information- ponds* *-Check out main ideas covered in the text. Scan text features and the type of text I am about to read (descriptive expository).(structure strategy)* *-How do I know what kind of text it is?* *-How does that affect how I get myself to begin thinking about the text?* 4. Students practice think-aloud with a partner- 1 minute each 5. Read *The Pond* pp. 2-5 (more if time allows) 6. Students add information to KWL 7. Introduce CORI Survival Concepts of the pond- icons

	8. Discuss "What is a community in a pond?" 9. Student reflections in journal- *-How does setting a purpose fore reading and looking over the text prepare you before you read?* 10. Metacognitive Reflection-what, how, when, and why 11. Fluency Reading
3	1. Metacognitive Instruction: Teacher explicitly states the purpose of the day's lesson and the declarative (*what), procedural (how), and conditional knowledge (when* and *why)* for the strategy used for instruction. 2. The teacher models the think-aloud to show the strategy: (demonstrates the procedure and the thinking involved in performing the strategy: **Visualize what was read and Periodically paraphrase important ideas/info** *Teacher models aloud using a Think Aloud- Visualize as I read- Stopping at points to make pictures in my head. Reread if necessary. Read on, stop, make a picture.* 3. Read *Wonders of the Pond* 4. Think-Aloud with partner about one page you choose from today's reading. 5. Students make a list of pond animals you read about on pp. 3-7. 6. Observe aquarium – sample of a pond community 7. *Journal: Describe how you used a visualization to help you make sense of the text today.* 8. Metacognitive Reflection-what, how, when, and why 9. Fluency Reading
4	1. Metacognitive Instruction: Teacher explicitly states the purpose of the day's lesson and the declarative (*what), procedural (how), and conditional knowledge (when* and *why)* for the strategy used for instruction. 2. The teacher models the think-aloud to show the strategy: (demonstrates the procedure and the thinking involved in performing the strategy: **Identify and use new words acquired through the study of their relationships to other words** *Model think-aloud to Learn New Words as I Read: Looking at new words with embedded vocabulary meanings. Read first pages.* Reading words: amoeba, algae, paramecium,-look at meaning 3. Students read *Wonders of the Pond* pp. 7-17. 4. Jot down difficult words on sticky notes. 5. Partner think-aloud: "How I made sense of new words in the text?" 6. Add to list of pond animals in a pond community 7. Add to KWL 8. Sharing our difficult words- Add to the Vocabulary Section of notebook 9. *Journal: How did you use strategies to learn new words in the text?*

	10. Metacognitive Reflection-*what, how, when, and why* 11. Fluency Reading
5	1. Metacognitive Instruction: Teacher explicitly states the purpose of the day's lesson and the declarative (*what), procedural (how), and conditional knowledge (when* and *why)* for the strategy used for instruction. 2. The teacher models the think-aloud to show the strategy: (demonstrates the procedure and the thinking involved in performing the strategy): **(b) Identify and Explain what is directly stated in the text** **(h) Connect the text to prior knowledge or personal experience** 3. Model Think-Aloud*: Making Connections: What do I already know about how animals live and survive in a pond community? What do I think a pond community is? Pull together background knowledge and new information to make sense of CORI Survival Concepts.* *(Introducing icons)* 4. Read <u>*Wonders of the Pond*</u> pp.16-23. 3. Student Think-alouds: Students select a pond animal and through a think-aloud present the description of their animal to their partner. Partner tries to identify the animal from their clues. "I'm thinking of an animal that…" 4. Add to list of pond community animals 5. Add information to KWL- Ponds *6. Journal: How did you connect what you already knew (KWL) about ponds and your new learning?* 8. Metacognitive Reflection-what, how, when, and why 9. Fluency Reading

Appendix M Guided Reading Sample Lesson Plan

Guided Reading Lesson Week 1 Day 1 3rd Grade

Component	Guided Reading
Lesson Introduction	• Fluency read will be from a poetry book. The teacher listens in as students read.
Teacher Responsibility	• The teacher introduces 1st half of **The Highway Turtles** (22) Standard: 1.0 General Reading Processes, Indicator: Use strategies to prepare for reading (before reading) Sub-indicator: a. Survey and Preview the text, and C. Make **Predictions and ask questions about the text** • Teacher may guide students to do a picture walk and make predictions. Teacher guides students in discovering new vocabulary. Introduces students to the names of characters: Amy, Grace, grandfather, herons, (2), reeds (2), frightened (4), bulldozers (8)
Student Responsibility	• **The students read the text pages 2-8** and will check their predictions and/ or discover the meaning of vocabulary that was presented. • One or more students may be asked to whisper read to the teacher who assesses their reading using running records or anecdotal records.
Checking Student Understanding	• Discussion: The students discuss the text and revisit the text to make meaning. (They may summarize, make inferences or connections, evaluate the text, interpret it or relate it to other texts they have read, consult others to solve their misunderstandings, or think critically about the text. • The teacher provides **mini-lesson** based on observed student behaviors.
Writing	• Students will **retell or summarize** the story in their journals • Standard 3.0: Comprehension of Literary Text, Indicator: Determine important ideas and messages in literary texts, Sub-indicator: c. **Retell the Text**
Extensions of lesson (Optional)	• Standard 5.0 Controlling Language, Indicator: Grammar- Recognize, recall, and use basic elements of grammar to express ideas clearly, Sub-indicator: a. **Identify parts of speech,** such as nouns, pronouns, **verbs,** adverbs, adjectives • Students will recall the definition of a verb or will locate it in the classroom resource, Writer's Express, page 380. • Students will search for and make a **list of verbs** they found from reading pages 2-8 and share with one another.
Curriculum Goals	• Reading: Standard: General Reading Processes, Indicator: Use strategies to prepare for reading (before reading) Sub-indicator: a. Survey and Preview the text, and c. **Make Predictions and ask questions about the text** • Writing 4.0: Indicator 6: Determine important ideas and messages in literary texts Sub-indicator: **Retell the text** • Word Work: Standard 5.0 Controlling Language, Indicator: Grammar- Recognize, recall, and use basic elements of grammar to express ideas clearly, Sub-indicator: a. Identify parts of speech, such as nouns, pronouns, **verbs,** adverbs, adjectives.

Guided Reading Lesson Week 1 Day 1 4th Grade

Component	Guided Reading
Lesson Introduction	• Fluency read will be from a poetry book. The teacher listens in as students read.
Teacher Responsibility	• The teacher introduces 1st half of **Penguin Rescue** (23) Standard: 1.0 General Reading Processes, Indicator: Use strategies to prepare for reading (before reading) Sub-indicator: a. Survey and Preview the text, and C. Make **Predictions and ask questions about the text** • Teacher may guide students to do a picture walk and make predictions. Guide students in discovering new vocabulary. frowning, dangerous (2) recognized, tanker, Conner, Jane, Meg, Grandma (4) shivering (8)
Student Responsibility	• **The students read the text pages 2-8** and will check their predictions and/ or discover the meaning of vocabulary that was presented. • One or more students may be asked to whisper read to the teacher who assesses their reading using running records or anecdotal records.
Checking Student Understanding	• Discussion: The students discuss the text and revisit the text to make meaning. (They may summarize, make inferences or connections, evaluate the text, interpret it or relate it to other texts they have read, consult others to solve their misunderstandings, or think critically about the text. • The teacher provides **mini-lesson** based on observed student behaviors.
Writing	• Students will **retell or summarize** the story in their journals • Standard 3.0: Comprehension of Literary Text, Indicator: Determine important ideas and messages in literary texts, Sub-indicator: • c. **Retell the Text**
Extensions of lesson (Optional)	• Standard 5.0 Controlling Language, Indicator: Grammar- Recognize, recall, and use basic elements of grammar to express ideas clearly, Sub-indicator: a. **Identify parts of speech,** such as **nouns**, pronouns, verbs**,** adverbs, adjectives • Students will recall the definition of a noun or will locate it in the classroom resource, Writer's Express, page 380. • Students will search for and make a **list of the nouns** they found from reading pages 2-8 and share with one another.
Curriculum Goals	• Reading: Standard: General Reading Processes, Indicator: Use strategies to prepare for reading (before reading) Sub-indicator: a. Survey and Preview the text, and C. **Make Predictions and ask questions about the text** • Writing 4.0: Indicator 6: Determine important ideas and messages in literary texts Sub-indicator: **Retell the text** • Word Work: Standard 5.0 Controlling Language, Indicator: Grammar- Recognize, recall, and use basic elements of grammar to express ideas clearly, Sub-indicator: a. Identify parts of speech, such as **nouns,** pronouns, verbs**,** adverbs, adjectives.

Appendix N Instructional Books for CORI-STAR and Guided Reading Groups

Title of Book	Author	Group	Publisher
A Freshwater Pond	Adam Hibbert	CORI	Crabtree Publish.
All About Turtles	Jim Arnosky	CORI	Scholastic
Amazing Frogs and Toads	B. Clarke	CORI	Alfred Knopf
Amphibians	Melissa Stewart	CORI	Children's Press
Amphibians	Rod Theodorou	CORI	Heinemann
Animal Eaters of the Pond	Maud King	CORI	Wright Group
Animal Lives: The Frog	Sally Tagholm	CORI	Kingfisher
Animals of Rivers and Lakes	Moira Butterfield	CORI	Steck-Vaughn
Beavers	Lynne Stone	CORI	Rourke Books
Chipmunk Song	Joanne Ryder	CORI	Lodestar Books
Creepy Crawlers Salamanders	Lynne Stone	CORI	Rourke Books
Dancers in the Garden	Joanne Ryder	CORI	Sierra Book Club
Ducks	Lynne Stone	CORI	Rourke Books
Exploring Freshwater Habitats	Diane Snowball	CORI	Mondo Publishing
Eyewitness Amazing Frogs & Toads	Barry Clarke	CORI	Alfred Knopf
Fish	Rod Theodorou	CORI	Heinemann
Fishes	Melissa Stewart	CORI	Children's Press
For the love of Turtles	Argentina Palacios	CORI	Rigby
Freshwater Life	Susan McKeever	CORI	Thunder Bay
Frogs	Gail Gibbons	CORI	Holiday House
Frogs and Toads	Barrons	CORI	Barrons
Frogs and Toads	Christine Butterworth	CORI	Steck-Vaughn
Frogs and Toads: The Leggy Leapers	Sara Swan Miller	CORI	Franklin Watts
Frog's Home	Christine Butterworth	CORI	Steck-Vaughn
From Tadpole to Frog	Wendy Pfeffer	CORI	Harper Trophy
Herons	Frank Staub	CORI	Lerner
How do Fish Live?	Heather Jenkins	CORI	Wright Group
How Snails Live	Chris Bough	CORI	Wright Group
How Snails Protect Themselves	Chris Bough	CORI	Wright Group
I can read about Reptiles	David Cutts	CORI	Troll Associates
In the Swim	Douglas Florian	CORI	Voyager Books
Insects	Rod Theodorou	CORI	Heinemann
It's Best to leave the Snake Alone	Allan Fowler	CORI	Children's Press
Life in a Pond	Allan Fowler	CORI	Children's Press
Life in a Pond	Clare Oliver	CORI	Steck-Vaughn
Living Together	Jo Windsor	CORI	Rigby
Lizard in the Sun	Joanne Ryder	CORI	Morrow Junior
Look Closer: Pond Life	Barbara Taylor	CORI	DK Publishers
Look out for Turtles!	Melvin Berger	CORI	Harper Trophy

Title of Book	Author	Group	Publisher
Mammals	Rod Theodorou	CORI	Heinemann
Natural World: Crocodile	Joyce Pope	CORI	Steck-Vaughn
Plant Eaters of the Pond	F. & J. Biddulph	CORI	Wright Group
Pond Animals	Francine Galko	CORI	Heinemann
Look Closer: Pond Life	Barbara Taylor	CORI	DK Publishers
Pond Life	D. Stewart and M. Bergin	CORI	Franklin Watts
Pond Life	Maud King	CORI	Wright Group
Pond Year	K. Latsky	CORI	Candlewick Press
Raccoons	Allan Fowler	CORI	Children's Press
Reptiles	Brenda Parkes	CORI	Newbridge
Reptiles	Rod Theodorou	CORI	Heinemann
Reptiles: Predators	Lynne Stone	CORI	Rourke Books
River Animals	Francine Galko	CORI	Heinemann
River Otters	Lynne Stone	CORI	Rourke Books
Salamanders: Creepy Crawlers	Lynne Stone	CORI	Rourke Books
Scales, Slime, and Salamanders	Pat Miller-Schroeder	CORI	Steck-Vaughn
Sea Turtles	Gail Gibbons	CORI	Holiday House
Shark in the Sea	Joanne Ryder	CORI	Morrow Junior
Snails	Kevin Holmes	CORI	Bridgestone
Snakes	Barbara Taylor	CORI	Ottenheimer Pub.
Snakes	Lucille Penner	CORI	Random House
Swans	Lynne Stone	CORI	Lerner Pub.
Tadpole and Frog	C. Back & B. Watts	CORI	Silver Burdett
Tadpoles	Theresa Greenaway	CORI	Steck-Vaughn
Tale of a Tadpole	Barbara Ann Porte	CORI	Scholastic
The Beaver	Sabrina Crewe	CORI	Steck-Vaughn
The Fascinating World of Frogs and Toads	Maria Julivert	CORI	Barrons
The Life Cycle of a Snail	Chris Bough	CORI	Wright Group
The Pond	Maud King	CORI	Wright Group
The Silver Swan	Michael Morpurgo	CORI	Phyllis Fogelman
The Snail's Spell	Joanne Ryder	CORI	Puffin Books
The Snake	Sabrina Crewe	CORI	Steck-Vaughn
The Survival of Fish	F. & J. Biddulph	CORI	Wright Group
The Vegetation of Rivers, Lakes, and Swamps	Andreu Llamas	CORI	Chelsea House
Toads	Patrick Merrick	CORI	Child's World, Inc.
True Book: Amphibians	Melissa Stewart	CORI	Children's Press
True Book: Fishes	Melissa Stewart	CORI	Children's Press
Turtles	A. Balkin-Salzberg & A. Salzberg	CORI	Franklin Watts
Turtles take their time	Allan Fowler	CORI	Children's Press
Turtles, Toads, and Frogs	G. S Fichter	CORI	Western Pub.
Turtles: Life in a Shell	Sara Swan Miller	CORI	Franklin Watts

Title of Book	Author	Group	Publisher
Turtles: The Reptile Discovery	Louise Martin	CORI	Rourke Books
Wading Birds: From Herons to Hammerkops	Sara Swan Miller	CORI	Franklin Watts
Welcome to the World of Beavers	Diane Swanson	CORI	Whitecap Books
Welcome to the World of Otters	Diane Swanson	CORI	Whitecap Books
What are Food Chains and Webs	Kalman and Langille	CORI	Crabtree Pub.
What is a Fish?	B. Kalman & A. Larin	CORI	Crabtree
What's in the Animal Kingdom?	Bobbie Kalman	CORI	Crabtree
Where's that Reptile?	Brenner & Chardiet	CORI	Scholastic
Who eats What?: Food Chains and Webs	Patricia Lauber	CORI	Harper Trophy
Why Frogs are Wet	Judy Hawes	CORI	Harper Trophy
Wonders of the Pond	Francene Sabin	CORI	Troll Associates
A Choice for Sarah	Sonny Muleron	GR	Rigby
A Spider in my bedroom	Leone Peguero	GR	Rigby
Adventures in the Hills	Annette Smith	GR	Rigby
Animal Advocates	Wright Group	GR	Wright
Animal Mysteries	Wright Group	GR	Wright
Anyone Can Have a Pet	Nicki Atkinson	GR	Rigby
Bushfire in the Koala Reserve	Jackie Tidey	GR	Rigby
Carl's High Jump	Jenny Giles	GR	Rigby
Charlie's Great Race	Wendy Graham	GR	Rigby
Creature Talk	Wright Group	GR	Wright
Dash, the Young Meerkat	Beverley Randell	GR	Rigby
Fire on the Farm	Pauline Cartwright	GR	Rigby
Grandpa Jones and the No-Company Cat	Hillary Smillie	GR	Rigby
In Search of Treasure	Pat Meyer	GR	Rigby
In the News	Wright Group	GR	Wright
Kayaking at Blue Lake	Annette Smith	GR	Rigby
Mack's Big Day	Justine Edwards	GR	Rigby
Penguin Rescue	Julie Ellis	GR	Rigby
Penguin Rescue	Rose Inserra	GR	Rigby
Prickles the Porcupine	E. Russell-Arnot	GR	Rigby
Rally Car Race	Annette Smith	GR	Rigby
Riding the Skateboard Ramps	Annette Smith	GR	Rigby
River Rafting Fun	Annette Smith	GR	Rigby
Robin Hood Meets Little John	Jenny Giles	GR	Rigby
Roller Coaster Ride	Chris Bell	GR	Rigby
Scamp	Jan Weeks	GR	Rigby
Star and Patches	Jenny Giles	GR	Rigby
Survivors in the Frozen North	Beverley Randell	GR	Rigby
Teamwork	Dawn McMillan	GR	Rigby
The Bear and the Bees	Annette Smith	GR	Rigby
The Bully	Kathryn Sutherland	GR	Rigby

Title of Book	Author	Group	Publisher
The Carnival Horse	Wendy Graham	GR	Rigby
The Contest	Stephen Harrison	GR	Rigby
The Family Tree	Julie Ellis	GR	Rigby
The Giant Seeds	Heather Hammonds	GR	Rigby
The Gigantic Bell	Annette Smith	GR	Rigby
The Highway Turtles	Corinne Fenton	GR	Rigby
The Japanese Garden	Sally O'Neill	GR	Rigby
The Kindest Family	Krista Bell	GR	Rigby
The Man Who Rode the Tiger	Beverley Randell	GR	Rigby
The Motorcycle Photo	Wendy Graham	GR	Rigby
The Nightingale	H.Christian Anderson	GR	Rigby
The Running Shoes	Angelique Filleul	GR	Rigby
The Tornado	Julie Mitchell	GR	Rigby
The Truck Parade	Jenny Giles	GR	Rigby
Tiny Dinosaurs	Heather Hammonds	GR	Rigby
Washed Away	Dawn McMillan	GR	Rigby
Winter on the Ice	Beverley Randell	GR	Rigby

Appendix O Description of the Instructional Texts Used for the Study

Narrative and Expository Texts

Text structure refers to the way information is organized and presented in a text. The narrative and expository texts that were used in this study represent different text structures.

Narrative texts are those texts that are written as a series of chronological events with characters and events, like a story. Narrative texts may be both informational and fiction. Narrative-informational text includes factual stories, biographies, autobiographies, and memoirs. Narrative fiction texts includes genres such as stories, fables, fairy tales, folktales, historical fiction, myths, legends, epics, science fiction, literature, realistic fiction, and fantasy. Narrative texts are often more familiar and easier for young children to read and recall than expository texts.

