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A Study of the Effects of Metacognitive Instruction on Reading Comprehension in the Primary Classroom

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Concordia University - Portland

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Concordia University-Portland
College of Education
Doctorate of Education Program

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A Study of the Effects of Metacognitive Instruction on Reading Comprehension in the Primary Classroom

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College of Education

Dissertation submitted to the Faculty of the College of Education in partial fulfillment of the requirements for the degree of Doctor of Education in Teacher Leadership

Donna Graham, Ph.D., Faculty Chair Dissertation Committee
Gerald Kiel, Ph.D., Content Specialist
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Concordia University-Portland

2017
Abstract

The purpose of this study was to examine if a relationship existed between metacognitive instruction and students’ growth rate for fluency, accuracy, self-correction rates, and comprehension in reading. The research question that guided this study was: To what extent is there a relationship between metacognitive instruction using Reciprocal Teaching method and increasing student success for first-grade emergent readers as evidenced by Curriculum-based Measurements and STAR Accelerated Reader tests. Constructivism theory was used to develop an understanding of learning that asserts student learning happens when students make meaning for themselves. The sample for this study was a convenient sample of 16 first-grade emergent readers. The primary investigator utilized three assessments at the beginning and end of the research period. These assessments included, Curriculum-Based Measurement, Qualitative Reading Inventory, sixth edition, and the STAR Accelerated Reader test. The assessment results were compared, and a positive relationship was found between metacognitive instruction and the student success achieved through the calculation of a two-tailed t test. These results offer insight into the value of instruction for emergent readers that goes beyond simple decoding into a deeper comprehension and metacognitive instruction.

Keywords: emergent literacy, metacognitive instruction, reciprocal teaching, reading comprehension instruction
Dedication

I would like to dedicate this work to my very supportive husband, Dan, without whom I could never have accomplished this seemingly insurmountable program. You are my rock. I would also like to dedicate this to my wonderful children. Kaitlyn, Matthew, and Andrew, I love you and I’m finally done with my homework. Finally, I would like to dedicate this work to my parents who instilled in me from little on a strong work ethic and the value of doing things the right way not the easy way.
Acknowledgments

I would like to thank the members of my committee, Dr. Graham, Dr. Kiel, and Dr. Kim. I deeply appreciate all the time and effort you spent on my behalf. I would also like to thank Dr. Graham and Dr. Bullis for their patience and guidance.

I would also like to thank the school community. I have felt the love and support of staff, students, and parents as they encouraged me in my doctoral journey. Thanks be to God for each one of you!

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Chapter 1: Introduction

Introduction to the Problem

Some instructors and researchers consider emergent readers to be too young and inexperienced for comprehension instruction (Afflerback, 2011). However, some educators and researchers have displayed a shift in mindset regarding their view of emergent reading (Afflerbach, 2011). Dooley (2010) and Lysaker and Hopper (2015) asserted that teaching children to read should not be approached as teaching them a new skill but rather as building upon their prior reading knowledge. When parents read aloud to their child, they are starting their child on the path to literacy (Dooley, 2010; Lysaker & Hopper, 2015). If young children are taught to use common comprehension strategies in an age-appropriate way through oral reading, they can learn to understand and enjoy the text in the same manner when decoding on their own (Lysaker & Hopper, 2015). While traditional pedagogy has suggested that explicit comprehension instruction customarily begins in the third grade, teachers would use comprehension instruction with emergent readers in their current grade levels, implementing comprehension instruction that goes beyond literal recall (Afflerbach, 2011; Dooley, 2010; Lysaker & Hopper, 2013).

Little research has been conducted to determine if this alternate viewpoint has been successful. New research is needed to identify those approaches that are best suited to meet the needs of emergent readers and identify proper ways to implement these pedagogical methods in the primary classroom. The Reciprocal Teaching (RT) technique is an approach that has been very successful with older students and could be modified to meet the needs of primary learners (Pilonieta & Medina, 2009).
In this study, the classroom teacher introduced metacognitive and comprehension instruction into a primary classroom using the RT method. Meticulously following the RT methodology, first-grade students were asked to predict, clarify, question, and summarize their reading (Oczkus, 2010). The classroom teacher used RT in addition to the regular curriculum. The researcher tracked students’ fluency rate, self-correction rate, decoding accuracy, and comprehension level to determine if a relationship existed between metacognitive instruction and students’ reading levels.

**Background, Context, History, and Conceptual Framework for the Problem**

Readers today must learn to read with acumen, paying attention to both the meaning and the underlying implications of text as well as the validity of the source (Dooley, 2010). In a traditional curriculum model, students begin their in-depth comprehension instruction at the third or fourth grade (Afflerbach, 2011). Researchers have begun to examine and compare the level of metacognitive, comprehension, and decoding instruction given in the primary grades to instruction offered to older students (Allington, 2013; Andreassen & Bråten, 2011; Basaraba, Yovanoff, Alonzo, & Tindal, 2013; Dewitz & Jones, 2013). Researchers have begun to emphasize the need to teach all students to read with understanding and have underscored the inclusion of early emergent readers in this instruction (Dooley, 2010; Harvey & Goudvis, 2013; Lysaker & Hopper, 2013; Pratt & Urbanowski, 2016).

Traditional student instruction in this area primarily focuses on phonics instruction without emphasizing comprehension instruction (Afflerbach, 2011; Dewitz & Jones, 2013). This problem affects students in the third grade and higher when reading instruction shifts from learning how to read to focus on reading to learn without the
necessary level of support for student comprehension (Andreassen & Bråten, 2011; Dewitz & Jones, 2013). The RT approach used in this study gave students purpose and engagement in their reading (Komariah, Ramadhona, & Silviyanti, 2015; Oczkus, 2010; Tarchi & Pinto, 2016). During RT instruction students experienced purposefulness and engagement when asked to make predictions and to evaluate those predictions when reading (Komariah, Ramadhona, & Silviyanti, 2015; Oczkus, 2010; Tarchi & Pinto, 2016). Students in this study were asked to engage with the text at a deeper level by self-monitoring for understanding during the clarifying step of RT and by asking themselves questions to amplify their understanding of the text (Oczkus, 2010). This study contributed to the body of knowledge by instructing early emergent readers in the process of metacognitive thought using the RT approach. The classroom teacher gave metacognitive instruction via the skills of predicting, clarifying, questioning, and summarizing as outlined by Oczkus (2010).

**Statement of the Problem**

The problem this study examined is to what extent a relationship exists between metacognitive instruction using the RT method and students' growth rate for fluency, accuracy, self-correction rates, and comprehension in reading. In a traditional reading curriculum, students in the primary grades receive limited explicit instruction in comprehension until the third grade (Afflerbach, 2011). This study examined a potential relationship between metacognitive instruction using RT and increased student success for first-grade emergent readers as evidenced by Curriculum-Based Measurement (CBM) (Easy CBM, 2016), Qualitative Reading Inventory, sixth edition (QRI-6) (Leslie & Caldwell, 2016), and STAR Accelerated Reader (Renaissance Learning, 2016)
assessment results. The researcher sought to determine if a relationship exists between metacognitive and comprehension instruction at the primary grade level would positively impact student learning and correlate to greater student success in reading.

**Purpose of the Study**

The purpose of this study was to determine the relationship between metacognitive instruction using RT and increased student success for first-grade emergent readers. Percentile rankings from curriculum-based measurements (CBM) (Easy CBM, 2016), informal reading inventories (Leslie & Caldwell, 2016), and Accelerated Reader STAR tests (Renaissance Learning, 2016) were used to track student growth. Students who advanced to a higher percentile ranking within each assessment demonstrated a positive correlation between instruction and growth.

**Research Question and Hypotheses**

The question that guided this study was:

*Research Question:* To what extent is there a relationship between metacognitive instruction using RT and increased student success for first-grade emergent readers?

$H_0$ No relationship exists between metacognitive instruction using the RT method and student success in reading.

$H_a$ A relationship exists between metacognitive instruction using the RT method and student success in reading.

**Rationale, Relevance, and Significance of the Study**

The researcher chose a one group pre-test, post-test research design for this study. Due to limited access to students, the researcher chose a convenient sample of
sixteen first-grade students in a self-contained classroom. The regular curricular instruction remained unchanged. The researcher supplemented the regular curriculum with instruction on the RT concepts identified by Oczkus (2010). The classroom teacher used the texts from the regular curriculum to introduce the four key strategies found in RT (i.e., predicting, clarifying, questioning, and summarizing). The only addition to student instruction was RT methodology given during instruction.

The RT instructional method has been studied and shown to be highly effective at the middle-school level and higher (Allington, 2013; Dewitz & Jones, 2013; McKeown, Beck, & Blake, 2009; Spörer, 2008; Thiede, Redford, Wiley, & Griffin, 2012). Many researchers have advocated that students in the primary grades could also benefit from explicit instruction in comprehension and metacognitive skills (Dooley, 2010; Harvey & Goudvis, 2013; Pratt & Urbanowski, 2016). The RT methodology is a unique approach to metacognitive and comprehension instruction with its capacity to appeal to primary students in its concrete applications (Oczkus, 2010). Pratt and Urbanowski (2016) also implemented the RT method in a first-grade classroom during a three to four-week study with promising results. This study broadened their research by introducing the RT method as a daily part of the classroom routine over the course of five months.

**Definition of Terms**

Following are basic terms used in this study.

**Comprehension:** Comprehension is the proficiency of the reader’s mastery of the text. Basaraba, Yovanoff, Alonza, and Tindal (2012) identified three levels of comprehension: literal, inferential, and evaluative.
Decoding Accuracy: Decoding accuracy is the number of words a student correctly identifies. Students may decode words aloud or silently (Leslie & Caldwell, 2016).

Emergent readers: Emergent readers are those readers who are at the beginning of their reading instruction and are not yet fluent readers (Shaul & Schwartz, 2014).

Fluency: Fluency is the speed and expression a student uses while reading aloud. A high level of fluency will include an observation of sentence conventions as well as a varied and appropriate amount of inflection in the student’s voice while reading (Leslie & Caldwell, 2016).

Metacognition: Metacognition is thinking about thinking. Over the course of this study, students will be encouraged to use the metacognitive thought processes of RT while they are reading (Oczkus, 2010; Dabarera, Renandya, & Zhang, 2014).

Self-corrections: Self-corrections are the errors in reading that the students self-identify and correct without prompting from an outside source (Lelie & Caldwell, 2016; Lysaker & Hopper, 2015).

Assumptions, Limitations, and Delimitations
Assumptions are those expectations that the researcher asks the reader of this study to accept as true. The following are assumptions made in this one group pre-test, post-test research study:

1. The researcher made the assumption that volunteer assessors will be correct and consistent in the data they are collecting. The researcher trained all volunteers at the same time, and the classroom teacher randomly checked the assessments to assure continuity of data.
The researcher made the assumption that all students are motivated to comprehend the text they are decoding. While the path to greater comprehension has been somewhat contested, 21st-century learners must learn to understand and interpret text at an inferential and evaluative level of comprehension (Basaraba, Yovanoff, Alonza, and Tindal, 2012).

Limitations are those factors that the researcher acknowledges to be less than ideal but are beyond the researcher’s control to eliminate in the study. The researcher identified the following as limitations in this one group pre-test, post-test research study:

1. The small sample limits the generalizability of this study to larger populations; however, the sample is a convenient sample. Obtaining a convenient sample improves the generalizability of the study despite the sample size due to the natural variability found in the classroom.

2. The researcher is a current employee of the school that served as the data-collection site for this study. Potential employee bias was controlled by utilizing volunteers to collect the data and by removing all identifying information from the collected data.

3. The nature of a one group pre-test, post-test research study does not allow for identification of causation in this study.

Delimitations are limitations intentionally set by the researcher to narrow the scope of the study. The following delimitations are found in this one group pre-test, post-test research study:

1. The researcher identified the classroom allocated for this study as a good fit for the research. Students in the classroom were at the emergent-reader stage
of development, the classroom was near the researcher, and the classroom teacher displayed accessibility and flexibility.

Summary

This study was designed to enhance the body of knowledge regarding the critical skill of comprehension instruction at the primary level. This study focused on the effects of the RT method of instruction over a period of five months and built upon other studies, such as Pratt and Urbanowski (2016) who conducted effective implementation of the RT method over a period of three to four weeks. Traditional reading instruction for emergent readers focuses on decoding while neglecting comprehension at this level (Afflerback, 2011; Dewitz & Jones, 2013). Students at the emergent level who have been exposed to oral reading from a very young age have a foundation of comprehension experience to build upon (Dooley, 2010; Harvey & Goudvis, 2013; Lysaker & Hopper, 2013; Pratt & Urbanowski, 2016).
Chapter 2: Literature Review

Introduction

Traditional literacy instruction for the early emergent reader focuses almost exclusively on decoding instruction with a limited emphasis on comprehension instruction (Afflerbach, 2011; Dewitz & Jones, 2013). This chapter examines the literature on the decoding of words, reading comprehension and metacognitive skills. Researchers are beginning to explore the idea that students at the early emergent level can and should be given explicit instruction in the art of decoding and of understanding words and passages (Lysaker & Hopper, 2015; Pratt & Urbanowski, 2016). While the traditional decoding approach is necessary to the development of young readers, an alternate approach with early literacy instruction suggests that the inclusion of metacognitive and comprehension instruction from the beginning of formal literacy education would be beneficial to these students (Harvey & Goudvis, 2013; Lysaker & Hopper, 2015).

This literature review will address emergent reading instruction and what is known about decoding, comprehension and metacognitive instruction for emergent readers. The Background of the Problem section will identify the importance of reading comprehension for the 21st-century learner. Connections between reading comprehension and metacognition will also be drawn. The importance of direct instruction in metacognitive skills will be asserted as well as the benefit of teaching these skills at the emergent level.

In the Conceptual Framework section, the argument will be made for the importance of reading instruction to the 21st-century learner and of connections to the
constructivist instructional theory. Definitions for key terms will also be offered in this section. In the *Review of the Literature* section, a closer look will be offered on the key points of reading, reading comprehension, and metacognition. The concepts of reading comprehension and metacognition will also be addressed as they relate to emergent readers.

The research began with a general search for *reading comprehension instruction*. This search yielded several results that helped the researcher refine and narrow the search while using the following keywords: comprehension and metacognition, metacognitive instruction, monitoring for meaning and reading comprehension, scaffolding students’ comprehension, teaching strategic reading, RT, self-regulated learning, reading strategies, emergent literacy reading comprehension, Marie Clay, 21st-century learners, metacognition, early childhood brain development, metacognitive strategy instruction, reading comprehension and metacognition, reading comprehension mosaic of thought, reading comprehension strategies, RT whole class, scaffolding students’ comprehension, emergent comprehension, and reading comprehension instruction. All searches were performed in the *Search@CULibraries - Education Edition* search bar in the Concordia University, Portland Library *Find Articles* tab. The following databases were accessed during the search of the above keywords: ProQuest Education, Wiley, Springer Link, ERIC, Taylor and Francis Online, SAGE Premier, Science Direct, Gale Academic One File, Google Scholar, JSTOR, and Science Direct Journals Complete.

The keywords that resulted from the initial search were used to further refine the relationship between decoding, comprehension, and metacognition. Research into reading comprehension instruction for readers in the emergent phase of literacy development
yielded a limited number of results. A limited number of articles that addressed reading comprehension in the primary grades were found. Fewer articles were found that specifically addressed metacognition strategy instruction for early elementary students. Primary-grade teachers looking for research to determine the best practices in reading comprehension and metacognitive instruction will find a gap in the available research. This study addressed this gap. The lack of research found to aid primary-grade teachers in determining best practices in reading comprehension and metacognitive instruction indicates a gap in the research that this study is attempting to fill. The purpose of this study was to determine the relationship between metacognitive instruction using RT and increased student success for first-grade emergent readers.

**Background to the Problem**

Reading is a critical, necessary skill for all 21st-century learners. It is not enough for today's readers to decode words on a page without an understanding of meaning. The 21st-century learner must be astute and able to decode, comprehend, and discern the quality and reliability of the text (Harvey & Goudvis, 2013; Zhou, 2015). As such, reading comprehension and critical thinking about the text are pivotal skills that all readers must master (Jones, 2012). Harvey and Goudvis (2013) asserted that students must learn strategic thought processes to understand and control their environment. By focusing on metacognitive thought processes and in-depth comprehension of text, this study addressed the needs of the 21st-century learner in the early elementary classroom. Even in the beginning stages of literacy instruction, readers can be taught to understand the text they are reading (Dooley, 2010; Lysaker & Hopper, 2015). The study addressed concerns of the 21st-century learner in the primary classroom by focusing on decoding,
comprehension, and metacognition. A basic definition of decoding, comprehension, and metacognition is vital to the understanding of key concepts in this study. The definitions that follow are basic, universal definitions as determined by a variety of articles.

Decoding is a term that refers to the readers' ability to correctly identify the text as written (Dooley, 2010). Decoding can be accomplished in multiple ways, the two most common being rote memorization of the word (sight words) and "sounding out" the word phonetically (Allington, 2014). This study has recognized no distinction between these approaches; any method of correctly identifying the word as written will be considered decoding.