Expository texts do not contain the story elements of characters, setting, problem, and solution that are prominent in narrative texts. Expository texts are used to convey information in a variety of organizational structures such as cause-effect, temporal sequence, compare/contrast, description, and problem/solution. Expository texts often contain a variety of text features to support the organization of the text, such as a table of contents, index, headings, subheadings, illustrations and photographs, charts, captions, labels, and glossaries. Unlike narrative texts, expository texts are framed around different organizational structures. When readers are familiar with the various text structures that are used to organize information they are better able to grasp the meaning of the text. Examples of expository texts include math text, science text, research reports, and other informational texts.

Characteristics of Expository and Narrative Texts

Expository Texts	Narrative Texts
-Expository texts have formal structures that are not typically used in conversation. Expository texts take the form of reports and essays that provide information. Expository texts do not include story elements such as characters, setting, problem, and resolution to the problem	-Narratives tend to be the more natural form of language. They usually contain a story line with characters, setting, problem, and a resolution to the problem.
-The text structures of the expository texts used in the study were organized by a descriptive or sequential rhetorical pattern.	-The story design usually has a plot that involves the characters as they move through the story from the beginning to the end.
-Expository texts are more difficult for the reader to comprehend than narrative texts. The organizational pattern and content are often less familiar to young readers, and the content vocabulary may be more difficult to comprehend.	-Narratives are easier for readers to comprehend and remember compared to other discourse genres such as exposition. Young children can recall information from a narrative text better than an expository text.
-Expository texts include science and social studies texts which often contain text features to help the reader navigate the text.	-Narratives include the type of speech used in informal conversations. Narratives are usually written in a conversational style, which are easier for young readers to read and comprehend.

Characteristics of Texts Used by the Instructional Groups

Description	CORI-STAR	Guided Reading
Length of text	-CORI-STAR books ranged from 16 to 48 pages	-Guided Reading books ranged from 16-32 pages
Types of text	-CORI-STAR group primarily used expository texts; however, several narrative texts were included to help students understand the interrelationships of the pond community.	-Guided Reading groups read leveled narrative texts which included story elements. They also read several narrative informational texts which conveyed factual information in a story format.
Text Features	-Most CORI-STAR books contained chapter titles, page numbers, table of contents, index, headings, captions, photographs or illustrations, and a glossary. -CORI-STAR texts contained colorful and engaging photographs and illustrations. The text features included headings, captions, and drawings helped readers interpret the meaning of the photographs or illustrations and to develop an understanding of the message of the text.	-Guided Reading books contained chapter titles, page numbers, and illustrations. -Guided Reading texts contained colorful illustrations, either with one displayed a page or with a large illustration covering two pages. Illustrations provided text support for students in making predictions and in visualizing the message of the text.
Criteria for Selection for Instruction and Text levels	-Texts were selected to help students develop the conceptual theme of ponds and the survival concepts of pond animals.	-Texts were selected at the students' instructional reading level as determined by their running records.

	-Texts were selected based on their readability and topic support. - Readability of the texts was identified with a wider range: either as a grade-level text (ex. 3rd grade level), or by a range of grade levels for readers (grades 2nd - 4th). Although CORI-STAR texts were not leveled, most of them ranged from 2nd grade to 4th grade level.	-Texts were selected based on their readability, appropriateness for strategy instruction and building on students' current skills, and students' background knowledge. -Several book levels represented a single grade level. Texts that were Levels 17-22 are 2nd grade texts. Levels 23-25 are 3rd grade texts. Levels 26-28 are 4th grade texts.
Ideas	-Ideas presented in CORI-STAR books were complex and related to the survival concepts in a pond environment. Ideas in the texts built upon one another to develop a conceptual understanding of the topic. -CORI-STAR texts were selected to help students develop knowledge of the interrelationships between pond animals and the survival concepts of pond animals.	-Ideas presented in Guided Reading books were simple themes involving everyday events of other children. -Guided Reading texts contained simple everyday themes, such as: things that happen at school such as playing sports, school activities, science fair, sports competitions, playing a musical instrument, and sharing stories with the class.

	-CORI-STAR texts were chosen to teach students about the animal classifications. Texts helped students develop conceptual knowledge of the survival concepts of various classifications of animals (reptiles, amphibians, water birds, fishes, mammals, mollusks and crustaceans). -CORI-STAR texts were chosen to help students gain science content knowledge as they read.	-Other Guided Reading texts contained ideas about children who had problems to solve with their families, such as: fire, drought, floods, and children learning to be responsible. -Texts were not selected for the purpose of incorporating science content or any other content area material into reading instruction.
Informational Texts/ Organization Design	-The CORI-STAR group used expository-informational texts to convey information using expository text structures. Illustrations, drawings, and photographs were present in the texts to support students understanding of the content material. Texts were organized as cause-effect, comparison-contrast, sequence, or description.	-The Guided Reading group used narrative information texts which presented information in a narrative style. Texts were organized in a descriptive rhetorical pattern. The texts presented information in a story structure with information shared through the characters in the story.

	-The expository text organization followed complex rhetorical description patterns, beginning with list pattern and ranging to hierarchy and matrix patterns. -The sequential text organization for CORI-STAR books was represented by a branching tree rhetorical pattern.	-The Guided Reading did not read expository texts. -Text organization was a simple sequential rhetorical pattern.
Narrative Texts	-Narrative texts that were selected for CORI-STAR supported the students' understanding of ponds. -These books introduced students to many content vocabulary words related to ponds. These texts helped students understand difficult content knowledge within the narrative story structure. Content knowledge was informative and contained multiple examples of the survival concepts of pond animals. -The narrative texts included large illustrations on every page that supported the content knowledge.	-Narrative texts contained a simple story line with a few characters, a well-defined problem, and an easily resolved solution. -The story content, language, and vocabulary were familiar to students. - The narrative leveled books included large illustrations on every page that supported the message of the text.
Vocabulary	-CORI-STAR texts do not contain controlled vocabulary words. Many new vocabulary	-Guided Reading texts contained carefully selected vocabulary words.

	words were introduced to students as they read the texts. -Often new vocabulary was accompanied with the meaning of the word embedded in the text, either in the sentence before the word, or in the sentence after the word was introduced. Texts introduced students to specialized vocabulary that coincided with the content area. -Students became familiar with pronunciations and meanings of vocabulary to help them develop a deeper understanding of pond relationships.	-Leveled texts are used for Guided Reading to reinforce the use of high-frequency words, phrases, and sentence structure in both fiction and non-fiction. -Vocabulary was introduced within the context of a familiar story line so that students could often infer the meaning of the word. Students built on their existing vocabulary as they were introduced to new words in the narrative stories.
Photographs, Drawings, and/or Illustrations	-CORI-STAR texts have many photographs, drawings, charts, and illustrations supported students' understanding of the written information in the text. Captions and labels are often present in these texts to help readers interpret the graphic information.	-Guided Reading texts have many illustrations that support the content of the text. Captions are not found in the books. A few photographs were used in narrative-informational texts.

References

Chambliss, M. J. & Calfee, R. C. (1998). *Textbooks for learning: Nurturing children's minds*. Malden, MA: Blackwell Publishers Inc.

Fountas, I. C. & Pinnell, G. S. (2001). *Guiding readers and writers grades 3-6: Teaching comprehension, genre, and content literacy*, Portsmouth, NH: Heinemann.

Kletzien, S. B. & Dreher, M. J. (2004). *Informational text in K-3 classrooms: Helping children read and write*. Newark, DE: International Reading Association.

Appendix P CORI-STAR Extended Sample Lesson Plan - Lesson 2.2

Reading Strategy	Activate Background Knowledge, Searching for Information
Science Inquiry	Understanding the environmental features of a pond Understanding that organisms can only survive in environments where their needs are met.
Conceptual Learning	Observing live animals and making connections to text learning.
Motivation	*Collaboration* with partners in learning; *Concept development* (ponds and the pond community); *Connections* (live animals in aquariums and text about animals- gaining new knowledge); *Curiosity* learning about animals in our aquariums and answering questions I have about ponds; *Challenge*: Learning to do think-alouds to activate knowledge; *Choice*-reading about, drawing, and selecting and pond animals for the pond community; *Confidence*-coaching one another
State Curricular Standards for Lesson	Standard 2: Comprehension of Informational Text: Indicator 2: Identify and use text features to facilitate understanding of informational texts; Sub-indicator d: Use organizational aids; f. Identify and explain the contributions of text features to meaning
Texts	Texts about ponds: Fowler, A. (1996). *A life in a pond.* New York: Grolier Press. (31 pages) Hibbert, A. (1999). *A freshwater pond.* (1999) New York: Crabtree Publishing Co. (32 pages) King, M. *The pond* (1995) Bothell, WA: The Wright Group. (24 pages); Sabin, F. (1982). *Wonders of a pond.* Mahwah, NJ: Troll Associates. (32 pages). Taylor, B. (1992). *Look Closer: Pond Life* New York: Dk Publishing. (29 pages)

	All texts have colorful photographs and/ or illustrations. Text features are present in *A Freshwater Pond, Look Closer: Pond Life, The Pond*,

1. Lesson Introduction

a. Setting the Purpose and Lesson

The teacher introduces the students to the purpose of the lesson by explaining what, how, when, and why to use the strategy when reading. For today's lesson, we will be activating our background knowledge about ponds by examining a variety of different texts about ponds.

The purpose of the lesson is to look at, and think about the text features and how they help us locate information about ponds. We will activate our background knowledge by thinking about what we already know about ponds and we will think about what we need to know to answer our questions about a pond community. We will learn how to use text features to help us search for information.

b. Introducing the Metacognitive Knowledge of the Strategies to be Instructed

The teacher will hold up a chart which identifies the metacognitive knowledge of what, how, when, and why to use the strategy of searching for information that will be used for the lesson.

The teachers explains each of the steps of understanding the lesson:

- **What** strategy am I going to use today? I am going to look at how texts are organized and how their text features can help me search for information so I can learn about pond life and pond communities.
- **How** do I use this strategy? I do this by first thinking about what I want to learn, and then I search through texts and using key words and text features to help me quickly locate what I want to find information about. Then I want to think about whether the text helped me accomplish my purpose for reading, or do I need to search for information in another text.
- **When** do I use this strategy? I do this strategy before, during, and after reading when I am searching for information. Before reading I need to think about what I want to find information about. I think about some key words that I can use to search for

information, and I think about how I can use the text features to find information about what I want to learn more about. During reading I am using the key words to help me search for information. I think about what I am reading and decide if the text has the information I am looking for to answer my questions and whether it helps me accomplish my goal for reading. After reading I think about what I found in the text and I decide whether I need to search in other texts to find the information I want to know.

- **Why** do I use this strategy of searching for information? I use this strategy to help me think about how the text is organized so I can find the answers to my questions.

2. Teacher Responsibility

a. Teacher Modeling/ Think-/Aloud/ Metacognitive Awareness Training

The teacher models the process of searching for information while using a think-aloud to help students become aware of the thinking used during the process. The teacher says, "When I am looking for information on ponds, I may look in different texts to find information or to answer my questions about ponds. Today I want to find information about how plants and animals live together in a pond and make a pond community. I thought about some words that might help me find what I am looking for. These key words are 'pond life' and 'pond community.' I found several books about ponds, but since I don't have time to read all the words in each of them, I need to use text features to help me locate information about pond life. So, I use strategies to help me achieve my reading goal of searching for information. Before I start I think about the 'what,' 'how,' 'when,' and 'why' of using the strategy."

"First, I want to think about 'what' I am doing. The 'what' for my strategy is that I am searching for information and using text features to help me find out what kind of animals may live in a pond community."

"Second, I think about 'how' to do this strategy. There are several steps for how to search for information. I know that after I think about 'what' I am looking for, I use the text features in the texts to make the process easier and more efficient. I will look in the Table of Contents to see whether 'pond life' or 'pond communities' is listed as one of the chapters. I know that the Table of Contents is in the front of the book." (Teacher picks up

the text, *Wonders of the Pond* (Sabin, 1982) and turns to the front to look for the Table of Contents.) "Oh no, this book doesn't have a Table of Contents. I see that it has lots of pictures of pond animals in it, but I don't know if they all live in the pond, or how they live as a pond community. I'll check the back of the book for the Index. I know the Index has key words in alphabetical order to help locate information, so I'll look up 'pond life' or 'pond communities' in the Index. Well, this book does not have an Index. That makes it more difficult for me to locate information quickly. I think I'll look in one of the other pond books to see if it has the text features I need to help me search for information." (The teacher picks up another book, *A Freshwater Pond* by Adam Hibbert.)

"Let's look at another book, titled, *A Freshwater Pond.* I'm going to use the key words, 'pond life' and 'pond communities' as I look in the Table of Contents and the Index to find the information I am searching for. I see that the second chapter of the book is titled, "Pond Life" and it begins on page 6. Let's turn to that page to see what we find. (Turns to page 6) On pages six and seven I can see a large picture of plants and animals that live in the pond. The heading for the page is 'Pond Life' and a large illustration of a pond community stretches across both pages. The author has labeled the plants and animals that live in the pond. In the illustration I see predators capturing their prey, such as the great blue heron holding a fish in its bill, and a land animal called a mink that has a fish in its claws. I used key words and text features to help me search for information about what I wanted to know more about."

"Next, I think about 'when' I do the searching strategy. I use the searching strategy <u>before reading</u> as I begin to think about what I know and what I want to know about a particular topic. I also think about key words that would be good to use when I am searching for information on a topic. <u>During reading</u>, I use the searching or information strategy when I read the words in the Table of Contents and the Index and I locate the pages and read the text. I think about whether this information answers my questions and whether it helps me achieve my purpose for searching. <u>After reading</u>, I use the searching for information strategy to help me reread parts of the text to check to see if I answered all my questions, or to look back at the Index and use some other key words to help me search further in the text to find information that connects to what I am searching for."

"It is also important to think about 'why' I use the searching for information strategy. I use this strategy to help me find what I want to know about different topics. When I use searching strategies, I think about how the text features in the book can help me efficiently use the texts. This strategy helps me understand what I want to know because I have to think about key words that are connected to the topic I want to learn about."

"We have more texts available for us to search for information about pond life and pond communities. You may pick any two of the books to see what you can find out about pond communities. You will want to use the text features to help you as you search for information. When you locate information, please put a sticky note in to mark your page. After you locate information about pond communities in two texts, please read those sections and write something you learned from each text on the sticky notes to share with the group."

3. Student Responsibility

a. Students Reading and Practicing the Strategy

The teacher provides more texts on the topic of ponds for students to practice searching for information using text features. The students select texts about ponds and they search for information about pond communities using the text features and the key words. The students turn to the Table of Contents or the Index. As the students find the key words in the Table of Contents or the Index, they turn to the appropriate pages in their books and put a sticky note in the text to mark their place.

b. Using Sticky Notes to Identify Strategic Behaviors

The students put sticky notes on two pages of the text to mark their place. After they found information about pond communities, they began to independently read the texts. Students write down at least one fact from each text on a sticky note that they can use to during their think-aloud.

4. Checking Student Understanding

a. Student Think-Alouds After reading the texts, the students take turns sharing how they located the information in the books they chose, and they told about the two new facts they learned about pond life or pond communities. Each of the students was given a chance to share what they learned as other students listened in. The students' think-aloud contained both the students' recall of the strategic behaviors they used when searching for information and what they learned as a result of searching for information.
b. Discussion and Observation of Aquarium (Pond Community) After the students share their think-alouds about what they learned and how they used the searching for information strategy to find their information, they briefly discuss what they learned about pond communities. Students are encouraged to make connections between the pond community and the aquarium pond community in the classroom.

5. Student Writing

a. Explicit Instruction in Writing and Organizing Information The students are guided to turn to their writing journal in their notebook. They are asked to write a description of a pond community using the information they found as they searched the texts. The students are asked to find an illustration from one of the texts to help them as they draw a picture of a pond community and label some of the plants and animals that live in a pond community.
b. Students Working Collaboratively and Students Choosing Texts, Passages, and Topics of Interest The students work together to construct meaning of what they have read about a pond community. They may discuss their new learning and share texts with each other that have illustrations of pond communities. The students may choose what they want to illustrate and how they want to synthesize their new knowledge both pictorially and in their writing.

6. Extensions of the Lesson

a. Teacher Restates the Focus of the Lesson The teacher restates the purpose of the lesson was to search for information. The teacher reviews *what* the strategy was, *how* it was done, *when* they would use that strategy, and *why* it is important to use the searching for information strategy.
b. Students Respond to Reflection Question The students turn to their reflection journal portion of their notebooks to answer their reflection question that corresponds with the lesson. The reflection question for this lesson is, "How would you use text features to help you choose a book to find information about things you want to know more about?"
c. Students Record their Metacognitive Knowledge of the Lesson (what, how, when, why) Using their reflection journals, students write down what strategy they learned, how they did the strategy, when they would use the strategy, and why they would use the strategy.
d. Fluency Reading The students choose a book from the book bins to read for fluency. Students read familiar texts to help them improve their reading fluency, expression, and phrasing during reading.

Description of a Pond Community

What is a Pond Community? Describe it in your own words.

Draw a picture of a pond community. Label the plants and animals.

CORI-STAR Extended Sample Lesson Plan - Lesson 3.5

Reading Strategy	Questioning, Searching for Information
Science Inquiry	-Develop students' understanding of Survival concepts for animal survival and the dynamic nature of pond life,
Conceptual Learning	Living organisms have specific body parts for survival in their environments
Motivation	*Collaboration* - with partners in learning; *Concept development* - ponds and the pond community; *Connections*- live animals in aquariums and text about animals- gaining new knowledge; *Curiosity* - learning about pond animals and animals in our aquariums and answering questions we have about ponds; *Challenge* - Learning to make connections between information found in different texts; *Choice*- what I want to know, and choosing a variety of texts to find information to answer my questions; *Confidence*-coaching one another
State Curricular Standards for Lesson	Standard 2: Comprehension of Informational Text: Indicator 4: Determine important ideas and messages in informational texts: Sub-indicator f: Identify and explain relationships between and among ideas
Texts	Texts about snails: (24 pages each) Brough, C. (1995).*How snails live*. Bothell, WA: The Wright Group Brough, C. (1995).*How snails protect themselves*. Bothell, WA: The Wright Group. Brough, C. (1995).*The life cycle of a snail*. Bothell, WA: The Wright Group. Each of these texts contains the following text features: Table of Contents, an Index, headings for each chapter, illustrations or photographs on every page, captions under close-up photographs, glossary for terms used, illustrations, page numbers, and labels.

1. Lesson Introduction

a. Setting the Purpose of the Lesson

The teacher introduces the students to the purpose of the lesson by explaining *what, how, when, and why* to use the questioning and searching for information strategy when reading. For today's lesson, we will be questioning what we know about snails from our reading in one text about snails as we search in other texts to find the missing information and to connect the information we are gaining between multiple texts.

The purpose of the lesson is to look at, and think about the information we want to know about snails. We will be looking for information about the survival concepts of snails. The teacher directs students to look at their survival charts in the front of their notebooks that shows the words for each of the survival concepts and the icons that represent them. The eight survival concepts are: feeding, locomotion, respiration, reproduction, predation, defense, communication, and habitat.

b. Introducing the Metacognitive Knowledge of the Strategies to be Instructed

The teacher will hold up a chart which identifies the metacognitive knowledge of what, how, when, and why to use the strategy of searching for information that will be used for the lesson.