Comprehension refers to an understanding of the text. Comprehension can include an understanding of text decoded by the student as well as text the student has previously heard read aloud (Carreker, 2016; Dabarera, Renandya, & Lawrence, 2014; Kim, 2015). Basaraba, Yovanoff, Alonza, and Tindal (2012) identified three levels of comprehension: literal, inferential, and evaluative. These levels build upon each other and are increasingly difficult for students to master. Basaraba et al. asserted that while decoding accuracy is key to understanding content, it is not enough for students to decode words that they do not understand. Readers must interact with the text beyond literal recall of what was taught in the story, and they should move on to make connections between the text and their background knowledge (Keene & Zimmerman, 2013; Lysaker & Hopper, 2015). Knowledgeable readers must also be able to infer the implied meaning of a text and evaluate the inferred meaning (Basaraba, et al., 2012; Keene & Zimmerman, 2013; Miller, 2013).
Metacognition is often defined as "thinking about thinking" (Dabarera, Renandya, & Zhang, 2014, p. 463). As students read, they must learn to use metacognition to maintain awareness regarding their comprehension while using context and pictorial clues to monitor their accuracy of textual decoding (Boulware-Gooden, Carreker, Thornhill & Joshi, 2007). Dooley (2010) asserted that emergent readers possess the capability of achieving the skill of metacognitive monitoring. Michalsky, Mevarech, and Haibi (2009) suggested that metacognition encompasses students' ability to monitor what they do and do not know as well as their capacity to manage their executive function processes (Askell-Williams, Lawson, & Skrzypiec, 2012; Dabarera, Renandya, & Lawrence, 2014; Michalsky, Mevarech & Haibi, 2009).

Andreassen and Bråten (2010) and Jones (2012) emphasized that 21st-century learners benefit from authentic learning through real-world literature. Student choice in reading is one way for elementary teachers to offer real-world literature situations that deepen the level of student engagement in the text (Allington, 2013; Block, Parris, Reed, Whiteley, & Cleveland, 2009). Hudson and Williams (2015) asserted that students' reading growth could be directly correlated to the amount of time students spend reading actual books. Each student is a unique individual with his or her own interests and abilities. Students are not expected to conform to the same physical, emotional, or social characteristics; yet, all readers are expected to engage in learning at a deeper level when presented with a common basal reader (Dewitz & Jones, 2013).

Reading comprehension has been universally accepted as a critical skill and a crucial component of reading. Methodological and pedagogical best practices to boost student comprehension skills are a matter of some contention. Researchers and
practitioners alike struggle to agree on a single method of instruction that universally addresses the needs of all learners. Standard comprehension instructional strategies have been compared to determine a research-based answer to the age-old question of best practices in reading education (Andreassen & Bråten, 2010; Block, et al. (2009). Andreassen and Bråten (2010) found that student choice in reading material is key to student success. Students in the Andreassen and Bråten study also seemed to need teacher prompting to engage in comprehension strategies taught. Student motivation was intended to be a part of this study. Researchers did not find sufficient data to answer the question of student motivation. Block et.al, compared six instructional approaches: workbook pages, silent reading, silent reading with teacher direction, reading paired books, silent reading followed by discussion, and basal reading instruction. Block's study found that silent reading with teacher instruction and guidance was the most effective method of reading instruction with the specific order and type of instruction that was most effective being dependent on the targeted skill. Block, et al.'s study findings that silent reading is best agree with Allington's (2014) assertion that quantity of time spent engaged in reading is directly correlated to student fluency and depth of comprehension.

Best practices in emergent literacy instruction and the effectiveness of supplementing reading comprehension instruction with metacognitive skill instruction were examined in this literature review. The purpose of this study was to determine the potential relationship between metacognitive instruction using RT and increasing student success for first-grade emergent readers as evidenced by CBM (Easy CBM, 2016), QRI-6 (Leslie & Caldwell, 2016), and STAR Accelerated Reader (Renaissance Learning, 2016) assessment results.
**Key comprehension instructional strategies.** Keene and Zimmerman (2007) produced their seminal work, Mosaic of Thought, delineating seven fundamental skills students can use to comprehend decoded text: monitoring for meaning, using background knowledge, questioning, inferring, using senses and emotions to determine meaning, determining importance, and synthesis. These seven strategies have been included in studies on effective reading instruction (Andreassen & Bråten, 2010; Block, et al., 2009).

Research has supported the tenets that some comprehension strategies are more beneficial than others and that reading comprehension can be built upon even before students can independently decode words (Lysaker & Hopper, 2015). Before implementation with students in the classroom, each strategy must be examined carefully to ascertain its value as a research-based tactic. The seven key strategies identified by Keene and Zimmerman (2007) are intended to be taught explicitly using a gradual release-of-responsibility model in which the teacher models the strategy, offers guided practice using the strategy, and then gives students time for independent practice. The seven strategies should be used to help the reader dig deeper into the literal and implied meaning of a text. These individual strategies are not intended for use in isolation; but, rather, as a whole, they serve as a full quiver of tools for use by the reader when appropriate (Keene & Zimmerman, 2013).

A commonly embraced instructional approach called RT overlaps the strategies of Keene and Zimmerman (2007) in several crucial areas (Oczkus, 2010). The RT approach targets reading comprehension and metacognition through instruction in predicting, clarifying, questioning, and summarizing (Oczkus, 2010; Pilonieta & Medina,
Schünemann, Spörer & Brunstein (2013) examined the RT technique and its application to emergent readers. In particular, this study expounded on the connection between the RT approach and the reader's self-awareness of metacognition in an attempt to increase the level of comprehension and decoding accuracy of early emergent readers.

**Theoretical Framework**

The 21st-century learner faces a future where knowledge is less important than the ability to read and comprehend material with a discerning eye (Jones, 2012). In today's "information age," students have easy access to technology but must learn to identify the reliability of their sources and comprehend both the literal and inferred meaning of a text (Jones, 2012). Contemporary learners can benefit from a constructivist approach to teaching.

The constructivist learning theory asserts that learning happens as students make meaning for themselves (Hein, 1991). As students have experiences, including literary experiences, they begin to build their knowledge foundation (Krahenbuhl, 2016). The more background knowledge students have, the stronger their foundational knowledge becomes (Hein, 1991; Krahenbuhl, 2016). Students who are adept at critical thinking and who have adequate background knowledge can use metacognitive self-monitoring skills to integrate new and old knowledge to expand their schemata (Harvey & Goudvis, 2013). Metacognitive skills are crucial to the astute reader to ascertain the quality of new information and how new information best aligns with prior knowledge (Andreassen & Bråten, 2010; Zhou, 2015).
A constructivist approach to learning would require students to be active participants in their own education (Krahenbuhl, 2016). The RT method has active engagement of learners at its core (Oczkus, 2010). Therefore, the RT teaching method aligns well with the constructivist theory of education.

Reading is a foundational skill and vital for student success in all subjects (Van Keer & Vanderlindde, 2013). Successful readers must learn to read accurately with in-depth understanding (Raskinsky, 2012). As students grow into adulthood, 21st-century workers will need to read with a discerning eye and utilize critical thinking skills (Zhou, 2015; Jones, 2012). These important skills develop in early childhood with beginning reading instruction and continue to grow throughout adulthood as workers read to do their jobs, stay current on events, and grow in their knowledge about the world around them (Lysaker & Hopper, 2015; Shaul & Schwartz, 2014; Raskinsky, 2012).

To build high-ability readers, teachers must lay the foundational skills of reading. The basic foundational skills of reading include phonemic awareness, fluency, phonics, vocabulary, and comprehension (Basaraba, Yovanoff, Alonzo, & Tindal, 2013; Van Keer & Vanderlinde, 2013). Current reading research indicates that these five skills are essential for successful reading to occur (Basaraba, et.al, 2013). The five core reading skills are introduced in early childhood education before formal reading instruction begins and are further developed as the reader moves through the continuum of reading development (Afflerbach, 2011).

Teachers typically focus on building decoding skills in emergent readers such as phonemic awareness, fluency, phonics, and vocabulary. In a typical first-grade classroom, students are not asked to engage in in-depth reading comprehension
(Afflerbach, 2011). This study endeavored to engage first-grade students into comprehension instruction while at the same time continue their training in the decoding process. The research built on Lysaker and Hopper’s (2015) assertion that learning to read should use the foundation already laid in early childhood as parents read aloud to their children. Students in the primary grades already use comprehension skills when listening to books being read aloud to them and when picture reading their own books, even before learning to decode (Dooley, 2010). Decoding words on a page is an extension of skills already learned and is not a new skill for beginning readers (Dooley, 2010; Lysaker & Hopper, 2015). Metacognitive skills will assist early readers in their comprehension efforts, allowing them to determine the accuracy of their decoding and to interpret the meaning of the text.

**Review of the Literature**

**Building blocks of reading: Laying the foundation.** This review focused on the components of a robust comprehension instructional approach. While many classrooms engage in comprehension assessment, researchers have found that explicit strategy instruction is lacking in most classrooms (Basaraba, et al., 2013). Basaraba, et.al, observed that while many teachers easily find materials to assess comprehension, the materials to instruct students in the variety of strategies that can assist students in gaining a greater depth of comprehension knowledge are not as readily available. Readers who are offered explicit instruction in comprehension strategy and metacognitive thought processes tend to have a higher level of comprehension than those who do not engage in these skills (Askell-Williams, Lawson, & Skrzypiec, 2010; Dabarera, Renandya, & Zhang, 2013). Askell-Williams, et. al,(2010) emphasized that educators must be taught
how to effectively engage learners in metacognitive thought processes that lead learners
to gain a higher level of competency in reading comprehension.

**Five essential reading skills.** The five skills, identified as foundational to
reading by Basaraba, et al. (2013), are phonemic awareness, fluency, phonics,
vocabulary, and comprehension. While comprehension is the end goal of a successful
reading encounter, comprehension of text must also include accurate decoding skills.
Shaul and Schwartz (2014) explained that phonemic awareness is the study of the sounds
within words and that this awareness is strongly correlated to reader success in the
accurate decoding of text. Phonemic awareness leads students in a natural progression to
the study of letters and their sounds in direct phonetic instruction (Shaul & Schwartz,
2014). Lysaker and Hopper (2015) noted that the traditional approach to alphabetic and
phonetic instruction includes an introduction to phonics that "reflects the assumption that
print reading is a completely new experience" (p. 649).

Fluency is correlated to comprehension and includes the ability to decode words
with automaticity and to read smoothly with expression (Rasinsky, 2012). Students who
can read expressively must first be able to decode words automaticall. Raskinsky (2012)
noted that this automaticity leaves plenty of cognitive attention for students to understand
what they are reading. Students have a finite level of cognitive attention to give to their
work. Students who must use their cognitive attention on decoding skills leave very little
cognitive power to apply comprehension and interpretation of the text. Rasinsky
affirmed this finite cognitive attention as the reason for the strong connection between
fluency and comprehension. Allington (2014) asserted that students' fluency rates are
positively correlated with the volume of reading each student personally achieves.
Automatic word recognition is achieved when students are very familiar with the individual words in a passage.

Vocabulary instruction is necessary because, without proper understanding and background knowledge of every word in a passage, the passage loses meaning (Puhalla, 2011). Kerckhoff and Glennie (1999) described the Matthew Effect as the concept that those who are good readers will be more likely to improve their reading skills than those who are poor readers. The Matthew Effect has a significant impact on early readers. Students who begin their academic careers with a high amount of background knowledge enhance their knowledge at a more rapid rate than at-risk students who begin their academic careers with limited real-world experiences (Duff, Tomblin, & Catts, 2015; Kerckhoff & Glennie, 1999). Teachers can help to level the academic playing field for at-risk students by providing background knowledge through direct vocabulary instruction (Duff, Tomblin, & Catts, 2015; Puhalla, 2011).

Comprehension is often defined as the reader's ability to understand and interpret the text and is considered the most cognitively taxing of the five essential reading skills. Based on these tenets, one can argue that comprehension instruction should be the focus of the majority of the reading instruction time. This does not always occur in the primary-grade reading classroom. Within the standard approach utilized in a basal reader, comprehension instruction beyond literal comprehension is not emphasized before the third grade (Afflerbach, 2011). Pratt and Urbanowski (2016) advised that students should use background knowledge, the text and context clues, and an understanding of syntax to make inferences while reading. Pratt and Urbanowski insisted that this approach to comprehension is appropriate for all readers, even early emergent readers.
Finding the most appropriate timeline for reading instruction. The timeline for teaching the five key reading skills listed above varies from one curricular approach to another. One example of a curricular approach using a basal reading program is the Scott Foresman Reading Street curriculum where a timeline of student skills to be taught was noted (Afflerbach, 2011). Reading Street stipulates that phonemic awareness instruction is to begin in preschool and kindergarten at the pre-emergent level and continue through the emergent level ending in second grade. Phonics instruction is introduced in preschool but continues with greater emphasis in kindergarten and first grade at the emergent level. Phonics instruction transitions to word study in third grade. Fluency instruction and vocabulary instruction are both introduced in kindergarten and continued through the grades in increasingly advancing levels. While comprehension is addressed at a literal level in first grade, in-depth comprehension is not typically observed as part of this curricular approach until fourth grade (Afflerbach, 2011; Pilonieta & Medina, 2009).

Dunlosky and Lipko (2007) described metacognitive skills as those that enable the reader to become an accurate judge of his or her own learning. According to Griffin, Wiley, and Thiede (2008), metacognitive ability is correlated with a student's ability to go back into the text and reread for deeper understanding. This skill is important for comprehension because it allows the reader to identify and study the parts of the text that he or she did not understand (Dunlosky & Lipko, 2007; Griffen, et al., 2008). Upon further reflection of the basal reading curriculum, metacognitive skills were classified as study skills by the Reading Street curriculum and were not emphasized as a part of comprehension instruction (Afflerbach, 2011).
Current research seems to validate a timeline that would differ from the traditional timeline suggested by Afflerbach (2011). New research suggests that intensive comprehension strategy instruction beyond literal comprehension and metacognitive instruction as a part of comprehension instruction is beneficial for all readers including early readers (Lysaker & Hopper, 2015; Munger & Blachman, 2013; Pilonieta & Medina, 2009; Pratt & Urbanowski, 2016). Pilonieta and Medina (2009) argued that further research examining in-depth comprehension instruction at the primary level is needed. This study attempted to fill the gap identified by Pilonieta and Medina with a focus on metacognitive- and comprehension-strategy instruction at the emergent level and will use a test/post test format to assess the effectiveness of such instruction.

**Reading comprehension.** Reading comprehension requires higher-level complex thinking skills in areas of the brain that are still developing in young readers (Horowitz-Kraus & Hutton, 2014). Horowitz-Kraus and Hutton asserted that reading comprehension requires the reader to use executive function, including working memory and self-control, to process text. According to Horowitz-Kraus and Hutton, the executive function skills needed by readers to begin, attend to, process, and retain their reading is a function that matures relatively late in the developmental time frame.

The ongoing executive-function development in primary-grade students makes explicit reading comprehension-strategy instruction both vital to learning and difficult to achieve. An effective technique for comprehension instruction is to build upon what students already know by engaging students' schemata and relating the new information to already-stored information (Askell-Williams, et.at., 2013; Pratt & Urbanowski, 2016). This building process should be implemented from early emergent readers to upper-level
academic learners. All learners from early emergent readers to upper-level academic learners can benefit from this pedagogical approach. Even though emergent readers are completely new to decoding, knowledgeable educators can build upon students' prior knowledge of reading comprehension during the emergent-literacy phase by capitalizing on the skills students use to read picture books (Lysaker & Hopper, 2015).

Lysaker and Hopper (2015) observed pre-emergent and emergent readers looking for evidence that students in this phase of reading development showed signs of using the strategies. Clay (2001) identified as vital to emergent reading success: searching, cross-checking, rereading, and self-correcting. Reader self-correction of decoding errors is the culmination of multiple strategies of self-monitoring for an understanding of the text (Pratt & Urbanowski, 2016). These strategies are metacognitive as readers learn to consider their thought processes while they are reading. This metacognitive thought process is key to decoding accuracy and comprehension of text. Lysaker and Hopper argued that reading should be an extension of the pre-emergent literacy skills that students already possess and should not be considered a new skill. This approach implies that students can engage in comprehension instruction while learning to become accurate decoders (Dooley, 2010, Pratt & Urbanowski, 2016). Dooley also emphasized that reading comprehension at this level should include all textual cues that may contribute to meaning. Allowing students to cross-check their decoding for accuracy by using text features beyond the decoding of words such as picture cues or the textual layout is key to student understanding (Dooley, 2010).

Reading is about more than sounding out and decoding words. Reading also encompasses the meaning of the words (Keene & Zimmermann, 2013). Explicit reading-
comprehension instruction can be difficult because the journey to in-depth comprehension is an intensely personal journey that is different for each traveler (Keene & Zimmermann, 2013). While universal strategies exist for exploration, each reader must make their own meaning as they bring their personal background knowledge into their understanding of the text (Harvey & Goudvis, 2013; Keene & Zimmermann, 2013). Readers bring their entirety of his or her life's experiences to the forefront when applying meaning to decoded text.