The teachers explains each of the steps to help students understand the goal of the lesson:

- **What** strategy am I going to use today? I am going to look at how texts are organized and how their text features can help me make connections as I search for information about the survival concepts of snails.
- **How** do I use this strategy? I do this by first thinking about what I want to learn, then searching through texts, using the text features and the structure of the text to help me quickly find information. As I read the text, I can make connections between what I am reading and what I have learned from other texts I have read on the topic.
- **When** do I use this strategy? I do this strategy before, during, and after reading when I am searching for information. Before reading I think about the topic I want to find more information about. I think about the text features and the way the text is organized to help me prepare to search for information. During reading I think about the way the text is organized to help me locate the information and organize the new ideas in my brain I use the text organization to help me organize ideas I am reading

about. As I read I make connections between information in this text and information in other texts I have already read on the same topic. While I read I think about what I am reading and decide if the text is answering my questions. I make connections between the text and what I already knew or read about snails. After reading, I think about how the new information connected to my background knowledge on the topic. I make connections between texts I have read and I think about questions I have not found the answers to.

- **Why** do I use this strategy of searching for information? I use this strategy to help me think about how the information from one text may connect to information about the same topic I have read about in other texts.

2. Teacher Responsibility

a. Teacher Modeling/ Think-/Aloud/ Metacognitive Awareness Training

The teacher models the process of searching for information while using a think-aloud to help students become aware of the thinking used during the process. The teacher says, "We have already read two texts about snails. Today we will be examining another text as we search for information to answer our questions about the survival concepts of snails." (Teacher holds up *How Snails Live*.)

"We read a book titled, *How Snails Live*, where we found out about what snails look like, where they live, what they eat, their mouths and noses, tentacles, eyes, how they move, and some fascinating facts about snails. I could quickly find out what was in this book by looking at the Table of Contents. The Table of Contents guides the reader to the pages where they can find information on a topic they are searching for. The Table of Contents has chapter titles which are the same has the headings used throughout the book. The headings inform the reader about the main ideas that will be discussed in that section of the text. Each of the topics listed in the Table of Contents could be thought of as a main idea, and the ideas presented could be thought of as the supporting details. We could use the list, topical net, or hierarchy to organize information, depending on how much information I find on that topic. This helps me understand that this book is organized in a particular way."

"Let's look at a chart that shows us how authors organize the information in their texts." (Teacher holds up a handmade chart that looks something like the one at the end of this lesson plan.) "This chart shows us that text information may be organized in different ways to present information to the reader. In the book, *How Snails Live*, we found that information could be put in a chart that looks like the list structure, where one fact is added to another, and then another, depending on how many facts you find in the text. Another way to organize descriptive information is by using the topical net, which is much like the webbing of ideas you do in your classrooms. This shows the main idea in a circle in the middle with the supporting details in bubbles that are positioned around the main idea. A third way descriptive text is organized is by using the hierarchy structure. In the hierarchy structure, one main idea is listed first in a box. The supporting details are identified by the arrows and boxes that move directly from the main box. We will look at two other rhetorical patterns that are used in the text we are using today."

"In the book, *How Snails Protect Themselves*, we found a cause–effect structure. The cause-effect structure may look like the Linear String design because the cause would be in the first box and the effect would be written in the second box. The arrow shows that one fact is related to another fact. We would choose to put ideas together that are related to one another."

"The snail book we want to examine in the lesson today is titled, *The Life Cycle of the Snail*. The information in this book is organized in a different structure." (Teacher holds up the book for students to see.) "It is about the life cycle of a snail. The chapter titles we will want to examine today are 'Eggs and Baby Snails' and 'Mating and Laying Eggs'. The purpose for reading this text is to find out about the survival concept of reproduction for snails. In an earlier lesson, we defined reproduction to include both mating and the care of the babies. I am searching for information that is located in more than one chapter. Which of the rhetorical patterns on the chart best fits the text organization of this text?" (Teacher and students review the structure strategy chart to determine text organization.)

"Today we will be thinking about the text structure represented by a 'branching tree.' The main idea is reproduction, but we may have two subheadings, such as mating and laying eggs for one, and the eggs and baby snails for the second one. Information we read

in these two chapters will relate to one of these subheadings. As I read, I think about how the text is organized and how I make connections to what I have already read about snails in other books."

"Before I start I think about the 'what,' 'how,' 'when,' and 'why' of using the strategy. First, I want to think about *'what'* I am doing. The 'what' for my strategy is that I am making connections between different texts as I read and search for information about snails."

"Second, I think about '*how'* to do this strategy. I already know how to use text features such as the table of contents and the index to help me locate information. I think about how the text is organized by chapters and what each of the chapter titles tell me about what the text will cover. I think about how the text is organized so that I can think about what I am reading and organize the information in my brain as I read. I also think about what information I am searching to find out more about. Today I want to find out about one of the survival concepts for snails."

"Making connections between texts is very important. When I read today I will think about connections I can make between this text and other texts I have read on the topic of snails. Today when I am reading the two chapters about the survival concept of snails' reproduction, I may jot down some information from each chapter so I can remember it to share in group. As you read and you think about what you are reading and make connections with the text, jot down those ideas and mark your pages with a sticky note so that you can share what you found in your think-aloud today."

"Next, I think about *'when'* I should make connections between what I read from one text to what I read in another text. I make connections <u>before reading</u> when I am looking through the text and I find something I have read about in another book. It helps me start thinking about what I am going to read about and it helps me decide whether what I am reading agrees with what I already knew about the topic. <u>During Reading</u> I make connections between ideas and information that I have read about in other books. When I think about what I know as I read, I can ask myself questions and decide how what I know is connected to what I am reading about. <u>After reading</u> I think about what I read about in the text and how that connects to my background knowledge and to what I have read in other books."

"I also think about '*why'* I should make connections between texts when I am searching for information. It helps me to think about what I know and to think about how something else connects to it. Sometimes I have new questions when I read from two texts, and sometimes when I make connections, it helps to answer questions I had after I read the first text. When I make connections between two texts it helps me think about and better understand what I just read."

3. Student Responsibility

a. Students Reading and Practicing the Strategy

The students read two chapters, 'Eggs and Baby Snails' on pages 2-6, and 'Mating and Laying Eggs' on pages 12-17 in the book, *The Life Cycle of a Snail.* The students are searching for information on the survival concept of reproduction. After the students read the text they will write down what they learned about snails' reproduction on sticky notes. These ideas will be recorded later on their Survival Concept chart for snails.

After reading the two chapters of the text, the students examine all three books on snails. Students will look for connections they made between the ideas presented in the books. Students will use sticky notes to record their ideas to share in the student think-aloud.

b. Using Sticky Notes to Identify Strategic Behaviors

The students write information on sticky notes that they found on the topic of the snails' survival concept of reproduction. This information will be transferred to their organizers later in the lesson. The students also use sticky notes to mark pages and jot ideas about connections they made between texts.

4. Checking Student Understanding

a. Student Think-Alouds

After reading the texts, the students take turns sharing connections they made between ideas presented in the texts. Each of the students was given a chance to share what they learned as other students listened in. One example of a connection that was made involved two texts.

A student shared that in the text, *How Snails Protect Themselves,* it said that snails' shells are made from the minerals found in the foods it eats, and that snails need calcium, just like people do. In the text, *Life Cycle of a Snail*, it stated that a baby snail's first meal is its eggshell: A snail's eggshell and the soil it eats provide the calcium needed to make strong shells.

b. Discussion

After the students share their think-alouds about connections they made between the texts on the topic of snails, they briefly discussed what they found out about the snails' reproduction and care of their babies.

5. Student Writing

a. Explicit Instruction in Writing and Organizing Information

The students are guided to turn to their writing journal in their notebook. They are asked to write information about the snails' survival concept of reproduction on the Survival Concept chart. The students may add information to other survival concepts that they may have found during their reading.

b. Students Working Collaboratively and Students Choosing Texts, Passages, and Topics of Interest

The students work together to construct meaning of what they have read about the snails' survival concept of reproduction. They may discuss with one another what they wrote on their sticky notes or where they found information in the text.

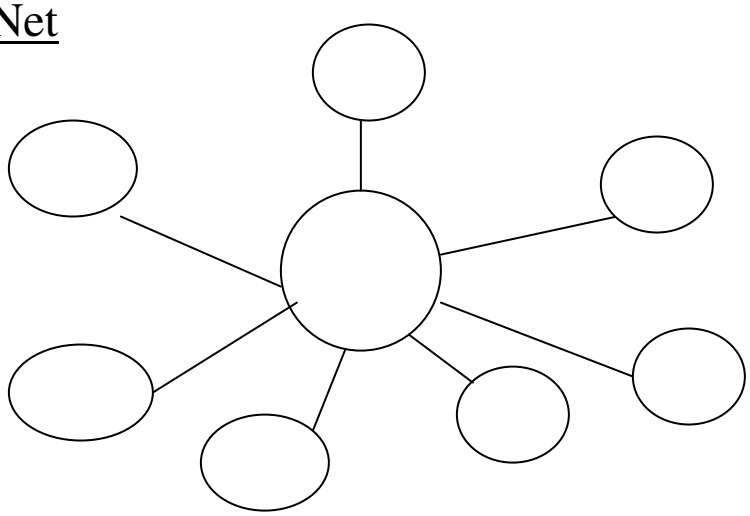
6. Extensions of the Lesson

a. Teacher Restates the Focus of the Lesson The teacher restates the purpose of the lesson was to search for information and to make connections between different texts they were examining. The teacher reviews *what* the strategy was, *how* it was done, *when* they would use that strategy, and *why* it is important to search for information and to make connections between what they read about in different texts.
b. Students Respond to Reflection Question The students turn to their reflection journal portion of their notebooks to answer their reflection question that corresponds with the lesson. The reflection question for this lesson is, *"How does background knowledge from one text help you better understand another text?"*
c. Students Record their Metacognitive Knowledge of the Lesson (what, how, when, why) Using their reflection journals, students write down what strategy they learned, how they did the strategy, when they would use the strategy, and why they would use the strategy.
d. Fluency Reading The students choose a book from the book bins to read for fluency. Students read familiar texts to help them improve their reading fluency, expression, and phrasing during reading.

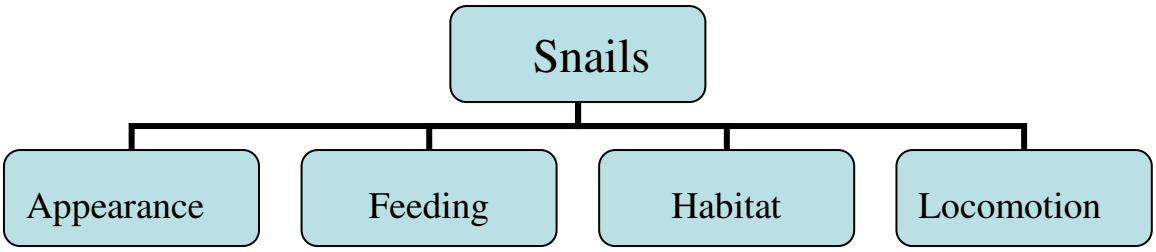
Strategy Structure: Description Rhetorical Pattern

List

Topical Net



Hierarchy

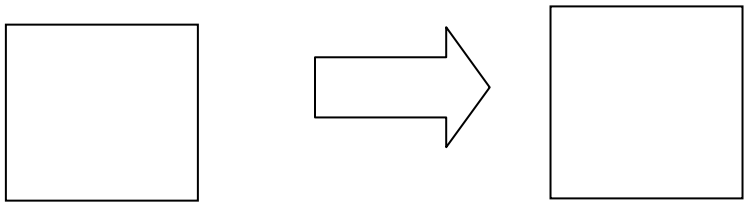


(The description structure of texts presents characteristics or descriptions at a particular time).

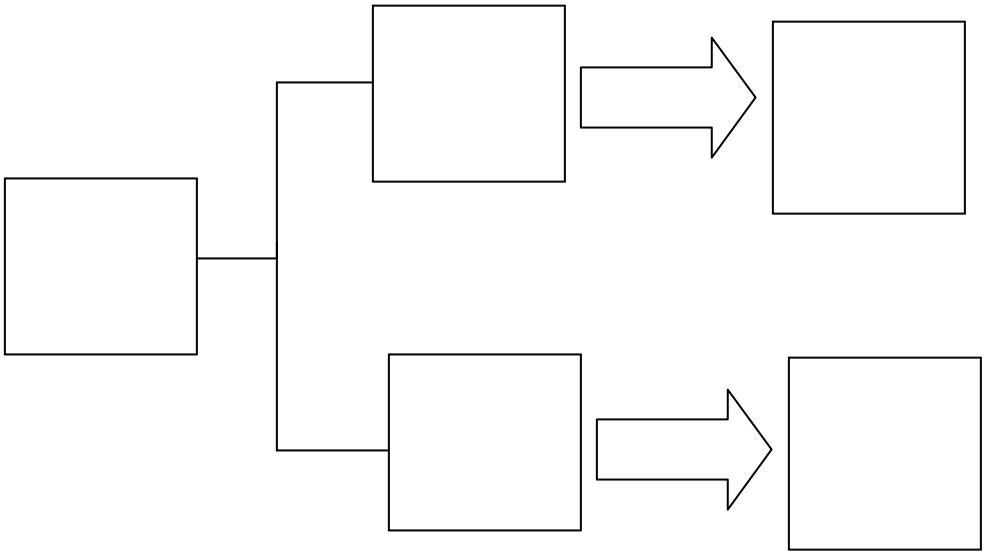
Resource: Chambliss, M J. & Calfee, R. C. (1998). *Textbooks for learning: Nurturing children's minds.* Malden, MA: Blackwell Publishers, Inc.

Structure Strategy: Sequence Rhetorical Pattern

Linear String



Branching Tree

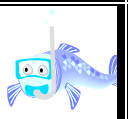


The sequence structure presents events progressing over time, like a motion picture. It is like when the text tells you about the changes of animal over time as in its life cycle.

Resource:

Chambliss, M J. & Calfee, R. C. (1998). *Textbooks for learning: Nurturing children's minds*. Malden, MA: Blackwell Publishers, Inc.

Organizing my information by Core Concepts: Snails

Core Concepts	Information I learned about this animal
 Feeding	
 Locomotion	
 Defense	
 Competition	
 Reproduction	
 Predation	
 Communication	
 Respiration	
Habitat 	

Appendix Q: Guided Reading Extended Sample Lesson

Lesson 1.1 Third Grade Lesson Plan

Reading Strategies	Activate Background Knowledge, Questioning
Curriculum Goals	• Reading: Standard: 1.0 General Reading Processes, Indicator: Use strategies to prepare for reading (before reading) Sub-indicator: a. Survey and Preview the text, and c. **Make Predictions and ask questions about the text.** • Writing 4.0: Controlling language, Indicator 6: Determine important ideas and messages in literary texts Sub-indicator: **Retell the text** • Word Work: Standard 5.0 Controlling Language, Indicator: Grammar- Recognize, recall, and use basic elements of grammar to express ideas clearly, Sub-indicator: a. **Identify parts of speech**, such as nouns, pronouns, **verbs**, adverbs, adjectives**.**
Texts	-Familiar leveled-texts for fluency reading -Lesson Text: 1st half of *The Highway Turtles,* by Corinne Fenton, Level 22, Rigby PM Plus Readers, (2001) Barrington, IL: Rigby Educational. Description of Text: The text contains 16 pages and a total of 693 words. The text on each page varies from about 20 words to 85 words. Text wraps around from line to line, with about six to ten words in a sentence. Illustrations are very supportive of the text's message and are present, and highly visible on every page of the book. The illustrations are large enough to span across two pages, with one page containing a larger amount of text and the adjoining page containing a larger amount of the illustration. The text is narrative and contains a good deal of dialogue between the three characters, Grace, Amy, and their grandfather, known as Papa. The text contains a range of punctuation from quotation marks, question marks, periods, commas, and exclamation points. The text contains no headings or organizational features that would most probably be present in an expository text. The story

	contains one simple story line. The three characters notice a nest of turtles eggs located near the location of a new highway that is being built. The story comes to a climax when the characters return to check on the turtle eggs and found that they were missing. They immediately feared that they were eaten by a fox. The problem is resolved when the characters notice the turtles swimming at the edge of the pond.

1. Lesson Introduction

a. Fluency Reading

As the students gather for reading group, they select books from the familiar read book basket to practice fluency reading. The students may select the book that they read in reading group the previous day, or they may choose another selection that they want to practice from the book basket.

b. Running Records

The students practice reading a portion of the selected book independently as the teacher listens in and observes students' reading behaviors. The teacher selects one or two students to focus on during this portion of the lesson. The teacher takes running records on the students' reading of the text. The running records indicate students' miscues during reading, such as word omissions, insertions, errors in word choice, and not recognizing punctuation when reading. The running records provide information concerning how well the student is independently using the visual, syntactic, and semantic cues when reading to make sense of the text. Students' self-corrections are also noted. The information from the running record is valuable in providing supportive mini-lessons for the students based on their observed reading behaviors.

2. Teacher Responsibility

a. Book Introduction

The teacher begins the lesson by introducing the text to the students. The teacher distributes texts to the students. The teacher reads the title, *The Highway Turtles* and asks the students to make predictions about what they think the book will be about, based on

the title and the colorful illustration on the front of the book. For this lesson we will only be reading the first half of the text, but the predictions may be about the whole story, based on the students' knowledge on the subject. Each student has an opportunity to respond with a prediction.

b. Vocabulary Introduction

The teacher introduces vocabulary words for the text. The vocabulary words are printed in large print on index cards. The vocabulary words that were chosen for the first half of this text were the names of the characters *Amy*, *Grace,* and *grandfather*, as well as other words that would give students some clues about the story such as: *herons, reeds, frightened, and bulldozers*. The students read and identify the words on the word cards as they are held up. Students discuss the new vocabulary words and their meaning in this story, based on what we know or predict about the story at this point.

The teacher asks the students to do a picture walk and preview the text. Students browse through the book, looking at pictures to help them gain some background knowledge about the story they are about to read. The students survey the text and make a prediction about the story based on their knowledge of the vocabulary words and the picture walk clues. The students share their predictions with others in the group.

c. Set a Purpose for Reading

The teacher helps the students set a purpose for reading. The students are asked to read the first half of the text and to check their thinking to determine whether they can confirm or reject the predictions that they made. The students are reminded that as they read and find new information they can adjust their thinking and reject old predictions that do not conform to new information they learned as they read. The students may want to change their predictions as they read and learn more. The teacher asks the students to think about what they are reading and to share how they adjusted their predictions based on new information they read. Students should also clarify their understanding of the vocabulary words introduced in the text.