Common strategies for comprehension instruction include metacognition, activating background knowledge or schema, using sensory images, making inferences, asking questions and synthesizing information (James & Carter, 2007; Keene & Zimmerman, 2013). Andreassen and Bråten (2011) proposed that when these comprehension strategies become ingrained in the habits of the reader, the reader uses these strategies to aid in creating mental pictures and synthesizing new information. Proficient readers seem to effortlessly apply these strategies without overt, conscious thought regarding their use (Keene & Zimmermann, 2013).

Harvey and Goudvis (2013) proposed that students turn information into knowledge by thinking about and processing the information. As students process new information, they connect it with prior knowledge in their schemata to assimilate the new knowledge and integrate it into their prior knowledge (Andreassen & Bråten, 2011; Keene & Zimmerman, 2013). Through the cognitive processes involved in this assimilation, Harvey and Goudvis asserted that what is new information today will become background knowledge in the future. In this way, students are always growing.
Maine (2013) explored the concept of reading instruction in a small-group discussion, pointing out that the social nature of the small-group instruction allows even struggling and reluctant readers to make the leap into a deeper level of comprehension that is required of the 21st-century learner. Maine identified this approach as appropriate for all levels of readers, including emergent readers. As readers approach a text, they do not come to it as a blank canvas. Rather, students read text with the background of everything they have ever experienced behind them in their schemata (Andreassen & Bråten, 2011). Harvey and Goudvis (2013) observed that "comprehension begins when we merge thinking with content" (p. 435). Small-group and whole-class discussion afford teachers the opportunity to model comprehension thinking aloud and give direct, explicit instruction on its application. Maine also advocated for the gradual release of responsibility model to help all readers acquire proficiency in reading comprehension, asserting that instruction should move from whole-class instruction to supported-individual instruction to independent reading with instructional support as appropriate along the way.

Given Andreassen and Bråten's (2011) assertion that readers apply meaning to text via the lens of their background knowledge, ensuring students have an adequate background knowledge upon which to build is essential. Some readers have a diverse background of experiences, giving them a rich knowledge-base from which to draw while other students begin their educational career having never left their neighborhood and needing their educational experience to build background knowledge for them. Allowing
students to engage in class discussion regarding their reading allows students to share background knowledge and experiences to bring deeper meaning to their text. Maine (2013) insisted that the meaning of a text comes from the reader of the text as the reader overlays his or her individual schemata onto the interpretation of the text.

**Emergent readers.** Emergent readers are those who are in the beginning stages of reading instruction and whose instruction typically centers on an alphabetic or phonetic approach (Lysaker & Hopper, 2015). Horowitz-Kraus and Hutton (2015) noted that emergent literacy happens on a spectrum and begins in early childhood with developmentally appropriate building blocks for both reading and writing. Beginning literacy development is highly reliant upon parents who must initiate literary encounters and help children develop executive and cognitive function within their brain structure (Horowitz-Kraus & Hutton, 2015; Shaul & Schwartz, 2014). Students who arrive at school with fewer literary encounters are less prepared for reading instruction than those who have a high frequency of exposure to literature and literary activities (Horowitz-Kraus & Hutton, 2015; Lysaker & Hopper, 2015; Shaul & Schwartz, 2014). Students who are exposed to narrative texts at a young age develop cognitive networks in their frontal lobe that facilitates their future reading instruction. (Horowitz-Kraus & Hutton, 2015, p. 653).

Early exposure to literature has been postulated as a critical component to building a portion of a child's background knowledge that the child needs to comprehend what he or she reads. Dooley (2011) stressed that comprehension is a natural extension of the literary experiences of early childhood. Students are first exposed to non-text experiences of which they must make meaning; hence, these non-text experiences lay a
foundation upon which students build their comprehension of text. Teachers who use students' prior knowledge of literature to build a growing familiarity of decodable text have a better foundation for their literary instruction than those teachers who approach decoding as an entirely new activity (Lysaker & Hopper, 2015). Dooley (2011) further stressed that when children read a book, their "unique cognitive, social, and emotional developmental patterns will inform their ability to comprehend" (p. 172). It is this unique perspective that allows each child to bring personal meaning to a text.

Executive function is one area of cognitive development identified by Shaul and Schwartz (2015) as critical for reading success. Shaul and Schartz asserted that executive function happens in the prefrontal cortex and includes the following abilities: "sustained attention, working memory, inhibition, cognitive flexibility, planning, and rejecting distractions" (p. 750). The prefrontal cortex begins developing when a child is about eight months old and is not fully developed until early adulthood (Shaul & Schartz, 2015). This developmental timeline has a significant impact on the range of development found in emergent readers. Shaul and Schartz attested that the level of executive-function maturity a child has reached significantly contributes to the child's school readiness and academic success. Ample evidence was also put forth to support the claim that targeted activities can help to boost students' executive function developmental level (Shaul & Schartz, 2015).

**Metacognitive strategies.** A widely recognized definition for metacognition in its most basic form is that metacognition is thinking about thinking (Dabarera, Renandya, & Zhang, 2014). Metacognitive thinking includes students' ability to recognize gaps in their learning. In older students, metacognitive thinking may be viewed as a study
strategy in which students evaluate their understanding of the material and identify parts of their learning that they need to continue for deeper comprehension. Shiu and Chen (2013) explained metacognition as self-regulated learning and contended that this dynamic process is to be one in which the learner is very active. Debarera, et.al, noted that students must be taught how to monitor their comprehension for greater accuracy. Metacognitive monitoring and comprehension of text are strongly correlated as students work toward self-regulation of the meaning of decoded text (Askell-Williams, Lawson, & Skrzypiec, 2012). Pratt and Urbanowski (2016) described eight key strategies to help students self-correct decoding and improve accuracy while also deepening comprehension. These strategies include: “connecting the text to background knowledge, utilizing in-text features, using picture clues, making a mental picture of main ideas, focusing on the details, making inferences about the author's meaning, predicting what will happen next, and skipping over the difficult part and come back” (Pratt & Urbanowski, 2016, p. 565).

The accuracy of comprehension seems to be one of the most significant challenges for students to master. Dunlosky and Lipko (2007) counseled that when students can identify what material they already know and what material they still need to learn, they can spend their study time more efficiently, studying only that material that is unlearned. This skill enables students to focus their study time on materials that are less clear. While students believe they are comprehending with accuracy, they are often found to be overconfident in their estimation of their learning (Dabarera, et al., 2014; Dunlosky & Lipko, 2007; Griffin, Wiley, & Thiede, 2008). Accuracy in metacognitive
monitoring is essential to its effectiveness, but it is a challenging skill to master (Dunlosky & Lipko).

In the primary grades, metacognition may look a bit different from higher grade levels. The first goal of metacognition for early readers is to monitor reading accuracy rather than monitor test preparedness, as older students do. Even while monitoring decoding accuracy, students must still be attentive to comprehension levels. Pratt and Urbanowski (2016) contended that self-monitoring must serve to enhance comprehension of text, not just to decode accurately. Because knowledgeable teachers are critical to student success, it is essential that teachers be well-versed in the pedagogical theories of their instruction. Teacher knowledge of strategy instruction is pivotal to student success (Askell-Williams, et al., 2012). Teachers must explicitly instruct students in how to engage in these strategies to enhance their learning. Teachers who do not have a clear grasp on how students learn are not equipped to instruct students in developing a deep understanding of their own learning process (Askell-Williams, et al., 2012, p. 414).

Teachers need to guide students in their learning and to teach self-monitoring strategies in addition to content knowledge. Shiu and Chen (2013) perceived that external monitoring increases the accuracy of self-monitoring. Teacher scaffolding of metacognitive skills is pivotal to the mastery of these techniques. Teachers must guide students along a continuum on which responsibility for monitoring is taught and constantly compared to the external monitoring device used by the instructor. In this way, quality teachers can have a lasting impact on their students' long-term educational success.
Explicit instruction in metacognitive strategies should include a variety of self-monitoring tasks at every level of education, from beginning to expert readers. Primary-grade students should be asked to constantly monitor decoded words to determine accuracy (Pratt & Urbanowski, 2016). As students decode text, they can move along a metacognitive continuum that includes: (1) monitoring if the decoded text is a “real" word, (2) determining if the decoded word makes sense in context, and (3) looking at picture clues and textual layout to assure that the decoding has a meaning consistent with extra-textual cues (Pratt & Urbanowski, 2016). After ascertaining the accuracy of their decoding, students should seek to make meaning from the text by integrating the text into their background knowledge (Harvey & Goudvis, 2013). Emergent readers may find self-monitoring for meaning to be an arduous task to master; however, those who expend the effort to learn how to do it well will find great reward in its successful application.

Quality metacognitive strategy instruction requires teachers to be educated in the pedagogical knowledge relating to both the content of the subject taught and the metacognitive strategies that will help the learners synthesize the information found in their text (Askell-Williams, et al., 2012). Studies have shown that to achieve maximum success, students must be explicitly taught how to learn alongside with the content knowledge of what they are to learn (Askell-Williams, et al., 2012; Bergeron & Bradbury-Wolff, 2010; Dabarera, Renandya, & Zhang, 2013). Askell-Williams, et.al, cautioned that teachers without a firm grasp on the learning process are not easily able to instruct students in the art of learning how to learn.

Self-monitoring of learning is a critical metacognitive learning strategy (Pratt & Urbanowski, 2016). Learners who engage in this strategy must constantly monitor their
comprehension of text. Students who are learning to use self-monitoring techniques do not typically self-assess their learning accurately (Dunlosky & Lipko, 2007; Griffin, Wiley, & Thiede, 2008; Schünemann, Spörer, & Brunstein, 2013; Shiu & Chen, 2013). Students must learn to identify when their learning becomes confused and stop to refocus their efforts on understanding content that is unclear (Harvey & Goudvis, 2013). The metacognitive learner who is constantly monitoring and refocusing his or her learning for greater depth of comprehension must be given the skills to assess their learning accurately. Teachers can confer these skills through detailed strategy instruction (Boardman, Moore, & Scornavacco, 2015; Pilonieta & Medina, 2009; Schünemann, et al., 2013; Stricklin, 2011).

**Reciprocal teaching.** Teachers who are unfamiliar with the cognitive and metacognitive strategies needed for accurate self-monitoring could learn about these strategies through research of instructional approaches that solely focus on in-depth comprehension instruction via the teaching of metacognitive skills. One such approach is the RT approach. In RT, students are explicitly taught four basic components of comprehension alongside content instruction (Boardman, et al., 2015; Schünemann, et al., 2013; Stricklin, 2011). These four strategies include predicting, clarifying, questioning, and summarizing (Boardman, et al., 2015; Schünemann, et al., 2013; Stricklin, 2011). While these four strategies are comprehension strategies, students will boost their metacognitive abilities by implementing these strategies; particularly when engaged in the area RT calls clarifying. For students to clarify unknown words and unclear passages, students must first clearly distinguish between the part of the text that they understand
and the part of the text that they do not understand. This identification is made possible through the metacognitive thought process.

Readers can apply the four main areas of focus for comprehension instruction to all levels of expertise (Pilonieta & Medina, 2009; Pratt & Urbanowski, 2016). While many studies focus their research on older students, Pilonieta and Medina (2009) believed that primary-grade students could also benefit from an RT approach but acknowledged that primary-grade teachers and researchers do not emphasize comprehension instruction at the kindergarten to third-grade level. Comprehension is frequently assessed at this level but rarely taught explicitly with the detail that RT provides (Pilonieta & Medina, 2009).

The first area of RT is predicting. Predicting is a strategy that is effectively used before and during reading. Students benefit from predicting because it allows them to engage with the text at a deeper level (Oczkus, 2010). Stricklin (2011) noted that predicting provides students with the motivation to read on and assess the accuracy of their predictions, which also gives students a purpose for their reading.

RT can incorporate metacognitive skills into all four areas of instruction, but particularly in clarification. Students must be aware of their level of comprehension to know what they need to clarify (Oczkus, 2010). Oczkus explained that identifying words that students do not understand is easier for them than identifying sections of the text that are unclear. Oczkus cautioned that when students know every word they have read, they may be reluctant to identify this section of words as an area that needs clarification. Learning to identify the main idea of the text and determine the importance of text is a skill that needs much practice before students become proficient (Oczkus, 2010, p. 21).
Educators must directly, explicitly, and repeatedly teach students how to identify text that they do not understand.

The third area of RT is questioning. Questions focusing on the literal recall of text are helpful for beginners in developing the RT technique. However, for students to gain the most benefit, questions must go beyond simple recall, address the deeper meaning of the text, and engage the reader in inferential and evaluative comprehension (Basaraba, et. al, 2013). It is imperative that students be taught how to ask questions while they are engaged with their text (Oczkus, 2010, p. 19). Quality questioning techniques lead students to engage deeper in the text and deeper into critical thinking.

The final area of RT is summarizing. Summarizing a text helps students to identify the main idea of the text as well as the supporting details (Stricklin, 2011). Summarizing also forces students to identify the important sections of text. Determining importance has significant ramifications for students in middle school and above as they focus their efforts on content learning.

In conjunction with the above four areas of comprehension instruction, Oczkus (2010) identified six additional areas of comprehension instruction that are also recommended for the development of well-rounded readers. These six areas include: "making connections, predicting/inferring, questioning, monitoring/ clarifying, summarizing/synthesizing, and evaluating" (p. 5-6). Oczkus recommended using the secondary six strategies to supplement the four primary strategies in a comprehensive reading program. Pilonieta and Medina (2009) alleged that a mere 16% of kindergarten through third-grade teachers include direct, explicit comprehension instruction as a regular part of their reading instruction time. The ten strategies listed thus far in this
literature review are recognized as the tools needed to equip students in the primary grades to comprehend both fiction and nonfiction texts.

RT was an excellent approach for this research study because it has not often been utilized at the primary level, leaving a gap in the research. RT's four core comprehension strategy approaches are adaptable to the primary level, and metacognitive strategy instruction is already a part of RT and can be further incorporated into the RT approach. For these reasons, this study used an RT curriculum to ascertain the value of explicit instruction in comprehension and metacognitive strategies at the first-grade level.

**Bringing it all together.** Pratt and Urbanowski (2016) asserted that early emergent readers are fully capable of the cognitive tasks required to self-correct their reading. Self-correction requires self-monitoring for meaning while reading and, using cues and clues from their text, self-determining reading accuracy. Self-monitoring is a difficult task to accomplish with accuracy at any grade level; however, Allington (2013) asserted the value of self-monitoring in the RT approach. Allington maintained that while self-monitoring is often neglected in curricular instruction, it might have the power to improve the quality of students' reading comprehension dramatically.

**Reciprocal teaching affects the struggling reader.** A potential concern with the RT approach might be found in its difficulty for all readers and especially for struggling readers who must understand and apply this technique. Allington (2013) observed that the typical struggling reader in a primary classroom is offered many more worksheets than their non-struggling peers. Teachers often ask struggling readers to read texts that far exceed a recommended two percent or less rate of error (Allington, 2013). Struggling students are also much more likely to receive their instruction from a paraprofessional
rather than a reading specialist (Allington, 2013). Allington further explained that reading instruction for all readers should feature texts that can be decoded with 98% accuracy and should focus on the meaning of the text to foster growth in reading ability. Afflerbach, et.al, (2013) asserted the value of teaching students metacognitive strategies as a regular part of their reading instruction to boost students' ability to comprehend their reading. This approach requires less class time spent doing worksheets and more class time spent in direct reading instruction. RT focuses on comprehension as a fundamental aspect of reading and all of the four key principles of RT (predicting, clarifying, questioning, and summarizing) deal primarily with comprehension over decoding. Therefore, the claims above by Allington and Afflerton are both fully supported in the RT approach.

Educators typically give on-level and above-level readers more time to read than struggling readers (Allington, 2010). Allington identifies this incongruence as the cause for a widening deficit in the disparity of reading skills between high and low ability readers. This research examined RT to determine if its application could help close the gap by allowing all students to engage in the appropriately leveled reading material and encouraging readers to focus on the synthesis of the material rather than limiting their study to the decoding of the material.

**Summary**

Meaningful reading instruction includes an education in phonemic awareness, phonics, fluency, vocabulary, and comprehension (Basaraba, et al., 2013). While all five of these skills are key to reading success, the end goal of learning to read is reading comprehension. Allington (2014) asserted that reading comprehension is best learned
through a quantity of learning that Block, et al. (2009) recommended as best accomplished through a combination of student choice and teacher-directed silent reading time. Teachers should focus their instruction on skills that address student competency in the five core areas of instruction listed above with an emphasis on student comprehension of text.

Early emergent readers are those who are in the beginning stages of learning how to decode text accurately (Dooley, 2010). Pratt and Urbanowski (2016) asserted that reading comprehension skills could be successfully taught to all readers even during the emergent phase of literacy development. A key component of reading comprehension is the students' ability to monitor their comprehension of text for decoding accuracy and textual understanding or metacognition (Pratt & Urbanowski, 2016). Metacognition is particularly important for the success of early readers as they learn to identify errors in decoding to improve accuracy in their reading (Pilonieta & Medina, 2009).