3. Student Responsibility

a. Student Reading

The students will silently and independently read pages 2-8 in the text, *The Highway Turtles*, and check their predictions as they read. The students will check their understanding of the new vocabulary words as they confront them within the text. The students are reading the text and using their reading strategies to make sense of the text. Students may reread the text if they finish before others in the group.

b. Student Reading Behaviors

The teacher may select one or two students to listen to as they whisper read the text. This will provide information about the students' reading behaviors that may be used in a whole-group mini-lesson. The teacher may do running records on the students' reading or listen to the students' reading fluency.

4. Checking Student Understanding

a. Discussion

After students are finished reading the text, the teacher will ask students to discuss how their predictions were confirmed or rejected from what they read in the text. The students will share their understanding of the text as they share what they read about. The teacher will ask the students about the new vocabulary words. There was a bulldozer in the story. What was the purpose of the bulldozer? Why did the author tell us about herons and reeds? What did those things have to do with our story? Why did the author use the word "frightened" in the story? The children will discuss and clarify their understanding of the first half of the text. The teacher will ask the students to make a prediction for the second half of the book based on their understanding from the first part of the story.

b. Mini-Lesson

The mini-lesson would examine an area or two of the text where student errors were observed during reading. The teacher presents a mini-lesson based on the students' reading behaviors. A typical scenario could be a student making random guesses at an unknown word. The teacher observes this behavior and writes down notes to help guide the mini-lesson. The teacher uses running record or anecdotal notes to identify a strategy

lesson that would be appropriate for the reading behaviors that were observed.

The teacher's running records would indicate the word that the student was substituting for the correct word. This would help determine whether the student was attending to the initial, medial, or final sounds of the word or whether the student was making guesses based on the overall meaning of the text. The teacher would return to the text and ask students to find the place in their books. The teacher will use a white-board to write the sentence and underline the word that would have been read in error. The teacher would ask students how they could use strategies to help them determine a word they do not know. The students will work to problem solve the new word, using visual cues (Does it look right?), syntactic cues (Does it sound right?), or semantic cues (Does it make sense?). The mini-lesson is presented to all of the students to generalize the reading behaviors of the group, without drawing attention to one student who is making errors. The group will work together to share how they used reading strategies to decode a word or to make sense of the text.

5. Writing

a. Retell

The students will write a story retelling in their notebooks that explains the main points of the story that they read about in the first half of the book. The students will be identifying why Amy, Grace, and Grandfather are taking a walk to see the bulldozer. The students should be able to identify that the bulldozer is going to make a road directly through an area that will destroy the habitat for the wildlife animals that live there. The students may use the text and pictures to guide their sequential retelling of the story.

The purpose of this lesson was to teacher students to survey and preview the text before reading and to make predictions. After reading the text and discussing it in the small group, students will attend to the text information as they retell what the story is about.

6. Extensions of the Lesson

Word Work a. The word work focus for today's lesson is on identifying verbs in our reading. The students will be looking on page 380 of *Writer's Express* (Kemper, Nathan, & Sebranek, 1995) to find the definition of an action verb. The definition states that an action verb tells what the subject is doing. The students will look at examples in the book and will also verbally brainstorm a list of possible words that could be action verbs.
b. Students will construct a list of eight or more action verbs from the story, *The Highway Turtles.* The students will share their lists to check their understanding of action verbs.

Lesson 4.2 Fourth Grade Guided Reading Extended Sample Lesson

Reading Strategies	Activate Background Knowledge, Questioning
Curriculum Goals	• Reading: Standard: 3.0 Comprehension of Literary Texts: Indicator: Use elements of narrative texts to facilitate understanding Sub-indicator e. Identify and explain relationships between and among characters, setting, and events **Connections between and among characters**. • Writing 4.0: Indicator 6: Determine important ideas and messages in literary texts Sub-indicator: **Retell the text** • Word Work: Standard 5.0 Controlling Language, Indicator: Grammar- Recognize, recall, and use basic elements of grammar to express ideas clearly, Sub-indicator: a. **Identify parts of speech**, such as nouns, pronouns, verbs, adverbs, **adjectives.**
Texts	-Familiar leveled-texts used for fluency reading, -Lesson Text: 1st and 2nd chapter of *The Nightingale* by Hans Christian Anderson (Retold by Jenny Giles), (Level 25) Rigby PM Plus Books (2003), pp. 4-10. Barrington, IL: Rigby Educational. This text contains six chapters. The text primarily contains one- and two-syllable words. The first chapter consists of two pages, each with illustration that encompasses at least half of the space. The illustrations provide support to understanding the text. Chapter 1, titled, "The Palace by the Sea" is primarily a description of the setting of the story, a magnificent enormous palace on a clifftop overlooking the sea which is surrounded by huge gardens which spans for miles There is a total of 104 words in chapter 1. Chapter 2, titled "The Nightingale's Song," covers five pages and has 280 words. Each page contains a large illustration that encompasses one-third to three-fourths of the space. This chapter introduces the characters, the wealthy king who was awakened by the lovely songs of a nightingale who came to a tree in the garden surrounding the palace. The king is amazed that

	such a plain bird can make such a wonderful song. The king ordered that the nightingale be brought into the palace and be given a special perch so that the king could have it sing for him whenever he wished. The king enjoyed the nightingale's song, and so did the many visitors to the palace. Punctuation includes periods, commas, quotation marks, question marks, and apostrophes. The narrative text is told in the third-person, with dialogue occasionally inserted into the text. This text contains a simple theme with a well-presented description of the setting and characters. The first two chapters for this lesson do not include the development of the problem and solution of the story.

1. Lesson Introduction

a. Fluency Reading

As the students gather for reading group, they select books from the familiar read book basket to practice fluency reading. The students may select the book that they read in reading group the previous day, or they may choose another selection that they want to practice from the book basket. Students are familiar with this routine and select a book to read independently.

b. Running Records

The students practice reading a portion of the selected book independently as the teacher listens in and observes students' reading behaviors. The teacher selects one or two students to focus on during this portion of the lesson. The teacher takes running records on the students' reading of the text. The running records indicate students' miscues during reading, such as word omissions, insertions, errors in word choice, and not recognizing punctuation when reading. The running records provide information concerning how well the student is independently using the visual, syntactic, and semantic cues when reading to make sense of the text. Students' self-corrections are also noted. The information from the running record is valuable in providing supportive mini-lessons for the students based on their observed reading behaviors.

2. Teacher Responsibility

a. Book Introduction

The teacher begins the lesson by introducing the text to the students. This text is a chapter book that contains six chapters. Most chapters are only 3-4 pages long, with about 50 words on a page. Illustrations are distributed on about every other page throughout the book providing support for understanding the author's message at various points in the story. The illustrations are very detailed and can carry a lot of meaning for the story. It is important that the book introduction prepare the students to activate their background knowledge about familiar information that will help them understand the underlying theme of the story.

The story, *The Nightingale*, takes place about 150 years ago in a far away land ruled by a king. The story takes place in a very ornate palace, which would be hard for the students to visualize. The book introduction will help students with the setting and what it might look like in the king's palace. The text language in the beginning of the story is filled with idioms and similes, which are somewhat confusing for struggling readers who are very literal in their reading.

The teacher distributes texts to the students. The teacher reads the title, *The Nightingale* and asks the students to make predictions about what they think the book will be about, based on the title and the colorful illustration of a palace and the nightingale sitting in a tree on the front cover of the book. For this lesson we will only be reading the first and second chapters, but the predictions may be about the whole story, based on the students' knowledge on the subject. Each student has an opportunity to respond with a prediction.

b. Vocabulary Introduction

The teacher introduces vocabulary words and vocabulary phrases from the text. The teacher distributes index cards which contain 5-10 word phrases that are taken directly from the text. The words within a phrase describe the characters or the setting of the story. The teacher asks the students to read the words on their card and then say what they think that means in relation to the story. The students are using the phrases and their background knowledge to help them make a story prediction. Other students in the group may also help to interpret what the meaning of the phrase may be in relation to the story.

Each student shares his or her card with the group. Some of the phrases assist the students in clarifying their understanding of the phrase they shared with the group.

The teacher introduces the vocabulary words for the lesson. The vocabulary words are printed in large print on index cards. The vocabulary words that were chosen for the first and second chapters of, *The Nightingale,* were *magnificent, splendid, precious, ornaments, scurrying, listened, wondrous*, and *perched.* The teacher holds up each card and the students identify and read the words. Words that are difficult to decode are discussed. Today we focused on adjectives, so students were asked to determine which vocabulary words were adjectives. Students discuss the new vocabulary words and the meanings they could have in this story, based on what we know or predict about the story at this point.

The teacher asks the students to do a picture walk and preview the text. The students browse through the book, looking at pictures to help them gain some background knowledge about the story they are about to read. The students survey the text and make a prediction about the story based on their knowledge of the vocabulary words and the picture walk clues. The students share their predictions with others in the group.

c. Set a Purpose for Reading

The teacher helps the students set a purpose for reading. The students are asked to read the first two chapters in the text from pages 4-10 and to check their thinking to determine whether they can confirm or reject the predictions that they made. The students are reminded that they can reject their predictions as they read and find new information that does not support their previous predictions. The teacher asks the students to think about how they might have changed their ideas about the text as they read and to be ready to share their new predictions when they finish reading. The students may also want to look for the new vocabulary words or phrases as they read to see how they affect the meaning of the text.

3. Student Responsibility

a. Student Reading

The students will silently and independently read *The Nightingale* and check their predictions as they read. The students will check their understanding of the new vocabulary words as they confront them within the text. The students read the text and practice using their reading strategies to make sense of the text. Students may reread the text if they finish before others in the group.

b. Student Reading Behaviors

During reading the teacher may select one or two students to listen to as they whisper read the text. This will provide information about the students' reading behaviors that may inform the focus for the whole-group mini-lesson. The teacher may choose to do running records on the students' reading or listen to the students' reading fluency.

4. Checking Student Understanding

a. Discussion

After students are finished reading the text, the teacher will ask students to discuss how their predictions were confirmed or rejected from what they read in the text. The students will share their understanding of the text as they share what they read about. The teacher will ask the students about the new vocabulary words: "How were the adjectives used in the story?" "Why does the author use the words 'wondrous," "precious,' 'splendid', and 'magnificent?'" "How are the vocabulary words related to the meaning of the story?" "What did the phrase, 'to admire the splendid palace' mean in the story?" "Who in the story 'darted back and forth?'"

The children will discuss and clarify their understanding of the first two chapters of the text. The teacher will ask the students to make a prediction for the next chapter of the book based on their understanding from the first part of the story.

b. Mini-Lesson

The mini-lesson would examine an area or two of the text where student errors were observed during reading. The teacher presents a mini-lesson based on the students' reading behaviors. With the observation that most students skip over complex

strings of words without attending to their meaning, the most appropriate mini-lesson that could accompany this lesson would address the descriptive language of this text.

The mini-lesson could most appropriately address how the author selects and combines words together to help the reader visualize the story. The text used the phrase, 'gaze in wonder at the beautiful garden,' but what does that mean? The teacher will write the phrase on a white board and the students can discuss the meaning of each part of the phrase. They may know what a beautiful garden is, but they may not know the meaning of the word 'gaze,' or even the phrase 'gaze in wonder.'

The mini-lesson could help students acquire the strategies for determining the meaning from descriptive phrases. We could examine other possible phrases from the text, such as: 'the clear, pure notes sounded so lovely, it brought tears of joy to his eyes', or 'surrounded by huge gardens'. The students will work to problem solve the meanings of the vocabulary words and the descriptive phrases. The mini-lesson would be presented to all students in the group, rather than identifying a particular student who is having difficulty with understanding the language of the text.

5. Writing

a. Retell

The students will write a story retelling in their notebooks that explains the main points of the story that they read about in the first two chapters of the book. The students should identify the main characters as the king and a nightingale, and the setting as a palace. They should be able to recognize and retell the relationship between the king and the nightingale. The students may use the text and pictures to guide their sequential retelling of the story.

The purpose of this lesson is to help students state and support the message of the text. In order to properly understand the main message of the text, the students will need to understand the meaning behind the vocabulary words.

6. Extensions of the Lesson

Word Work a. The word work focus for today's lesson is on identifying adjectives in our reading. The students will be looking on page 384 of the *Writer's Express* (Kemper, Nathan, & Sebranek, 1995) to find the definition of an adjective. The text states that an adjective is "a word that describes a noun or a pronoun."
b. The students will orally share as they brainstorm a list of adjectives. The students will turn to the word work section of their notebooks and they will make a list of ten or more adjectives that they found in the story, *The Nightingale.*
c. Students will share their list of adjectives with others in the group to check students' understanding of adjectives.

Appendix R All-Star Book Club List

Book Title	Author	Group
A Forest Community	Elizabeth Massie	CORI
A to Z Mysteries The Panda Puzzle	Ron Roy	CORI
A to Z Mysteries The White Wolf	Ron Roy	CORI
A to Z Mysteries: Falcon's Feathers	Ron Roy	CORI
A to Z Mysteries: The Kidnapped King	Ron Roy	CORI
A True book of Fishes	Melissa Stewart	CORI
A True Book of Insects	Melissa Stewart	CORI
A True Book: Butterflies and Moths	Larry Dane Brimner	CORI
A True Book: Electric Fish	Elaine Landau	CORI
A True Book: Mountain Mammals	Elaine Landau	CORI
All kinds of habitats	Sally Hewitt	CORI
Amazing Ants	Sue Whiting	CORI
Amazing Birds of the Rain Forest	Claire Daniel	CORI
Animal Eaters of the Pond	Maud King	CORI
Animal Sensors	Greg Pyers	CORI
Animals are Everywhere	Judith Bauer Stamper	CORI
Animals in Danger	Gare Thompson	CORI
Animals in Disguise: Birds	Lynn Stone	CORI
Animals of the Ice and Snow	Anne Gordon	CORI
Animals under the Ground	Allan Fowler	CORI
Antarctica: Birds of Antarctica	Lynn Stone	CORI
Ants	Ruth Berman	CORI
Beaver Engineers	Tracey Reeder	CORI
Beetles: The Most Common Insects	Sara Swan Miller	CORI
Beginner's Guide to Birds: Eastern Region	Donald and Lillian Stokes	CORI
Bird Watch	Jane Yolen	CORI
Birds	Lynn Stone	CORI
Bughead and Me	Paul Shipton	CORI
Centipedes and Millipedes	Theresa Greenaway	CORI
Cranes	Sally Cole	CORI
Crayfish	Phyllis Grimm	CORI
Creepy Crawlers: Salamanders	Lynn Stone	CORI
Creepy Crawlers: Worms	Lynn Stone	CORI
Crocodile's Bag	Richard Vaughan	CORI
Deer	Lynn Stone	CORI
Deer Have Fawns	Elizabeth Jaffe	CORI
Ducks	Lynn Stone	CORI

Book Title	Author	Group
Eggs and Baby Birds	Anne Shirley	CORI
Eyewitness Birds	DK	CORI
Gator Aid	Jane Cutler	CORI
Geese	Jason Cooper	CORI
Hairy Little Critters	Buck Wilde	CORI
Herons	Frank Staub	CORI
How Birds Live	Fred and Jeanne Biddulph	CORI
How Snails Protect Themselves	Chris Brough	CORI
I can read about spiders	Deborah Merrians	CORI
In the Rainforest`	Howard Rice	CORI
Insect Lives	Melvin Berger	CORI
Insects	A Golden Guide	CORI
Insects	Katy Pike	CORI
Inside a Rain Forest	Gare Thompson	CORI
Inside an Ant Colony	Allan Fowler	CORI
Ladybugs and Beetles	Sally Morgan	CORI
Life in a Wetland	Allan Fowler	CORI
Living Together	Jo Windsor	CORI
Lizards	Louise Martin	CORI
Looking at Insects	David Glover	CORI
Magic Tree House: Afternoon on the Amazon	Mary Pope Osborne	CORI
Magic Tree House: Dolphins at Daybreak	Mary Pope Osborne	CORI
Mice	Kevin J. Holmes	CORI
Mosquito	Jennifer Coldrey and George Bernard	CORI
Mosquito	Jill Bailey	CORI
Mosquitoes	Julie Murray	CORI
Nature's Patterns	Karen Edwards	CORI
Newt	Matt Novak	CORI
Night Animal, Day Animal	Judith Lechner	CORI
Now I know What is a Fish	David Eastman	CORI
Ocean Life: Tide Pool Creatures	Alice Leonhardt	CORI
Oceans	Raintree	CORI
Pelicans, Cormorants, and their kin	Erin Pembrey Swan	CORI
Plant Eaters of the Pond	Fred and Jeanne Biddulph	CORI
Plants Bite Back	Richard Platt	CORI
Pond Life	Golden Guide	CORI
Predators: Birds	Lynn Stone	CORI
Predators: Reptiles	Lynn Stone	CORI
Prowling Wolves	Michael George	CORI
Raccoons	Allan Fowler	CORI

Book Title	Author	Group
Rain Forest Adventure	Gare Thompson	CORI
Saving our Animals	Billy Goodman	CORI
Snakes	Lucille Recht Penner	CORI
Sneaky Salamanders	Suzanne Paul Dell'Oro	CORI
Spiders are not insects	Allan Fowler	CORI
Strange Animals	Robyn O'Sullivan	CORI
Swans	Lynn Stone	CORI
The Ant and the Grasshopper	Emma Alexander	CORI
The Bee	Sabrina Crewe	CORI
The Bug and the Bird	Anne Schreiber	CORI
The Life Cycle of a Snail	Chris Brough	CORI
The Polar Bear and the Jaguar	Sneed B. Collard III	CORI
The Pond	Maud King	CORI
These Birds Can't Fly	Allan Fowler	CORI
Those Tricky Animals	Marcia Vaughan	CORI
True book of Polar Animals	Larry Dane Brimner	CORI
True book Tropical Rain Forests	Darlene R. Stille	CORI
True book: Amphibians	Melissa Stewart	CORI
Turtles	Louise Martin	CORI
Water Bugs	Helen Frost	CORI
Welcome to the World of Foxes	Diane Swanson	CORI
Welcome to the World of Otters	Diane Swanson	CORI
Welcome to the World of Raccoons	Diane Swanson	CORI
Wetland Animals	Francine Galko	CORI
Wetland Plants	Ernestine Giesecke	CORI
Wetlands	Adele Richardson	CORI
Wetlands	Shirley Gray	CORI
Whooping Crane	Rod Theodorou	CORI
Wild Animals of the Woods: River Otters	Lynn Stone	CORI
Wild Canines: Foxes	Jalma Barett	CORI
Winter Survival	Buck Wilde	CORI
Wolves	Christine Economos	CORI
A Day With Daddy	Nikki Grimes	GR
A Forest Community	Elizabeth Massie	GR
A House for Sergin	Hilda Perera	GR
A Marathon Run/ The Legend of Pheidippides	Pat Quinn	GR
A Pet for You	Katherine Mead	GR
A Present for LaNita	JoAnn Sochmel	GR
A Second Birthday	Lloyd Kajikawa	GR
A Surprise for Monica	Katherine Maitland	GR

Book Title	Author	Group
A Tree Falls Down/Helpful or Harmful?	John Parker / Nic Bishop	GR
A Vacation Journal	Jason Telford	GR
A Worker's Tools	Monica Hughes	GR
Against The Odds	Learning Media	GR
Another Point of View	Wildcats	GR
Art around the World	Heather Leonard	GR
Bend Stretch and Leap	Julie Haydon	GR
Beyond the Beyond	Erin Hanifin	GR
Blast Off With Ellen Ochoa!	Margarita Conzalez-Jensen	GR
Bringing Water to the People	Katacha Diaz	GR
Camila and Clay-old-woman	Mary Cappellini	GR
Caps for Sale	Esphyr Slobodkina	GR
Casey's Code	Gail Blasser Riley	GR
Caves: The Underground wonder	Kisa Klobuchar	GR
Celebrating Traditions	Houghton Miflin	GR
City Mouse - Country Mouse	Aesop	GR
Come Back, Pip!	Jan Weeks	GR
Corn: An American Indian Gift	Gare Thompson	GR
Danger in the Parking Lot	Annette Smith	GR
Diary of a Sunflower	Chelsea Evans and Brtiney Janssen	GR
Discovering Dinosaurs	M. Sokoloff	GR
Dragons Galore	Wildcats	GR
Dressing With Pride	Maria Herminio Acuna	GR
Ducks on the Run	Annette Smith	GR
Elephant Painter	Janet Buell	GR
Eruption	Wildcats	GR
Everyday Forces	David Byrne	GR
Exploring Everyday Wonders	Natalie Lunis & Nancy White	GR
Extreme Sports	Kerrie Capobianco	GR
Face to the Sky	Alba Ambert	GR
Falcon's Nest on Skyscrapers	Priscilla Belz Jenkins	GR
Fire! Fire!	Wright Group	GR
First Flight	Annette Smith	GR
Freddy's Train Ride	Rick Leslie	GR
From Father to Son	Patricia Almada	GR
From There to Here: A Transportation Time Line	John Sampson	GR
Gibbon Island	Beverley Randell	GR
Goldilocks Comes Back	Anne Meyers	GR
Grandma Jenny's Trip	Bently Spang	GR

Book Title	Author	Group
Grandma Moves In	Jocelyn Sigue	GR
Guess Who?	Kathie Atkinson	GR
Hands Up, Wolf	Feana Tu'akoi	GR
Hats, Hats, Hats	Ann Morris	GR
Hermie the Crab	Desley Roy	GR
Heroes	Wildcats	GR
Hooray for Midsommar!	Mary Lindeen	GR
Hot Air Balloons	Anne Myers	GR
How Goods are Moved	Carole Wicklander	GR
How to Choose a Pet	Clare Chandler	GR
How to Make a Sun Hat	Kay Crabbe	GR
Hustown: A Peaceful Community	Elizabeth Massie	GR
I am of Two Places	Carden and Cappellini	GR
I'm a Chef	Mary Pat Fergus	GR
In Hiding: Animals Under Cover	Melissa Blackwell Burke	GR
In the Land of the Polar Bear	F. R. Robinson	GR
Investigating Mysteries	D. Sobol, L. Landon, P Fleishman	GR
Jonathan and his mommy	Irene Smalls	GR
Josephine's Imagination	Arnold Dobrin	GR
Korky Paul: Biography of an illustrator	Teresa Heapy	GR
Kwasi: A Storysong	Darrell Cox	GR
Lester's Haircut	Laurel Dickey	GR
Little Half Chick	David Nuss	GR
Living with others	Jeni Wilson/ Sue Davis	GR
Lying as Still as I Can	Barry Behrstock	GR
Made in Korea	Jiyoung Kim	GR
Make and Shake a Bakeless Cake	Sally Cole	GR
Making a Go-Cart	John D. Fitzgerald	GR
Maps and Codes	Lisa Burton	GR
Materials	David Byrne	GR
Max and Mintie	Bill Condon	GR
Max Found two Sticks	Brian Pinkney	GR
Monkey and Fire	Janet Stott-Thornton	GR
Movie Magic	Sharon Griggins	GR
Mr. Santizo's Tasty Treats	Alice Flanagan	GR
Nature's Power	Patricia Hummer	GR
Not What it Seems	Peter Mair	GR
One City, One School, Many Foods`	Argentina Palacious	GR
Our Adobe House	George Ancona and Helga Ancona	GR
Our Book of Maps	David Flint	GR

Book Title	Author	Group
Our Clothes	Jeni Wilson/ Sue Davis	GR
Our World of Wonders	Yanitzia Canetti	GR
Overcoming Challenges	Darwin McBeth Walton	GR
P W. Cracker Sees the World	Linda Yoshizawa	GR
Photos, Photos	Wildcats	GR
Pignocchio	Donna Alexander	GR
Pixel's and Paint	Jeanne Crisp	GR
Pizza for Everyone	Alan Barnes	GR
Pizza Pokey	Jeffrey Stoodt	GR
Prehistoric Record Breakers	Rod Theodorou	GR
Purple Walrus and Other Perfect Pets	Wildcats	GR
Push, Pull, Play the Game	Nancy White	GR
Rainbows All Around	Suzanne Hardin	GR
Rally Car Race	Annette Smith	GR
Rescue	Wildcats	GR
Rex Plays Fetch	Julie Haydon	GR
San Francisco Shake-Up	Jocelyn Sigue	GR
Save the River	Sarah Glasscock	GR
Save the Turtles	Alice Leonhardt	GR
Sea Otter Goes Hunting	Beverley Randell	GR
Simon's Big Challenge	Mark Day	GR
Space Junk	Wildcats	GR
Spiderman	Peter Patterson	GR
Spy Manual	Jill Eggleton	GR
Spy on Spiders	First Explorers	GR
Star and Patches	Jenny Giles	GR
Stories on Stage	Susan Brocker	GR
Storm Trackers	Katacha Diaz	GR
Storyteller Chapter Books: Sam's Dad	Linley Jones	GR
Surf's Up	Dean Iverson	GR
Survive	Susan Brocker	GR
The Hole in the Hill	Angie Belcher	GR
The Bear and the Bees	Annette Smith	GR
The Cats of Tiffany Street	Sarah Hayes	GR
The Crying Mountain: A Mexican Legend	Patricia Almada	GR
The Day of the Dead	Jazmin Quinonez	GR
The Early Bird's Alarm Clock	Claire Daniel	GR
The Goddess of the Volcano	Graciela Reyes/ Schiavo	GR
The Green Casebook: Environment Action	David Drew	GR
The house that Jack's Friends Built	Gare Thompson	GR

Book Title	Author	Group
The Lion and the Mouse	Gare Thompson	GR
The Magic School Bus	Inside the Earth	GR
The Money Book	Jennifer Osborne	GR
The Mouse Deer Escapes	Beverley Randell	GR
The Mural of Fruit	Raul Dorentes	GR
The Music Scene	Laura Kirschfield	GR
The Night Queen's Blue Velvet Dress	Gail Saunders-Smith	GR
The Pioneer Way	Patricia K. Kummer	GR
The Power of Water	Helen Chapman	GR
The River Is My Life	Jocelyn Sigue	GR
The School Fair	Lorraine Marwood	GR
The School Menu	Sarah Vazquez	GR
The Science Fair Surprise	Melissa Blackwell Burke	GR
The Secret of the Silver Shoes	Elizabeth Massie	GR
The Sky's the Limit	Sharon Capobianco	GR
The Story of Dona Chila	Mary Cappellini	GR
The Story of Jeans	Lisa Klobuchar	GR
The Wind	Brenda Parkes	GR
The World's Best Dog-Walker	Pam Zollman	GR
The Yard Sale	Susan McCloskey	GR
Think like a Scientist	Melissa Blackwell Burke	GR
This is Our Earth	Laura Lee Benson	GR
Thunder from the Earth	Alba Ambert	GR
Tiger Woods	Catherine Goodridge	GR
Time for a Party	Marjorie Newman	GR
Tin Treasures	Katacha Diaz	GR
To Begin Again	Hilda Perera	GR
Trip to Freedom	Andrea Quynhgiao Nguyen	GR
Turtle's Big Race	Alice Leonhardt	GR
Ty's One Man Band	Mildred Pitts Walter	GR
Under the Ground	Angie Belcher	GR
Walk Tall	Angie Belcher	GR
Walking on Water	Wendy Bloxland	GR
Wet Weather Camping	Dawn McMillan	GR
Whale Tales	Kim Westerskov	GR
What Can I Do?	Patricia Almada	GR
Why the Ocean is Salty	Alice Leonhardt	GR
Why the Wild Winds Blow	Alba Ambert	GR
Wild Cats	Alice Leonhardt	GR

All Star Book Club

As a part of your reading group with Mrs. O'Hara you are also a member of the All-Star Book Club. Members of the All-Star Book Club may come to my room to sign out books each day. You will have to ask your teacher about when it is a good time to come by to sign out a new book.

There are a variety of titles of books to choose from. You may also write a book recommendation after you read the book to tell other students about the books you enjoyed reading.

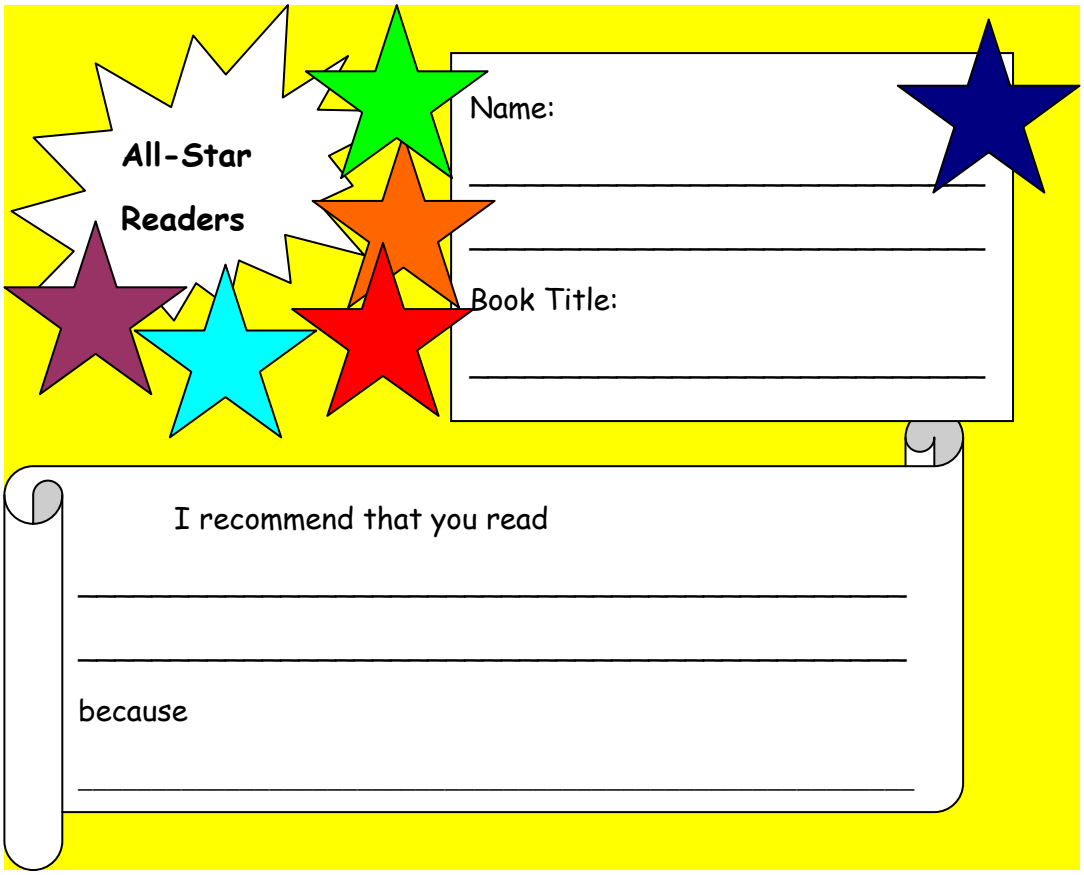
When you return your book, you may sign out a new book to read.

I hope you will enjoy being a part of the All-Star Readers Book Club.

Happy Reading!

Mrs. O'Hara

All-Star Book Club Book Review



Appendix T: Fidelity of Treatment Specification Sheets

CORI-STAR Fidelity Checklist

Observer: _____ Date _____ Grade observed _____

Observer: Please observe the CORI-STAR lesson with the following components in mind and initial the spaces under the heading of "Observer Checklist" to indicate it was observed.

Component	CORI-STAR	Observer Checklist
Lesson Introduction	• Teacher explicitly states the purpose of the day's lesson • Teacher introduces the declarative, procedural and conditional knowledge needed for the strategy focused on in the lesson	_____
Teacher Responsibility	• Teacher models the identified strategy for the lesson (Activating Background knowledge, Questioning, Searching for Information, Summarizing, Organizing information) • Teacher performs a think-aloud during the reading: - Demonstrates and talks through how to do the strategy - Shares the thinking involved in performing the strategy • Metacognitive Awareness Training: Teacher explains *what* the strategy is *how* to do it, and *when* and *why* to use it.	_____
Student Responsibility	• The students practice the demonstrated strategy while reading. • Students may record information on sticky-notes to help them in sharing their learning with others in a think-aloud.	_____
Checking Student Understanding	• Students will perform think-alouds with a portion of text and will explain *how* they used the strategy when reading (possibly also *when* and *why they would use it again)*	_____
Student Writing	• The teacher will provide explicit instruction for students in how to search for and organize information in a variety of ways: - Making a list -Using a KWL chart -Charting Survival Concepts of animals -Make charts to compare/contrast -Record Observations from real-world observations -Student Questioning Charts • Students work collaboratively- locating and sharing information • Students have autonomy in selecting portions of a single text or a variety of texts to help locate information	_____
Extensions of Lesson	Lesson reflections • Teacher restates the focus of the lesson (*what, how, when, why*) to use a particular strategy in learning • Students answer a reflection question that asks students to think about their thinking when performing the strategy • Students will record the what, how, when, and why of the lesson • Students will select and reread familiar texts for fluency	_____

Guided Reading Fidelity Checklist

Observer: _____ Date _____ Grade observed_____

Observer: Please observe the Guided Reading lesson with the following components in mind and initial the spaces under the heading of "Observer Checklist" to indicate it was observed.

Component	Guided Reading	Observer Checklist
Lesson Introduction	Teacher guides students to familiarize themselves with text • Introduce lesson with asking students to reread familiar text: Fluency read of the text from previous reading • The teacher observes and listens in as students read: May take running records	_____
Teacher Responsibility	• The teacher selects and introduces the text for the day. • Teacher may guide students to do a picture walk. • Teacher may guide students to make predictions. Teacher may guide students in discovering new vocabulary.	_____
Student Responsibility	• The students read the text to check their predictions and/ or discover the meaning of vocabulary that was presented. • Students may be asked to whisper read to the teacher who assesses their reading using running records or anecdotal records.	_____
Checking Student Understanding	• The students discuss the text and revisit the text to make meaning. (They may summarize, make inferences or connections, evaluate the text, interpret it or relate it to other texts they have read, consult others to solve their misunderstandings, or think critically about the text.) • The teacher provides brief instruction known as "Teaching for Processing strategies"- which arises from the observation of student reading behaviors through running records or anecdotal records. The teacher will teach strategies through a brief mini-lesson that addresses student reading behaviors based on observations of what the students need.	_____
Student Writing	Student Writing may be one of the following: • Students retell or summarize the story in their journals • Students locate and organize information graphically • Students make a list	_____
Extensions of lesson	Student Word Work may be one of the following: • Vocabulary focus • Focus on a curricular indicator that relates to the lesson • Making Words, Examining the Structure of Words • Locating words and sorting them by a word pattern/ or meaning • Grammar/Phonics lesson	_____

Appendix U Correlation Table of Posttest Scores (N = 50)

	Maze	WRMT-PC	QRI-4	SAI-ABK	SAI-Q	SAI-SI	SAI-OI	SAI-S	SAA-ABK	SAA-Q
Maze	1	.228	.304*	.265	.258	.233	.238	.198	.274	.160
WRMT-PC	.228	1	.500**	.509**	.544**	.465**	.534**	.543**	.556**	.280*
QRI-4	.304*	.500**	1	.624**	.639**	.608**	.652**	.548**	.647**	.280*
SAI-ABK	.265	.509**	.624**	1	.899**	.895**	.902**	.817**	.772**	.438**
SAI-Q	.258	.544**	.639**	.899**	1	.913**	.864**	.864**	.798**	.524**
SAI-SI	.233	.465**	.608**	.895**	.913**	1	.897**	.880**	.784**	.507**
SAI-OI	.238	.534**	.652**	.902**	.864**	.897**	1	.871**	.766**	.455**
SAI-S	.198	.543**	.548**	.817**	.864**	.880**	.871**	1	.736**	.463**
SAA-ABK	.274	.556**	.647**	.772**	.798**	.784**	.766**	.736**	1	.424**
SAA-Q	.160	.280*	.280*	.438**	.524**	.507**	.455**	.463**	.424**	1
SAA-SI	.349*	.425**	.353*	.723**	.675**	.677**	.659**	.637**	.586**	.534**
SAA-OI	.249	.692**	.524**	.748**	.764**	.633**	.647**	.603**	.599**	.432**
SAA-S	.085	.437**	.258	.457**	.469**	.362**	.343*	.342*	.401**	.037
MRQ-SE	.289*	.193	.339*	.300*	.330*	.253	.094	.144	.285**	.049
MRQ-SSE	.185	.373**	.268	.338*	.335*	.262	.236	.301*	.419**	.129
MRQ-CH	.128	.282*	.271	.354*	.427**	.386**	.225	.372**	.326*	.183
MRQ-CU	.141	.296*	.241	.265	.290	.227	.186	.251	.305*	.149
MRQ-I	.073	.346*	.097	.142	.159	.049	.135	.124	.132	.056
MSI-T	.098	.307*	.392**	.380**	.260	.313*	.409**	.357*	.239	.086
TPSSUQ	.480	.266	.150	.177	.163	.070	.101	.041	.221	.109

* Correlation is significant at the .05 level (2-tailed) Table Continues

** Correlation is significant at the .01 level (2-tailed)

Correlation Table of the Posttest Scores (N = 50)

	SAA-SI	SAA-OI	SAA-S	MRQSE	MRQ-SSE	MRQ CH	MRQ CU	MRQ I	MSI Total	TPSSUQ
Maze	.349*	.249	.085	.289*	.185	.128	.141	.073	.098	.480
WRMT-PC	.425**	.692**	.437**	.193	.373**	.282*	.296*	.346*	.307*	.266
QRI-4	.353*	.524**	.258	.339*	.268	.271	.241	.097	.392**	.150
SAI-ABK	.723**	.748**	.457**	.300*	.338*	.354*	.265	.142	.380**	.177
SAI-Q	.675**	.764**	.469**	.330*	.335*	.427**	.290*	.159	.260	.163
SAI-SI	.677**	.633**	.362**	.253	.262	.386**	.227	.049	.313*	.070
SAI-OI	.659**	.647**	.343*	.094	.236	.225	.186	.135	.409**	.101
SAI-S	.637**	.603**	.342*	.144	.301*	.372**	.251	.124	.357*	.041
SAA-ABK	.586**	.599**	.401**	.285*	.419**	.326*	.305*	.132	.239	.221
SAA-Q	.534**	.432**	.037	.049	.129	.183	.149	.056	.086	.109
SAA-SI	1	.631**	.092	.222	.195	.226	.231	.003	.259	.274
SAA-OI	.631**	1	.397**	.291*	.339*	.304*	.301*	.132	.275	.283*
SAA-S	.092	.397**	1	.210	.305*	.219	.106	.288*	.070	.347**
MRQ-SE	.222	.291*	.210	1	.681**	.802**	.667**	.402**	-.066	.331
MRQ-SSE	.195	.339*	.305*	.681**	1	.725**	.762**	.399**	.133	.423**
MRQ-CH	.226	.304*	.219	.802**	.725**	1	.667**	.457**	.014	.160
MRQ-CU	.231	.302*	.106	.667**	.762**	.667**	1	.454**	.092	.245
MRQ-I	.003	.132	.288*	.402*	.399**	.457**	.454**	1	.083	.097
MSI-T	.259	.275	.070	-.066	.133	.014	.092	.083	1	-.236
TPSSUQ	.274	.283*	.347*	.331*	.423**	.160	.245	.097	-.236	1

*Correlation is significant at the .05 level (2-tailed)

** Correlation is significant at the .01 level (2-tailed)

Abbreviations for Measures Used on the Correlation Table

QRI-4 = *Qualitative Reading Inventory -4*

MRQ = *Motivations for Reading Questionnaire*

SE= *Self-efficacy*, SSE = *Strategies for self-efficacy*, CH = *Challenge*,

CU = *Curiosity,* I = *Involvement*

MSI = *Metacomprehension Strategy Inventory*

SAA = *Strategy Application Assessment*; ABK = *Activate Background Knowledge*,

Q = *Questioning,* SI = *Searching for Information*, OI = *Organizing Information*,

S = *Summarizing*,

SAI= *Strategy Activation Inventory*; ABK = *Activate Background Knowledge*,

Q = *Questioning,* SI = *Searching for Information*, OI = *Organizing Information*,

S = *Summarizing*,

TPSSUQ = *Teachers' Perceptions of Students' Strategy Use Questionnaire*

WRMT-PC= *Woodcock Reading Mastery Test-Passage Comprehension*

References

Afflerbach, P. (1990). The influence of prior knowledge and text genre on readers' prediction strategies. *Journal of Reading Behavior, 22,* 131-148.