One highly successful method of teaching reading comprehension is RT (Oczkus, 2010). RT provides a focus on four areas of instruction: predicting, clarifying, questioning, and summarizing. Studies have shown that instruction that correctly adopts the RT method has the capability to boost student reading ability quickly in a short amount of time if the conditions are favorable (Boardman, Moore, & Scornavacco, 2015; Schünemann, Spörer & Brunstein, 2013).

Pilonieta and Medina (2009) alleged that while the RT technique is typically used for older readers well beyond the emergent stage, early-emergent readers already have many of the skills and abilities necessary for success with the RT approach. The RT technique guides emergent readers in the use of metacognitive skills to improve their
decoding accuracy and focuses student attention on the meaning of the text, opening the
door to the comprehension of text and a new way for students to monitor for the accuracy
of their decoding.
Chapter 3: Methodology

Introduction

The purpose of this study was to determine the relationship between metacognitive instruction using RT and increased student success for first-grade emergent readers. This study focused on the impact of metacognitive instruction on reading accuracy and comprehension at the primary level. The classroom teacher introduced metacognitive instruction using the RT method of teaching. The RT method encourages students to engage with their texts in a deepening of comprehension and metacognitive thought. The RT method teaches metacognition and comprehension through a focus on four primary skills: predicting, clarifying, questioning, and summarizing (Oczkus, 2010).

Directionality for the research and background for this study will be examined in the Purpose of the Study section. The Research Questions and Hypothesis section will provide the specific research question and hypotheses that will guide this study. The Methodology section will identify the one group pre-test, post-test research design as the research method for the study. This methodology will be further explored in the Research Design section, and details specific to the study will be identified. The population and sampling method will be discussed in the Target Population, Sampling Method, and Related Procedures section. The Instrumentation section will identify the specific materials that will be used as well as their value and reputability. The specific data to be collected and the data-collection intervals will be outlined in the Data Collection section. The dependent and independent variables will be identified in the Operationalization of Variables section. In the Data Analysis Procedures section, the
techniques for organizing and analyzing the meaning of the collected data will be defined. The limitations and delimitations relating to the research study will be outlined in the Limitations of the Research Design section. The Validity section will discuss the internal and external validity of the research. Any ethical issues that may arise within the implementation of this study will be examined in the Ethical Issues section.

Statement of the Problem

The problem this study examined is to what extent a relationship exists between metacognitive instruction using the RT method and students' growth rate for fluency, accuracy, self-correction rates, and comprehension in reading. This study addressed a concern regarding the typical delay in comprehension instruction offered to emergent readers that may impact their overall success in reading competency. The researcher sampled subjects for the study from a first-grade classroom in a small rural school. The classroom teacher delivered metacognitive instruction using the RT method via whole class and small group instruction.

Reciprocal teaching (RT) has been proven to be a successful method of reading instruction in the fifth grade and continuing in the middle- and upper-level grades (Schünemann, Spörer, & Brunstein, 2013). Few researchers have applied these techniques to students in primary grades (Pratt & Urbanowski, 2016). Traditional reading instruction would support this gap in metacognitive instruction because the traditional approach does not support comprehension instruction at the emergent level (Afflerbach, 2011). This study tested the hypothesis that the metacognitive techniques learned through the RT approach lead emergent readers to a deeper level of comprehension in their reading. This deepened comprehension, in turn, would allow
students to increase their rate of reading acquisition because their comprehension would be built on the reading foundation that the students already possess rather than approaching decoding as an entirely new skill.

Evidence for the benefit of RT in the first grade was shown by first-grade students in four ways:

1. Students demonstrated an increased level of accuracy in their word decoding as demonstrated through curriculum-based measurements (CBM) (Easy CBM, 2016) scores and informal reading inventories found in the Qualitative Reading Inventory, sixth edition (QRI-6) (Leslie & Caldwell, 2016) assessments.

2. Students progressed to higher levels of decoding at a pace that is more rapid than their pace before RT as shown by their CBM scores and QRI-6 assessments.

3. Students showed an increased level of comprehension as demonstrated by their QRI-6 and STAR Accelerated Reader (Renaissance Learning, 2016) assessments.

4. Students showed an increase in their rate of self-correction as compared to self-correction rates before RT.

**Research Questions and Hypothesis**

The intent of this quantitative one group pre-test, post-test study was to determine if a relationship existed between metacognitive instruction and students’ growth rate for fluency, accuracy, self-correction rates, and comprehension in reading.

The following research questions and hypotheses guided this study:

R1: To what extent does a relationship exist between metacognitive instruction using RT, the independent variable, and increasing student success for first-grade emergent readers?
\( H_0 \) No relationship exists between metacognitive instruction using the RT method and student success in reading.

\( H_a \) A relationship exists between metacognitive instruction using the RT method and student success in reading.

**Methodology**

The purpose of this study was to determine if a relationship existed between metacognitive instruction and students' growth rate for fluency, accuracy, self-correction rates, and comprehension in reading. Comprehension and metacognitive instruction were offered via an RT methodology focusing on building student skills in the areas of predicting, clarifying, questioning, and summarizing. A true experimental research design was rejected because the study's sample size was too small and the available instructional time was too limited for the sample group to be divided into control and experimental groups. A one group pre-test, post-test approach was chosen as the appropriate method of research given the limitations of the conditions of the study.

The independent variable identified in this study was the RT instruction. The dependent variables identified are student growth and percentile rankings in the following areas: fluency rate, self-correction rate, decoding accuracy, and comprehension. The researcher compared every student's percentile ranks in each of these areas before and after the instruction took place.

Students who showed statistically significant variances in their growth rate, as determined by a change in percentile rankings, may be considered as having benefitted from the additional instruction in RT. The additional RT instruction was the only intended curricular modification for students during this time. The research design that
best fits this study is a one group pre-test, post-test design using Pearson's $r$ to compare the independent variable (RT instruction) to the dependent variables (students' fluency rate, self-correction rate, decoding accuracy, and comprehension). This relationship was tracked via three normed assessments: CBMs, informal reading inventories from the QRI-6, and the STAR reading test from Accelerated Reader (Easy CBM, 2016; Leslie & Caldwell, 2016; Renaissance Learning, 2016).

**Research Design**

A one group pre-test, post-test research design was beneficial to this study because it allowed the researcher to examine the relationship between metacognitive instruction, as found in RT, (independent variable) and an increased rate of student reading success (dependent variable). The use of a one group pre-test, post-test design allowed the researcher to study the RT approach without unnecessary interruption of the curriculum and instructional timeline of the research classroom. Dividing an already small sample into a control and experimental group would be impractical and place undue stress on the teacher. The one group pre-test, post-test approach allows for the use of whole groups in a convenient sample, in a similar way to the research documented by Andreassen and Bråten (2010) and Munger and Blachman (2013). This study limited its focus to a single convenient sample with growth being tracked before, during, and after the RT instruction was offered.

A researcher could replicate this study by gathering a study sample and offering metacognitive instruction using the RT method. Student-assessment data should be collected two times through the course of the replication using a pre-test/post-test model. It is recommended that a larger sample size be chosen than the sample used in this study.
Target Population, Sampling Method and Related Procedures

This study targeted emergent readers at the primary level. One first-grade classroom containing seventeen emergent readers was chosen to be the study sample for this study. Midway through the study, one student left the study classroom. Data gathered from this student was discarded. Each student from this classroom setting can be considered to be an emergent reader because the beginning reading level of the students was found to be between 0.9 and 1.3 on the STAR Accelerated Reading test (Renaissance Learning, 2016). The raw scores for the pre- and post-test STAR raw scores can be found on Table 10 in Appendix A. The researcher chose a convenient sample of one first-grade classroom as a representative of the entire population due to the accessibility of the sample and the overall reading level of the class. The students enrolled in the class represent a range of aptitude, socioeconomic levels, and base-reading level that may allow for somewhat greater generalization of the research results despite the small sample size.

The mean age of the students in the sample was six years, eight months old with a range of ages from 6 years, 0 months to 7 years, eight months at the outset of the study. Of the 16 students, 15 students in the final sample attended both preschool and kindergarten while 1 out of 16 only attended kindergarten. In the school in which the research was conducted, 17.81% of students qualified for free and reduced lunch (DESE, 2016). These students can be considered to have a low socio-economic background. The remaining students in the class could be classified as middle class. No students in this convenient sample came from a background that would be considered to be a high socio-economic status.
The average student in this sample has received one year of formal reading instruction before their first-grade year. Of the 16 students, 14 were enrolled in the same school during the 2015-2016 school year; thus, these 14 students received the same kindergarten instruction. Of the 16 students, one was identified for additional reading assistance in kindergarten. This student received an average of 60 to 90 minutes of 1-on-1 literacy instruction per week. The sample size is a limitation of this study and also limits the generalizability of the results of this study to the total population. It is recommended that this study be replicated with a larger sample size in a variety of environments to confirm the results of this study.