Afflerbach, P. (2002). Teaching reading self-assessment strategies. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 96-111). New York: Guilford Press.

Afflerbach, P. & Johnston, P. (1984). On the use of verbal reports in reading research. *Journal of Reading Behavior*, 16(4), 307-322.

Alexander, P. A., & Jetton, T. L. (2000). Learning from text: A multi-dimensional perspective. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (Vol. 3, pp. 285-310). Hillsdale, NJ: Erlbaum.

Allington, R. L. (1977). If they don't read much, how they ever gonna get good? *Journal of Reading, 21,* 57-61.

Allington, R. L. (1980). Teaching reading in compensatory classes: A descriptive summary. *The Reading Teacher, 34,* 178-183.

Allington, R. L. (1982). Amount and mode of contextual reading as a function of reading group membership Paper presented at the annual meeting of the National Council of Teachers of English. Washington, D. C.

Allington, R. L. (1984). Content coverage and conceptual reading in reading groups. *Journal of Reading Behavior*, *14*(2), 85-95.

Allington, R. L. (1983). The reading instruction provided readers of differing reading abilities. *The Elementary School Journal, 83,* 548-559.

Allington, R. L. (1994). The schools we have. The schools we need. *The Reading Teacher, 48,* 14-29.

Allington, R. L. (2001). *What really matters for struggling readers.* New York: Longman.

Allington, R. L. (2002). You can't learn much from books you can't read. *Educational Leadership, 60,* 16-19.

Allington, R. L. (2005). New report discusses response to intervention. *Reading Today, 23,* 3.

Allington, R. L. (2006). Research and the three-tier model. *Reading Today*, 23, 5.

Allington, R. L., & McGill-Franzen, A. (1989). School response to reading failure: Instruction for chapter 1and special education students in grades two, four, and eight. *The Elementary School Journal, 89,* 529-542.

Allington, R. L., & Shake, M. C. (1986). Remedial reading: Achieving curricular congruence in classroom and clinic. *The Reading Teacher, 40,* 648-654.

Allington, R. L., Stuetzel, H., Shake, M., & Lamarche, S. (1986). What is remedial reading? A descriptive study. *Reading Research and Instruction, 26,* 15-30.

Allington, R. L., & Walmsley, S. A. (1995). *No quick fix: Rethinking literacy programs in America's elementary schools.* New York: Teachers College Press.

Almasi, J. F. (2003). *Teaching strategic processes in reading.* New York: The Guilford Press.

Alvermann, D. E., & Eakle, A. J. (2003). Comprehension instruction: Adolescents and their multiple literacies. In A. P. Sweet & C. E. Snow (Eds.), *Rethinking reading comprehension* (pp. 12-29). New York: Guilford Press.

Anderson, R. C. (2004). Role of the reader's schema in comprehension, learning, and memory. In R. B. Ruddell & N. J. Unrau (Eds.), *Theoretical models and processes of reading* (5th ed., pp. 594-606). Newark, DE: International Reading Association.

Anderson, T. H. & Armbruster, B. B. (1984). Studying. In P. D. Pearson, R. Barr, M. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (Vol. 1, pp. 657-679). New York: Longman.

Anderson, R. C., & Pearson, P. D. (1984). A schema-theoretic view of basic processes in reading comprehension. In P. D. Pearson, R. Barr, M. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (Vol. 1, pp. 255-291). New York: Longman.

Anderson, R. C., Reynolds, R. E., Schallert, D. L, & Goetz, E. T. (1977). Frameworks for comprehending discourse. *American Educational Journal*, *14,* 367-381.

Anderson, R. C., Wilson, P. T., & Fielding, L. G. (1988). Growth in reading and how children spend their time outside school. *Reading Research Quarterly, 23,* 285-303.

Armbruster, B. B., Anderson, T. H., Armstrong, J. O., Wise, M. A., Janisch, C., & Meyer, L. A. (1991). Reading and questioning in content area lessons. *Journal of Reading Behavior*, *23*(1), 35-59.

Armbruster, B. B., Anderson, T. H., & Meyer, J. L. (1991). Improving content-area reading using instructional graphics. *Reading Research Quarterly, 26,* 393-416.

Armbruster, B. B., Anderson, T. H., & Ostertag, J. (1987). Does text structure/summarization instruction facilitate learning from expository text? *Reading Research Quarterly*, *22*(3), 331-346.

Au, K. H. (1997). Literacy for all students: Ten sessions toward making a difference. *The Reading Teacher, 51,* 186-194.

August, D. L., Flavell, J. H., & Clift, R. (1984). Comparison of comprehension monitoring of skilled and less skilled readers. *Reading Research Quarterly, 20,* 39-53.

Baker, L. (1979). Comprehension monitoring: Identifying and coping with text confusions. *Journal of Reading Behavior, 11,* 365-374.

Baker, L. (1984). Children's effective use of multiple standards for evaluating their comprehension. *Journal of Educational Psychology*, *76*(4), 588-597.

Baker, L. (1999). Opportunities at home and in the community that foster reading engagement. In J. T. Guthrie & D. E. Alvermann (Eds.), *Engagement in reading: Processes, practices, and policy implications* (pp.105-133). New York: Guilford.

Baker, L. (2002). Metacognition in comprehension instruction. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research based best practices* (pp. 77-95). New York: Guilford.

Baker, L. (2005). Developmental differences in metacognition: Implications for metacognitively oriented reading instruction. In S. E. Israel, C. C. Block, K. L. Bauserman, & K. Kinnucan-Welsch (Eds.), *Metacomprehension in literacy learning: Theory, assessment, instruction, and professional development* (pp. 61-79). Mahwah, New Jersey: Lawrence Erlbaum, Associates.

Baker, L., & Brown, A. L. (1984). Metacognitive skills and reading. In P. D. Pearson, R. Barr, M. L. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (Vol. 1, pp. 353-394). Mahwah, NJ: Lawrence Erlbaum Assoc.

Baker, L., & Wigfield, A. (1999). Dimensions of children's motivation for reading and their relations to reading activity and reading achievement. *Reading Research Quarterly, 34,* 452-477.

Baker, L., Dreher, M. J., & Guthrie, J. T. (2000). Why teachers should promote reading engagement. In L. Baker, M. J. Dreher, & J. T. Guthrie (Eds.), *Engaging young readers: Promoting achievement and motivation* (pp. 1-16). New York: Guilford Press.

Bandura, A. (1969). *Principles of behavior modification*. New York: Holt, Rinehart & Winston.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs: NJ: Prentice-Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, W. H. Freeman and Co.

Bandura, A. (1999). Social cognitive theory: An agentic perspective. *Asian Journal of Social Psychology, 2,* 21-41.

Baumann, J. F., Jones, L. A., & Seifert-Kessell, N. (1993). *Monitoring reading comprehension by thinking aloud,* College Park, MD: National Research Center.

Baumann, J. F., Seifert-Kessell, N., & Jones, L. A. (1992). Effect of think-aloud instruction on elementary students' comprehension monitoring abilities. *Journal of Reading Behavior, 24,* 143-172.

Block, C. C. (2000). The case for exemplary instruction especially for students who come to school without the precursors for literacy success. *National Reading Conference Yearbook, 49,* 155-167.

Block, C. C. (2004). *Teaching comprehension: The comprehension process approach.* Boston, MA: Guilford.

Block, C. C., & Israel, S. E. (2004). The abc's of performing highly effective think-alouds. *The Reading Teacher, 58,* 154-167.

Block, C. C., Schaller, J. L., Joy, J. A., & Gaine, P. (2002). Process-based comprehension instruction: Perspectives of four reading educators. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 42-61). New York: Guilford Press.

Bloom, B. S. (1976). *Human characteristics and school learning.* New York: McGraw-Hill.

Borkowski, J. G., Chan, L. K. S., & Muthukrishna, N. (2000). Process-oriented model of metacognition. In G. Schraw & J. C. Impara, (Eds.), *Issues in the measurement of metacognition* (pp. 1-41). Lincoln, NE: Buros Institute of Mental Measurements.

Boyd, F. B. (2002). Motivation to continue: Enhancing literacy learning for struggling readers and writers. *Reading and Writing Quarterly, 18,* 257-277.

Brown, A. L. (1978). Knowing when, where, and how to remember: A problem of metacognition. In R. Glaser (Ed.), *Advances in instructional psychology*. Hillsdale, N. J.: Lawrence Erlbaum Associates.

Brown, A. L. (1980). Metacognitive development and reading. In R. J. Spiro, B. C. Bruce, & W. F. Brewer (Eds.), *Theoretical issues in reading comprehension* (pp. 453-481). Hillsdale, NJ: Erlbaum.

Brown, A. L., Bransford, J. D., Ferrara, R. A., & Campione, J. C. (1983). Learning, remembering, and understanding. In J. H. Flavell & E. M. Markman (Eds.), *Handbook of child psychology: Vol. 3* (4th ed., pp. 77-166). New York: John Wiley & Sons.

Brown, A. L. & Campione, J. C. (1990). Interactive learning environments and the teaching of science and mathematics. In M. Gardner, J. Greens, F. Reif, A. Schoenfeld, A. di Sessa, and E. Stage (Eds.) *Toward a scientific practice of science education* (pp. 111-139). Hillsdale, New Jersey: Erlbaum.

Brown, A. L., Campione, J. C., & Day, J. (1981). Learning to learn: On training students to learn from texts. *Educational Researcher, 10,* 14-24.

Brown, A. L. & Day, J. D. (1983). Macrorules for summarizing texts: The development of expertise. *Journal of Verbal Learning and Verbal Behavior, 22*(1), 1-14.

Brown, A. L., Day, J. D., & Jones, R. S. (1983). The development of plans for summarizing texts. *Child Development*, *54*, 968-979.

Butler, D., & Winne, P. (1995). Feedback and self-regulated learning: A theoretical synthesis. *Review of Educational Research*, *65*, 245-281.

Cain, K. (1996). Story knowledge and comprehension skill. In C. Cornoldi & J. Oakhill (Eds.) *Reading comprehension difficulties: Processes and intervention* (pp.167-192). Mahwah, NJ: Erlbaum.

Calfee, R. C. & Chambliss, M. J. (1987). The structural design features of large texts. *Educational Psychologist*, *22*(3 & 4), 357-378.

Case, B. J. (2003, April). It's about time: Stanford Achievement Test Series, tenth edition (Stanford 10). Retrieved September 20, 2005, from http://hartcourtassessment.com/hai/Images/pdf/assessmentReports

Chambliss, M. J. (1994). Evaluating the quality of textbooks for diverse learners. *Remedial & Special Education*, *15*(6), 348-363.

Chambliss, M. J., & Calfee, R. C. (1998). *Textbooks for learning: Nurturing children's minds.* Malden, MA: Blackwell Publishers.

Chambliss, M. J. & McKillop, A. M. (2000). Creating a print-and technology-rich classroom library to entice children to read. In L. Baker, M. J. Dreher, and J. T. Guthrie (Eds.), *Engaging young readers: Promoting achievement and motivation* (pp. 94-118). New York: Guilford Press.

Chambliss, M. J. & Murphy, P. K. (2002). Fourth and fifth graders representing the argument structure in written texts, *Discourse Processes*, *34*(1), 91-115.

Clay, M. M. (1972). *Reading: The patterning of complex behavior.* New York: International Publications.

Clay, M. M. (1991). *Becoming literate: The construction of inner control.* Portsmouth, NH: Heinemann.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.

Collins, J. L. (1998). *Strategies for struggling writers.* New York: Guilford.

Corno, L., & Kanfer, R. (1993). The role of volition in learning and performance. In L. Darling-Hammond (Ed.), *Review of research in education* (pp. 301-341). Washington, D. C.: American Educational Research Association.

Cranney, A. G. (1972-73). The construction of two types of cloze reading tests for college students. *Journal of Reading Behavior*, *5*(1), 60-64.

Cross, D. R., & Paris, S. G. (1988). Development and instruction analysis of children's metacognition and reading comprehension. *Journal of Educational Psychology, 30,* 131-142.

Cunningham, P. M., & Cunningham, J. W. (2002). What we know about how to teach phonics. In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (3rd ed., pp. 87-109). Newark, DE: International Reading Assoc.

Daneman, M. (1991). Individual differences in reading skills. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of Reading Research Vol. 2* (pp. 512-538). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Daneman, M. & Carpenter, P. A. (1980) Individual differences in working memory and reading. *Journal of Verbal Learning and Verbal Behavior*, *19*, 450-466.

Davey, B. (1983). Think-aloud-Modeling the cognitive processes of reading comprehension. *Journal of Reading, 27,* 44-47.

Davey, B., & McBride, S. (1986). Effects of question-generation training on reading comprehension, *Journal of Educational Psychology*, *78*(4) 256-262.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

Dewey, J. (1910). *How we think.* Boston, Massachusetts: Heath & Co.

Dewey, J. (1966). *Democracy and education.* New York: Macmillan.

Dole, J. A., Duffy, G. G., Roehler, L. R., & Pearson, P. D. (1991). Moving from the old to the new: Research on reading comprehension instruction. *Review of Educational Research, 61,* 239-264.

Dowhower, S. (1999). Supporting a strategic stance in the classroom: A comprehension framework for helping teachers help students to be strategic. *The Reading Teacher, 52,* 673-683.

Dreher, M. J. (1992). Searching for information in textbooks. *Journal of Reading, 35,* 364-371.

Dreher, M. J. (2002). Children searching and using information text: A critical part of comprehension. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 289-304). New York: Guilford Press.

Dreher, M. J. (2003). Motivating struggling readers by tapping the potential of information books. *Reading and Writing Quarterly, 19,* 25-38.

Dreher, M. J., & Brown, R. (1993). Planning prompts and indexed terms in textbook search tasks. *Journal of Educational Psychology, 85,* 662-669.

Dreher, M. J., & Guthrie, J. T. (1990). Cognitive processes in textbook chapter search tasks. *Reading Research Quarterly, 25,* 323-339.

Dreher, M. J., Davis, K. A., Waynant, P., & Clewell, S. F. (1998). Fourth-grade researchers: Helping children develop strategies for finding and using information. In T. Shanahan & F. V. Y. Rodriquez-Brown (Eds.), *47th yearbook of the National Research Conference Yearbook* (pp. 311-322). Chicago, IL: National Reading Conference.

Duffy, G. G. (1982). Fighting off the alligators: What research in real classrooms has to say about reading instruction. *Journal of Reading Behavior, 14,* 357-373.

Duffy, G. G. (1993). Rethinking strategy instruction: Four teachers' development and their low achievers' understandings. *The Elementary School Journal, 93,* 231-247.

Duffy, G. G. (2002). The case for direct explanation of strategies. In C. C. Block, & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 28-41). New York: Guilford Press.

Duffy, G. G. (2003). *Explaining reading: A resource for teaching concepts, skills, and strategies.* New York: Guilford Press.

Duffy, G. G., & Roehler, L. R. (1986). The subtleties of instructional mediation. *Educational Leadership, 43,* 23-27.

Duffy, G. G., & Roehler, L. R. (1987). Improving reading instruction through the use of responsive elaboration. *The Reading Teacher, 40,* 514-519.

Duffy, G. G., & Roehler, L. R. (1987). Teaching reading skills as strategies. *The Reading Teacher, 40,* 414-418.

Duffy, G. G., & Roehler, L. R. (1993). *Improving classroom reading instruction: A decision-making approach.* New York: McGraw-Hill, Inc.

Duffy, G. G., Roehler, L. R., & Mason, J. (1984). *Comprehension instruction: Perspectives and suggestions.* New York: Longman.

Duffy, G. G., Roehler, L. R., Meloth, M. S., Vavrus, L. G., Book, C., Putnam, J., et al. (1986). The relationship between explicit verbal explanations during reading skill instruction and student awareness and achievement: A study of reading teacher effects. *Reading Research Quarterly, 21,* 237-252.

Duffy, G. G., Roehler, L. R., Sivan, E., Rackliffe, G., Book, C., Meloth, M. S., et al. (1987). Effects of explaining the reasoning associated with using reading strategies. *Reading Research Quarterly, 22,* 347-368.

Durkin, D. (1978-1979). What classroom observations reveal about reading comprehension instruction. *Reading Research Quarterly, 15,* 481-533.

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41,* 1040-1048.

Ericsson, K. A., & Simon, H. A. (1984). *Protocol analysis: Verbal reports as data.* Cambridge, MA: MIT Press.

Fielding, L. G., & Pearson, P. D. (1994). Reading comprehension: What works? *Educational Leadership, 51,* 62-68.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-development inquiry. *American Psychologist, 34,* 906-911.

Flavell, J. H. (1985). *Cognitive development* (2nd ed.) Englewood Cliffs, NJ: Prentice-Hall.

Flavell, J. H. (1999). Cognitive development: Children's knowledge about the mind. *Annual Review of Psychology*, 50, 21-45.

Flavell, J. H., & Wellman, H. M. (1977). Metamemory. In R. B. Kail, Jr. & J. W. Hagen (Eds.), *Perspectives on the development of memory and cognition* (pp. 3-33). Hillsdale, NJ: Erlbaum.

Flippo, R. F. (1998). Points of agreement: A display of professional unity in our field. *The Reading Teacher, 52,* 30-40.

Fountas, I. C., & Pinnell, G. S. (1996). *Guided reading: Good first teaching for all children.* Portsmouth, NH: Heinemann.

Fountas, I. C., & Pinnell, G. S. (2001). *Guiding readers and writers grades 3-6: Teaching comprehension, genre, and content literacy.* Portsmouth, NH: Heinemann.

Fuchs, D., & Fuchs, L. S., Mathes, P. G., & Martinez, E. A. (2002). Preliminary evidence on the social standing of students with disabilities in PALS and no-PALS classrooms, *Learning Disabilities Research & Practice*, *17*(4), 205-215.

Fuchs, D., Fuchs, L, S., Thompson, A., Svenson, E., Yen, L., Otabiba, S. A., et al. (2001). Peer-assisted learning strategies in reading: Extensions for kindergarten, first grade, and high school, *Remedial and Special Education, 22*(1), 15-21.

Gall, M. D., Borg, W. R., Gall, J. P. (1996). *Educational research: An introduction*. New York: Longman Publishers.

Gambrell, L. B., Block, C. C., & Pressley, M. (2002). Introduction: Improving comprehension instruction - An urgent priority. In C. C. Block, L. B. Gambrell, & M. Pressley, (Eds), *Improving comprehension instruction: Rethinking research, theory, and classroom practice* (pp. 3-16). Newark, DE: International Reading Association.

Gambrell, L. B., Wilson, R. M., & Gantt, W. N. (1981). Classroom observations of task-attending behaviors of good and struggling readers. *Journal of Educational Research, 74,* 400-404.

Garner, R. (1980). Monitoring of understanding: An investigation of good and struggling readers' awareness of induced miscomprehension of text. *Journal of Reading Behavior, 12,* 55-63.

Garner, R., Wagoner, S., & Smith, T. (1983). Externalizing question-answering strategies of good and struggling comprehenders. *Reading Research Quarterly*, *18,* 439-447.

Gersten, R., & Carnine, D. (1986). Direct instruction in reading comprehension. *Educational Leadership, 43,* 70-78.

Golinkoff, R. M. (1975-1976). A comparison of reading comprehension processes in good and struggling comprehenders. *Reading Research Quarterly, 11,* 623-659.

Goodman, Y. M. (1986). Children coming to know literacy. In W. H. Teale & E. Sulzby (Eds.) *Emergent literacy: Writing and reading* (pp. 1-14), Norwood, NJ: Ablex Publishing Corporation.

Grant, R., Guthrie, J., Bennett, L., Rice, M. E., & McGough, K. (1993-1994). Developing engaged readers through concept-oriented instruction. *The Reading Teacher, 47,* 338-340.

Guthrie, J. T. (1973). Reading comprehension and syntactic responses in good and poor readers. *Journal of Educational Psychology*, *65*, 294-300.

Guthrie, J. T. (2003). Concept-oriented reading instruction: Practices of teaching reading for understanding. In A. P Sweet & C. E. Snow (Eds.) *Rethinking reading comprehension* (pp. 115-140). New York: Guilford Press.

Guthrie, J. T. (2004a). Classroom contexts for engaged reading: An overview. In J. T. Guthrie, A. Wigfield, and K. Perencevich (Eds.) Motivating *reading comprehension: Concept-oriented reading instruction* (pp. 1-24). Mahwah, NJ: Lawrence Erlbaum. Assoc.

Guthrie, J. T. (2004b). *Fifth grade teacher's guide: Concept-oriented reading instruction*. College Park, Maryland: University of Maryland.

Guthrie, J. T. (2004c). Preparing students for high-stakes test taking in reading. In A. E. Farstrup & S. J. Samuels (Eds.) *What research has to say about reading instruction* (3rd ed., pp. 370-391). Newark, DE: International Reading Association.

Guthrie, J. T. (2004). *Index of Engagement.* College Park: University of Maryland.

Guthrie, J. T., Anderson, E., Alao, S., & Rinehart, J. (1999). Influences of concept-oriented reading instruction on strategy use and conceptual learning from text. *The Elementary School Journal, 99,* 343-366.

Guthrie, J. T., Cox, K. E., Anderson, E., Harris, K., Mazzoni, S., & Rach, L. (1998). Principles of integrated instruction for engagement in reading. *Educational Psychology Review, 10,* 177-199.

Guthrie, J. T., Cox, K. E., Knowles, K. T., Buehl, M., Mazzoni, S. A., & Fasulo, L. (2000). Building toward coherent instruction. In L. Baker, M. J. Dreher, & J. T. Guthrie (Eds.), *Engaging young readers: Promoting achievement and motivation* (pp. 209-236). New York: The Guilford Press.

Guthrie, J. T., & Kirsch, I. S. (1987). Distinctions between reading comprehension and location information in text. *Journal of Educational Psychology*, *79*(3), 220-227.

Guthrie, J. T., McGough, K., Bennett, L., & Rice, M. E. (1996). Concept-oriented reading instruction: An integrated curriculum to develop motivations and strategies for reading. In L. Baker, P. Afflerbach, & D. Reinking (Eds.), *Developing engaged readers in school and home communities* (pp. 165-190). Hillsdale, NJ: Lawrence Erlbaum Assoc.

Guthrie, J. T. & Mosenthal, P. (1987). Literacy as multi-dimensional: Locating information and reading comprehension. *Educational Psychologist*, *22*, 279-297.

Guthrie, J. T., & Ozgungor, S. (2002). Instructional contexts for reading engagement. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 275-288). New York: Guilford Press.

Guthrie, J. T., Schafer, W. D., Wang, Y. Y., & Afflerbach, P. (1995). Relationships of instruction to amount of reading: An exploration of social, cognitive, and instructional connection. *Reading Research Quarterly, 30,* 8-25.

Guthrie, J. T., Seifert, M., & Kirsch, I. S. (1986). Effects of education, occupation, and setting on reading practice. *American Educational Journal*, *23,* 151-160.

Guthrie, J. T. & Taboada, A. (2004). Fostering the cognitive strategies of reading comprehension. In. J. T. Guthrie, A. Wigfield, & K. Perencevich (Eds.), *Motivating reading comprehension: Concept-oriented reading instruction* (pp. 87-112). Mahwah, New Jersey: Lawrence Erlbaum Assoc.

Guthrie, J. T., VanMeter, P., Hancock, G. R., McCann, A., Anderson, E., & Alao, S. (1998). Does concept-oriented reading instruction increase strategy use and conceptual understanding from text? *Journal of Educational Psychology, 90,* 261-278.

Guthrie, J. T., VanMeter, P., McCann, A., Wigfield, A., Bennett, L., Poundstone, C., et al. (1996). Does Concept-Oriented Reading Instruction increase strategy use and conceptual understanding from text? *Journal of Educational Psychology, 90,* 261-278.

Guthrie, J. T., Weber, S., & Kimmerly, N. (1993). Searching documents: Cognitive processes and deficits in understanding graphics, tables, and illustration. *Contemporary Educational Psychology*, *18,* 186-221.

Guthrie, J. T., & Wigfield, A. (1997). Reading engagement: A rationale for theory and teaching. In J. T. Guthrie & A. Wigfield (Eds.), *Reading engagement: Motivating readers through integrated instruction* (pp. 1-12). Newark, DE: International Reading Association.

Guthrie, J. T., & Wigfield, A. (1999). How motivation fits into a science of reading. *Scientific Studies of Reading, 3,* 199-205.

Guthrie, J. T. & Wigfield, A. (2000). Engagement and motivation. In M. L. Kamil, P. B Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research (Vol. 3,* pp. 403-422). Mahwah, NJ: Lawrence Erlbaum Assoc.

Guthrie, J. T., & Wigfield, A. (2005). Roles of motivation and engagement in reading comprehension assessment. In S. G. Paris & S. A. Stahl (Eds.), *Children's reading comprehension and assessment* (pp. 187-213). Mahwah, NJ: Lawrence Erlbaum.

Guthrie, J. T., Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M. H., et al. (2004). Increasing reading comprehension and engagement through concept-oriented reading instruction. *Journal of Educational Psychology, 96,* 403-423.

Guthrie, J. T., Wigfield, A., Humenick, N. M., Perencevich, K. C., Taboada, A., & Barbosa, P. (2006). Influences of stimulating tasks on reading motivation and comprehension. *The Journal of Educational Research*, *99*(4), 232-245.

Guthrie, J. T., Wigfield, A., Metsala, J. L., & Cox, K. E. (1999). Motivational and cognitive predictors of text comprehension and reading amount. *Scientific Studies of Reading*, *3*(3), 231-256.

Guthrie, J. T., Wigfield, A., & Perencevich, K. C. (2004). Scaffolding for motivation and engagement in reading. In J. T. Guthrie, A. Wigfield, & K. Perencevich (Eds.), *Motivating reading comprehension: Concept-oriented reading instruction* (pp. 55-86). Mahwah, NJ: Lawrence Erlbaum Assoc.

Guthrie, J. T., Wigfield, A., & VonSecker, C. (2000). Effects of integrated instruction on motivation and strategy use in reading. *Journal of Educational Psychology, 92,* 331-341.

Hansen, J. & Pearson, P. D. (1983). An instructional study: Improving the inferential comprehension of good and poor fourth-grade readers. *Journal of Educational Psychology*, *76*(6), 821-829.

Harris, K. (1990). Developing self-regulated learners: The role of private speech and self-instructions. *Educational Psychologist 25*(1), 35-49.

Harris, K. R. & Pressley, M. (1991). The nature of cognitive strategy instruction: Interactive strategy construction. *Exceptional Children*, *57*, 392-404.

Heller, M. F. (1986). How do you know what you know? Metacognitive modeling in the content areas. *Journal of Reading, 29,* 415-422.

Henderson, E. N. (1903). A study of memory for connected trains of thought. *Psychological Monographs, 5*(6), 1-94.

Hergenhahn, B. R., & Olson, M. H. (1997). *An introduction to theories of learning* (5th ed.). Upper Saddle River, NJ: Prentice-Hall Inc.

Herrmann, B. A. (1988). Two approaches for helping struggling readers become more strategic. *The Reading Teacher, 42,* 24-28.

Hidi, S. (1991). Interest and its contribution as a mental resource of learning. *Review of Educational Research, 60,* 549-571.

Hidi, S., & Anderson, V. (1986). Producing written summaries: Task demands, cognitive operations, and implications for instruction. *Review of Educational Research, 56,* 473-493.

Hiebert, E. H., Pearson, P. D., Taylor, B. M., Richardson, V., & Paris, S. G. (1998). *Every child a reader.* Ann Arbor, MI: Center for the Improvement of Early Reading Achievement.

Hill, M. (1991). Writing summaries promotes thinking and learning across the curriculum- but why are they so difficult to write? *Journal of Reading, 34,* 536-539.

Hoffman, J. V., & Clements, R. (1984). Reading miscues and teacher verbal feedback. *The Elementary School Journal, 84,* 423-439.

Hoffman, J. V., O'Neal, S. F., Kastler, L. A., Clements, R. O., Segel, K. W., & Nash, M. F. (1984). Guided oral reading and miscue focused verbal feedback in second-grade classrooms. *Reading Research Quarterly*, *19*, 367-384.

Huey, E. B. (1968). *The psychology and pedagogy of reading: With a review of the history of reading and writing and methods, texts, and hygiene in reading.* Cambridge, MA: MIT Press.

Israel, S. E., & Massey, D. (2005). Metacognitive think-alouds: Using a gradual release model with middle school students. In S. E. Israel, C. C. Block, K. L. Bauserman, and K. Kinnucan-Welsch (Eds.), *Metacognition in literacy learning: Theory, assessment, instruction, and professional development* (pp. 183-198). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Ivey, G. (2002) Building comprehension when they are still learning to read the words, In C. C. Block & M. Pressley (Eds.) *Comprehension instruction: Research-based best practices* (pp. 234-246). , New York: Guilford Press.

Ivey, G. (2000). Redesigning reading instruction. *Educational Leadership, 58,* 42-45.

Jacobs, J. E., & Paris, S. G. (1987). Children's metacognition about reading: Issues in definition, measurement, and instruction. *Educational Psychologist*, *22*(3 & 4), 255-278.

Jenkins, J. R., & Jewell, M. (1990). *Examining the validity of two measures for formative teaching: Reading aloud and maze*. Unpublished manuscript, University of Washington.

Johnston, P. H. (1984). Assessment in reading. In P. D. Pearson, R. Barr, M. L. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (Vol. 1, pp. 147-182). Mahwah, NJ: Erlbaum.

Johnston, P., & Allington, R. (1991). Remediation. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (Vol. 2, pp. 984-1012). Mahwah, NJ: Erlbaum.

Johnston, P., Allington, R., & Afflerbach, P. (1985). The congruence of classroom and remedial reading instruction. *The Elementary School Journal, 85,* 467-477.

Kemper, D., Nathan, R., & Sebranek, P. (1995). *Writers express: A handbook for young writers, thinkers, and learners,* Wilmington, MA: Great Source Educational Group, Inc.

Kiesling, H. (1977-1978). Productivity of instructional time by mode of instruction for students at varying levels of reading skill. *Reading Research Quarterly, 13,* 554-582.

Klenk, L., & Kibby, M. (1991). Re-mediating reading difficulties: Appraising the past, reconciling the present, constructing the future. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (Vol. 3, pp. 667-690). Mahwah, NJ: Erlbaum.

Kletzien, S. B. & Dreher, M. J. (2004). *Informational text in K-3 classrooms: Helping children*

read and write. Newark, DE: International Reading Association.

Kontos, S. (1983). Adult-child interaction and origins of metacognition. *Journal of Educational*

Research, 77(1), 43-54.

Kreutzer, M. A., Leonard, C., & Flavell, J. H. (1975). An interview study of children's knowledge about memory. *Monographs of the Society for Research in Child Development*, 40 (1).

Kucan, L., & Beck, I. L. (1997). Thinking aloud and reading comprehension research: inquiry, instruction, and social interaction. *Review of Educational Research, 67,* 271-299.

Kuhn, D. (2000). Metacognitive development. *Current Directions in Psychological Science*, 9(5), 178-181.

Lenski, S. D., & Nierstheimer, S. L. (2002). Strategy instruction from a sociocognitive perspective. *Reading Psychology, 23,* 127-143.

Leslie, L., & Caldwell, J. (2001). *Qualitative reading inventory- 3* (3rd ed.). New York: Addison Wesley Longman, Inc.

Leslie, L. & Caldwell, J. (2006). *Qualitative reading inventory- 4* (4th ed.). Boston: Pearson Education, Inc.

Linnenbrink, E. A. & Pintrich, P. R. (2002). Motivation as an enabler for academic success. *School Psychology Review*, *31*(3), 313-328.

Linnenbrink, E. A. & Pintrich, P. R. (2003). The role of self-efficacy beliefs in student engagement in learning in the classroom. *Reading & Writing Quarterly*, *19*, 119-137.

Lipson, M. Y. (1982). Learning new information from text: The role of prior knowledge and reading ability. *Journal of Reading Behavior, 14,* 243-261.

Lipson, M. Y. (1984). Some unexpected issues in prior knowledge and comprehension. *The Reading Teacher, 38,* 760-764.

Lipson, M. Y., & Wixson, K. K. (1986). Reading disability research: An interactionist perspective. *Review of Educational Research*, *56*(1), 111-136.

Locke, E. Q. (1975). A guide to effective study. New York: Springer.

Lovett, M. W., Lacerenza, L, & Borden, S., L. (2000). Putting struggling readers on the PHAST Track: A program to integrate phonological and strategy-based remedial reading instruction and maximize outcomes, *Journal of Learning Disabilities, 33*(5), 458-476.

Mandler, J. M., & Johnson, N. S. (1977). Rememberance of things parsed: Story structure and recall. *Cognitive Psychology*, *9*. 11-151.

Markman, E. M. (1977). Realizing that you don't understand: A preliminary investigation. *Child Development, 48,* 986-992.

Markman, E. M. (1979). Realizing that you don't understand: Elementary school children's awareness of inconsistencies. *Child Development, 50,* 643-655.

Markman, E. M., & Gorin, L. (1981). Children's ability to adjust their standards for evaluating comprehension. *Journal of Educational Psychology, 73,* 320-325.

McCombs, B. L. (1998). Integrating metacognition, affect, and motivation in improving teacher education. In L. M. Lambert & B. L. McCombs (Eds.), *How students learn: Reforming schools through learner-centered education* (pp. 379-408). Washington, D. C. : American Psychological Association.

McCormick, C. B., & Pressley, M. (1996). *Educational psychology: Learning, instruction, assessment.* New York: Longman.

McGee, L. M. (1982). Awareness of text structure: Effects on children's recall of expository text. *Reading Research Quarterly, 17*(4), 581-590.

McGill-Frazen, A., & Allington, R. L. (1990). Comprehension and coherence: Neglected elements of literacy instruction in remedial and resource services. *Journal of Reading, Writing, and Learning Disabilities, 6,* 149-180.

MacGinitie, W. H. (1978). *Gates-MacGinitie reading tests* (2nd ed.) Boston: Houghton Mifflin.

MacGinitie, W. H., MacGinitie, R. K., Maria, K. & Dreyer, L. G. (2000). *Gates-MacGinitie Reading Comprehension Tests:* Level 3 Form S (4th Ed.). Itasca, IL: Riverside Publishing.

Maryland state department of education (2003). Testing: Maryland School Assessment. Retrieved September 20, 2005 from http://www.marylandpublicschools.org/MSDE/testing/msa/

McCombs, B. L. & Marzano, R. J. (1990). Putting the self in self-regulated learning: The self as agent in integrating will and skill, *Educational Psychologist*, *25*(1), 51-69.

McIntyre, E, Jones, D., Powers, S., Newsome, F., Petrosko, J, Powell, R, et al. (2005). Supplemental instruction in early reading: Does it matter for struggling readers? *The Journal of Educational Research, 99*(2), 99-107,

McKenna, M. C., Ellsworth, R. A., & Kear, D. J. (1995). Children's attitudes toward reading: A national survey. *Reading Research Quarterly, 30,* 934-956.

Meichenbaum, D., (1977). Cognitive behavior modification: An integrative approach. NY: Plenum.

Metsala, J. L., Wigfield, A., & McCann, A. D. (1996-1997). Children's motivations for reading. *The Reading Teacher, 50,* 360-362.

Meyer, B. J. F., Brandt, D. M. & Bluth, G. J. (1980). Use of top-level structure in text: key for reading comprehension of ninth-grade students. *Reading Research Quarterly*, *16*, 72-103.

Miller, W. H. (1995). *Alternative assessment techniques for reading and writing.* New Jersey: The Center for Applied Research in Education.

Ministry of Education Staff (1997). *Reading for life: The learner as a reader.* Wellington, New Zealand: Learning Media.

Morrison, F. J., Griffith, E. M., & Frazier, J. A., (1996). Schooling and the 5 to 7 shift: A natural experiment. In A. J. Sameroff & M. Haith (Eds.), *The five to seven-year shift: The age of reason and responsibility* (pp. 161-186). Chicago: University of Chicago Press. .

Myers, M., & Paris, S. G. (1978). Children's metacognitive knowledge about reading. *Journal of Educational Psychology, 70,* 680-690.

National Institute of Child Health and Human Development (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction [Report of the National Reading Panel]. (NIH Publication No. 00-4754).* Washington, D. C.: U. S. Government Printing Office.

Nolte, R. Y. & Singer, H. (1985). Active comprehension: Teaching a process of reading comprehension and its effects on reading achievement. *The Reading Teacher*, *39*, 24-31.

Oakhill, J., & Yuill, N. (1996). Higher order factors in comprehension disability: Processes and remediation. In C. Cornoldi & J. Oakhill (Eds.), *Reading comprehension difficulties* (pp. 69-92), Mahwah, NJ: Erlbaum.

Oldfather, P., & Wigfield, A. (1996). Children's motivations for literacy learning. In L. Baker, P. Afflerbach, & D. Reinking (Eds.), *Developing engaged readers in school and home communities* (pp. 89-113). Mahwah, NJ: Erlbaum.

Oster, L. (2001). Using the think-aloud for reading instruction. *The Reading Teacher, 55,* 65-69.

Otto, W. (1985). Metacognition and reading instruction. *Journal of Reading, 28,* 573-575.

Palincsar, A. S. (1986). Metacognitive strategy instruction. *Exceptional Children, 53,* 118-124.

Palincsar, A. S. (1998). Keeping the metaphor of scaffolding fresh- A response to C. Addison Stone's "The metaphor of scaffolding: Its utility for the field of learning disabilities". *Journal of Learning Disabilities, 31,* 370-371.

Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction, 1,* 117-175.

Palincsar, A. S., David, Y. M., Winn, J. A., & Stevens, D. D. (1991). Examining the context of strategy instruction. *Remedial and Special Education, 12,* 43-53.

Paris, S. G., Cross, D. R., & Lipson, M. Y. (1984). Informed strategies for learning: A program to improve children's reading awareness and comprehension. *Journal of Educational Psychology, 76,* 1239-1252.

Paris, S. G., & Flukes, J. (2005). Assessing children's metacognition about strategic reading. In S. E. Israel, C. C. Block, K. L. Bauserman, & K. Kinnucan-Welsch (Eds.), *Metacognition in literacy learning: Theory, assessment, instruction and professional development* (pp. 121-139). Mahwah, New Jersey: Lawrence Erlbaum, Associates.

Paris, S. G., & Jacobs, J. E. (1984). The benefits of informed instruction for children's awareness and comprehension skills. *Child Development, 55,* 2083-2093.

Paris, S. G. & Lindauer, B. K. (1982). The development of cognitive skills during childhood. In B. B. Wolman & G. Strickler (Eds.) *Handbook of developmental psychology* (pp. 333-349). Englewood Cliffs: New Jersey: Prentice-Hall, Inc.

Paris, S. G., & Lipson, M., & Wixson, K. (1983). Becoming a strategic reader. *Contemporary*

Educational Psychology, 8, 293-316.

Paris, S. G., & Myers, M. (1981). Comprehension monitoring, memory, and study strategies of good and struggling readers. *Journal of Reading Behavior, 13,* 5-22.

Paris, S. G., Newman, R. S., & McVey, K. A. (1982). Learning the functional significance of mnemonic actions: A microgenetic study of strategy acquisition. *Journal of Experimental Child Psychology, 34*, 490-509.

Paris, S. G. & Oka, E. R. (1986). Self-regulated learning among exceptional children. *Exceptional Children*, *53*(2), 103-108.

Paris, S. G., Wasik, B. A., & Turner, J. C. (1991). The development of strategic readers. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (Vol. 2, pp. 609-640). Mahwah, NJ: Erlbaum.

Paris, S. G., & Winograd, P. (1990). How metacognition can promote academic learning and instruction. In B. F. Jones & L. Idol (Eds.), *Dimensions of thinking and cognitive instruction* (pp. 15-51). Hillsdale, NJ: Erlbaum.

Parker, R., Hasbrouck, J. E., & Tindal, G. (1992). The maze as a classroom-based reading measure: Construction methods, reliability and validity. *The Journal of Special Education*, *26*(2), 195-218.

Pearson, P. D. (1984). Direct explicit teaching of reading comprehension. In G. G. Duffy, L. R. Roehler & J. Mason (Eds.), *Comprehension instruction: Perspectives and suggestions* (pp. 222-233). New York: Longman.

Pearson, P. D., & Dole, J. A. (1987). Explicit comprehension instruction: A review of research and a new conceptualization of instruction. *The Elementary School Journal, 88,* 151-165.

Pearson, P. D., & Fielding, L. (1991). Comprehension instruction. In R. Barr, M. L. Kamil, P. B. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (Vol. II. pp. 815-860). New York: Longman.

Pearson, P. D., & Gallagher, M. C. (1983). The instruction of reading comprehension. *Contemporary Educational Psychology, 8,* 317-344.

Pearson, P. D., Hansen, J., & Gordon, C. (1979). The effect of background knowledge on young children's comprehension of explicit and implicit information. *Journal of Reading Behavior, 11,* 201-209.

Pearson, P. D., Roehler, L. R., Dole, J. A., & Duffy, G. G. (1992). Developing expertise in reading comprehension. In S. J. Samuels & A. E. Farstrup (Eds.), *What research has to say about reading instruction* (pp. 145-199). Newark, DE: International Reading Assoc.

Pinnell, G. S. (2002). The guided reading lesson: Explaining, supporting, and prompting for comprehension. In C. C. Block, L. B. Gambrell, & M. Pressley (Eds.), *Improving comprehension instruction: Rethinking research, theory, and classroom practice* (pp. 106-134). Newark, DE: International Reading Association.

Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research*, *31*, 459-470.

Pintrich, P. R., & De Groot, E. (1990). Motivational and self-regulated learning components of
classroom academic performance. *Journal of Educational Psychology, 82,* 33-40.

Pintrich, P. R., & Schunk, D. (2002). *Motivation in education: Theory, research, and applications* (2nd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.

Pintrich, P. R., & Zusho, A. (2002) What do I need to succeed? In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 250-284). San Diego, CA: Academic Press.

Pressley, M. (2000). What should comprehension instruction be the instruction of? In M. Kamil, P. B. Mosenthal, P. D. Pearson, R. Barr (Ed.), *Handbook of reading research* (Vol. 3, pp. 545-560). Mahwah, NJ: Erlbaum.

Pressley, M. (2002a). Comprehension strategies instruction: In C. C. Block & M. Pressley (Eds.) *Comprehension instruction: Research-based best practices* (pp. 11-27). New York: Guilford.

Pressley, M. (2002b). Metacognition and self-regulated comprehension. In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (pp. 291-309). Newark, DE: International Reading Association.

Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading.* Hillsdale, NJ: Erlbaum.

Pressley, M., El-Dinary, P. B.,Gaskins, I., Schuder, T., Bergman, J., Almasi, L., & Brown, R. (1992). Beyond direct explanation: Transactional instruction of reading comprehension strategies. *The Elementary School Journal*, *92*(5), 513-555.

Pressley, M., Forrest-Pressley, D. L., Elliott-Faust, D. J., & Miller, G. E. (1985). Children's use of cognitive strategies, how to teach strategies, and what to do if they can't be taught. In M. Pressley & C. J. Brainerd (Eds.), *Cognitive learning and memory in children* (pp. 1-47). New York: Springer-Verlag.

Pressley, M. & Wharton-McDonald, R. (1997). Skilled comprehension and its development through instruction. *School Psychology Review*, *26*(3), 0279-6015.

Pressley, M, Wharton-McDonald, R., Mistretta-Hampston, J. & Echevarria, M. (1998). Literacy instruction in 10 fourth- and fifth-grade classrooms in upstate New York. *Scientific Studies of Reading, 2*(2), 159-194.

Quirk, T. J., Trisman, D. A., Nalin, K., & Weinberg, S. (1975). Classroom behavior of teachers during compensatory reading instruction. *Journal of Educational Research, 68,* 185-192.

RAND Reading Study Group (2002). *Reading for understanding: Toward an R & D program in reading comprehension*. Santa Monica, CA: RAND.

Resnick, D. P., & Resnick, L. B. (1977). The nature of literacy: An historical exploration. *Harvard Educational Review, 47,* 370-385.

Reutzel, D. R., & Smith, J. A. (2004). Accelerating struggling readers' progress: A comparative analysis of expert opinion and current research recommendations. *Reading & Writing Quarterly, 20,* 63-89.

Reutzel, D. R., Camperell, K., & Smith, J. A. (2002). Hitting the wall: Helping struggling readers comprehend. In C. C. Block, L. B. Gambrell, & M. Pressley (Eds.), *Improving comprehension instruction: Rethinking research, theory, and classroom practice* (pp. 321-353). Newark, DE: International Reading Assoc.

Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context.* New York: Oxford University Press.

Rosenshine, B. & Meister, C. (1994). Reciprocal teaching: A review of nineteen experimental studies. *Review of Educational Research*, *64*, 479-530.

Rosenshine, B., & Stevens, R. (1984). Classroom instruction in reading. In P. D. Pearson, R. Barr, M. L. Kamil, P. Mosenthal (Eds.), *Handbook of reading research* (Vol. 1, pp. 745-798). Mahwah, NJ: Erlbaum.

Rumelhart, D. E. (2004). Toward an interactive model of reading. In R. B. Ruddell & N. J. Unrau (Eds.) *Theoretical models and processes of reading* (5th ed., pp. 1149-1179). Newark, DE: International Reading Association.

Sabin, F (1982). *Wonders of the pond*. Mahwah: NJ: Troll Associates.

Schmitt, M. C. (1990). A questionnaire to measure children's awareness of strategic reading processes. *The Reading Teacher, 43,* 454-461.

Schunk, D. H. (1991). *Learning theories: An educational perspective.* New York: Macmillan Publishing Co.

Schunk, D. H., & Zimmerman, B. J. (1997). Developing self-efficacious readers and writers: The role of social and self-regulatory processes. In J. T. Guthrie & A. Wigfield (Eds.), *Reading engagement: Motivating readers through integrated instruction* (pp. 34-50). Newark, DE: International Reading Association.

Schunk, D., & Zimmerman, B. (1998). *Self-regulated learning: From teaching to self-reflective practice.* NY: Guilford.

Short, E. J., & Ryan, E. B. (1984). Metacognitive differences between skilled and less skilled readers: Remediating deficits through story grammar and attribution training. *Journal of Educational Psychology, 76,* 225-235.

Sikorski, M. P (2004). Inside Mrs. O'Hara's CORI classroom. In J. T. Guthrie, A. Wigfield, & K. Perencevich (Eds.), *Motivating reading comprehension: Concept-oriented reading instruction* (pp. 195-223). Mahwah, NJ: Erlbaum.

Singer, H. (1978). Active comprehension: From answering to asking questions. *The Reading Teacher, 31,* 901-908.

Smolkin, L. B., & Donovan, C. A. (2002). "Oh excellent, excellent, question!": Developmental differences in comprehension acquisition In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 140-157), New York: The Guilford Press.

Snow, C. E., & Sweet, A. P. (2003). Reading for comprehension. In A. P. Sweet & C. E. Snow (Eds.), *Rethinking reading comprehension* (pp. 1-11). NY: Guilford Press.

Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading failure in young children.* Washington, D. C.: National Academy Press.

Spring, H. (1985). Teacher decisionmaking: A metacognitive approach. *The Reading Teacher, 39*(3), 290-295.

Stanford Achievement Test Series- Tenth edition (2006). Rely on Stanford 10 to help you guide teaching and learning toward high academic standards. Retrieved August 21, 2006, from http://harcourtassessment.com/HAIWEBcultures/en-us/dotCom/Stanford10.com.htm

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21,* 360-407.

Stauffer, R. G. (1969). *Directing reading maturity as a cognitive process.* NY: Harper & Row.

Stewart, O. & Tei, E. (1983). Some implications of metacognition for reading instruction, *Journal of Reading*, *27*, 36-43

Sweet, A. P., Guthrie, J. T., & Ng, M. M. (1998). Teacher perceptions and students motivation. *Journal of Educational Psychology, 90,* 210-223.

Symons, S., & Pressley, M. (1993). Prior knowledge affects text search success and extraction of information. *Reading Research Quarterly, 28,* 251-261.

Taboada, A. & Guthrie, J. T. (2004). Growth of cognitive strategies for reading comprehension. In J. T. Guthrie, A. Wigfield, & K. C. Perencevich (Eds.), Motivating reading comprehension: Concept-oriented reading instruction (pp. 273-306). Mahwah, NJ: Erlbaum.

Taboada, A., & Guthrie, J. T. (2006). Contributions of student questioning and prior knowledge to construction of knowledge from reading informational text. *Journal of Literacy Research*, *38*(*1*), 1-35.

Taylor, B. T., Harris, L. A., Pearson, P. D., & Garcia, G. E. (1995). *Reading difficulties, instruction, and assessment* (2nd ed.). New York: McGraw-Hill.

Thorndike, E. L. (1917). Reading as reasoning: A study of mistakes in paragraph reading. *Journal of Educational Psychology, 8,* 323-332.

Tierney, R. J., & Cunningham, J. W. (1984). Research on teaching reading comprehension. In P. D. Pearson, R. Barr, M. L. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (Vol. 1, pp. 609-655). Mahwah, NJ: Erlbaum.

Trabasso, T. & Bouchard, E. (2002). Teaching reading how to comprehend text strategically. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practice* (pp. 176-200). New York: Guilford Press.

Tudge, J. & Scrimsher, S. (2003). Lev S. Vygotsky on education: A cultural-historical, interpersonal, and individual approach to development. In B. J. Zimmerman & D. H. Schunk (Eds.) *Educational psychology: A century of contributions* (pp. 207-228). Mahwah, NJ: Lawrence Erlbaum Associates.

U. S. Department of Education. (2003, August). *No child left behind: A toolkit for teachers*. Retrieved August 10, 05, from No Child Left Behind: A Toolkit for Teachers Web Site: http://www.ed.gov/teachers/nclbguide/nclb-teachers-toolkit.pdf

Vaughn, S., Linan-Thompson, S., Kouzekanani, K. P. Bryant, Dickson, S., & Blozis, S. A. (2003). Reading instruction grouping for students with reading difficulties. *Remedial and Special Education, 24*(5), 301-315.

Vaughn, S., Mathes, P. G., Linan-Thompson, S., & Francis, D. J. (2005). Teaching English language learners at risk for reading disabilities to read: Putting research into practice. *Learning Disabilities Research & Practice, 20*(1), 58-67.

Vellutino, F. R. (2003). Individual differences as sources of variability in reading comprehension in elementary school children. In A. P. Sweet & C. E. Snow (Eds.), *Rethinking reading comprehension* (pp. 51-81). New York: Guilford Press.

Vygotsky, L. S. (1962). *Thought and language.* Cambridge, MA: MIT Press.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Wade, S. E. (1990). Using think alouds to assess comprehension. *The Reading Teacher 43,* 442-451.

Walczyk, J. J. (2000). The interplay between automatic and control processes in reading. *Reading Research Quarterly, 35,* 554-566.

Wertsch, J. V. (1991). *Voices of the mind: A sociocultural approach to mediated action.* Cambridge, MA: Harvard University Press.

Whipple, G. M. (1925). Reading tests- standardized and informal. In G. M. Whipple (Ed.) *Report of the National Committee on Reading* (Twenty-fourth Yearbook of the National Society for the Study of Education. Part 1). Bloomington, Ill.: Public School Publishing.

Wigfield, A. (2000). Facilitating children's reading motivation. In L. Baker, M. J. Dreher, & J. T. Guthrie (Eds.), *Engaging young readers: Promoting achievement and motivation* (pp. 140-158). New York: Guilford Press.

Wigfield, A., & Asher, S. R. (1984). Social and motivational influences on reading. In P. D. Pearson, R. Barr, M. L. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (Vol. 1, pp. 423-452). Mahwah, NJ: Lawrence Erlbaum Assoc.

Wigfield, A., Guthrie, J. T., & McGough, K. (1996). *A questionnaire measure of children's motivations for reading*. National Reading Research Center, Instructional Resource no. 22.

Wigfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology, 89,* 420-432.

Wigfield, A., Guthrie, J. T., Tonks, S., & Perencevich, K. C. (2004). Children's motivation for reading: Domain specificity and instructional influences. *Journal of Educational Research, 97,* 299-309.

Wigfield, A. & Tonks, S. (2004). The development of motivation for reading and how it is influenced by CORI. In J. T. Guthrie, A. Wigfield, & K. Perencevich (Eds.), *Motivating reading comprehension: Concept-oriented reading instruction* (pp. 249-272). Mahwah, NJ: Lawrence Erlbaum, Assoc.

Wilhelm, J. D. (2001). *Improving comprehension with think-aloud strategies.* New York: Scholastic Professional Books.

Williams, J. P. (2005). Instruction in reading comprehension for primary-grade students: A focus on text structure, *The Journal of Special Education*, *39*(1), 6-18.

Williams, J. P., Hall, K. M., & Lauer, K. D. (2004). Teaching expository text structure to young at-risk learners: Building the basics of comprehension instruction, *Exceptionality*, *12*(3), 139-144.

Wilson, P. T., & Anderson, R. C. (1986). What they don't know will hurt them: The role of prior knowledge in comprehension. In J. Orsanu (Ed.), *Reading comprehension from research to practice* (pp. 31-48). Hillsdale, NJ: Erlbaum.

Wolters, C. A. (2003). Regulation of motivation: Evaluating an underemphasized aspect of self-regulated learning. *Educational Psychologist, 38*(4), 189-205.

Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem-solving. *Journal of Child Psychology and Psychiatry, 17,* 89-100.

Woodcock, R. W. (1987). *Woodcock reading mastery tests - revised.* Circle Pines, Minnesota: American Guidance Service.

Zelazo, P., & Frye, D. (1998). Cognitive complexity and control: II. The development of executive function in childhood. *Current Directions in Psychological Science*. 7, 121-125.

Zimmerman, B. J, & Risemberg, R. (1997). Self-regulatory dimensions of academic learning and motivation. In G. D. Phye (Ed.) *Handbook of academic learning: Construction of knowledge* (pp.105-125). San Diego, CA: Academic Press, Inc.