**Instrumentation**

The classroom teacher supplemented the regular curriculum with instruction in RT including direct instruction in predicting, clarifying, questioning, and summarizing. The book *Reciprocal Teaching: Powerful Strategies and Lessons for Improving Reading Comprehension* by Lori Oczkus heavily informed the pedagogical methods used for the RT instruction. Three assessments were used to gather student assessment data. All three of these assessments were based on their accessibility and their norm-based scores. The three assessments included: a curriculum-based assessment (CBM) found at www.easyCBM.com, an informal reading inventory QRI-6, and the Accelerated Reader's STAR test.

When the designers originally developed Easy CBM (2016), they intended to design software to assist special education teachers in the assessment of their students for goal setting and Individual Educational Plan development (Easy CBM, 2016). The norm referencing included with the Easy CBM program was calculated using a sample size of
2000 students drawn equally from the west, mid-west, northeast, and southeast regions of the United States (Easy CBM, 2016). The Easy CBM program specifically measures fluency rates for letter names, letter sounds, word reading, and passage reading at the first-grade level. The program also measures phonemic segmentation at the first-grade level. For the purposes of this study, the Easy CBM measures were used to track fluency, self-correction rates, and decoding accuracy. Because this assessment was designed to measure these skills, the results obtained through this assessment presented a high rate of validity.

The Qualitative Reading Inventory, sixth edition (QRI-6) was designed to measure fluency, vocabulary acquisition, and comprehension (Leslie & Caldwell, 2016). For this study, the QRI-6 was used to track fluency, self-correction rates, decoding accuracy and comprehension, all of which this assessment was designed to measure. Thus, the QRI-6 is considered a valid use of this tool in this study. To calculate the norms used for the QRI-6, the authors gathered data from student QRI-6 assessments and compared those scores to the national curve equivalent scores on those same students' standardized tests. The comparison showed that students' standardized test scores were strongly correlative to students' QRI-6 scores, confirming the reliability in measuring student achievement.

The final assessment used in this study was the STAR Reading Assessment (Renaissance Learning, 2016). This assessment is unique from the former two in that it is computer-based and is an adaptive assessment, meaning the questions are chosen based on the student's answer to the previous question. Norm referencing for the STAR test is calibrated via all its users through a unique system that allows Renaissance Learning to
collect data through non-scored STAR questions (Renaissance Learning, 2016). This vast pool of users who are contributing toward the data of the norm-referencing supports the precise reliability of the STAR test. The STAR Reading Assessment was used in this study to measure reading comprehension growth; thus, the STAR test is considered a valid and useful tool for this study.

Table 1

Tests Used in the Study and What They Were Used to Measure

<table>
<thead>
<tr>
<th>Skills</th>
<th>Fluency</th>
<th>Accuracy</th>
<th>SC Rate</th>
<th>Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>QRI-6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CBM</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAR</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

The normed data charts published by each assessment developer were used to establish an expected growth rate. In the published normed charts that include a percentile ranking for each student score, the researcher ascertained if student growth
happened at a normal rate or a faster or slower rate than normal. For example, if a student initially presented in the 50th percentile, one would assume that the student would continue along a growth pattern that would maintain that percentile ranking. If a student deviated from the established percentile rankings, one might conclude that the accelerated or decelerated growth may have been correlated to the RT-prescription applied. The assessments were given once a month; however, the data set for two of the five months was incomplete due to student absence and thus was discarded. This assessment schedule allowed for a balance between a loss of instructional time due to assessment and an acceptable amount of data to show a pattern of growth.

**Operationalization of Variables**

The students in this study received the same curricular instruction that all students passing through this particular classroom have received. The only difference in the instruction was the addition of the independent variable, metacognitive instruction in the form of RT. Although extraneous variables such as student ability levels, student aptitude, and student work-ethic can vary from one class to another, the convenient sample method ensured that students in the sample group had a random composition of these extraneous variables. The researcher identified four dependent variables as key to the success of the study. These four variables include student self-correction rate, student fluency rate, student decoding accuracy, and student comprehension level.

Following are definitions used throughout the course of this study. Student self-correction was defined as the student's ability to identify and correct a noted error without an indication from an outside source that an error was made. Self-correction in this study was particularly focused on correction of decoding errors. Fluency rate was defined as
the automaticity with which a student correctly decoded the text. When fluency was tracked with regard to a passage, in addition to the rate of decoding, a subjective notation of student observation of punctuation and student expression while reading aloud was noted. Fluency was quantified with correct-words-per-minute (CWPM) score. Decoding accuracy was defined as the percentage of words that the student identified correctly over the course of the subtest. Decoding accuracy was tracked and compared between word lists without context clues and words contained in passages. Comprehension was defined as the understanding that the student obtained from the reading of the text. In this study, measured comprehension shall be limited to reading comprehension during which students decoded all text without external assistance.

**Data Analysis Procedures**

The researcher gathered student data at the beginning and end of the research period utilizing CBM (Easy CBM, 2016) assessments, QRI-6 informal reading inventories (Leslie & Caldwell, 2016), and STAR Accelerated Reading assessments (Renaissance Learning, 2016). The CBM assessments and STAR tests each have a nationally-normed database containing percentile rankings for each score obtained. The results were entered into their respective databases to be charted for statistical purposes.

The QRI-6 assessments were compared to the previous QRI-6 assessments completed by each student and results were tracked. A database was developed listing the correct words per minute, self-correction rate, the rate of accuracy, and the number of comprehension questions answered correctly. Student progress was monitored for growth in these areas by tracking the changes in student assessment results.
Following the conclusion of the study, all the data for each student were compiled and tracked for changes. Scores for all three assessments were obtained before the start of the RT reading instruction. Student data before the additional instruction was tracked and the growth rate for each student was charted individually and compared to the percentile rankings to ascertain if each student showed normal growth according to percentile rankings. Students received instruction in the RT method between September 26, 2016, and February 28, 2017, approximately 104 instructional days.

As part of the data analysis for the research, the researcher calculated a paired two-tailed *t*-test. The *t*-test was calculated using pre- and post-instruction data. The *t*-test result also gave a *p*-value. An alpha of .05 was used as the maximum acceptable rate of error. A *p*-value that was less than or equal to the alpha allowed for the rejection of the null hypothesis.

**Limitations of the Research Design**

This study was limited by the sample size as well as the fact that the sample is a convenient sample. The study would have been better served if two samples could have been randomly drawn from a large group that was divided randomly into a control and experimental group. The logistics of the situation would not allow for a large or randomly selected group and also did not allow students to be divided into control and experimental groups. While a convenient sample is not a random sample, it does not eliminate enrolled students. This sample reflected a variety of ability levels and socioeconomic levels that should allow for greater generalizability than would be possible if the students were homogeneous in these aspects.

**Validity**
One group pre-test, post-test research design has a low rate of external validity. This study was more easily generalized to the population as a whole because the researcher and classroom teacher left the classroom environment as normal as possible. This natural classroom environment with no manipulation of the student population or curricular regimen, outside of the additional RT technique being studied, allows generalizability of results to other naturally formed classrooms. The internal validity of the one group pre-test, post-test study was limited by the study's inability to achieve causality.

The classroom was not manipulated to change the student population or the curricular regimen. The only difference between the student's regular curricular instruction and the instruction that the students received under the prescription of this study is the RT methodology that was added to their curriculum during whole class, small group, and center-time lessons. An observed greater-than-usual rate of growth or a higher-than-expected level of comprehension can be reasonably recognized as a positive difference related to the RT instruction.

The QRI-6 (Leslie & Caldwell, 2016), Easy CBM (Easy CBM, 2016), and STAR Accelerated Reader (Renaissance Learning, 2016) tests were the assessments used for this research study. It is important to note that each of these assessments was used to measure student growth in reading by tracking the student's rate of accuracy, self-correction rate, fluency rate, and comprehension level. Student growth was also tracked in the Easy CBM and STAR Accelerated Reader through the provided nationally-normed percentile rankings. The assessments used in this study were valid because they were used to measure only the data that they were designed to measure.
Ethical Issues

The students who were identified for inclusion in this study are all members of a vulnerable population as they are underage participants. To protect students' rights, a parental consent form was required for the students' data to be included in the research. The researcher did not give an incentive to parents for signing the waiver because the instruction offered in the study was not contingent on the signing of the waiver. All instructional opportunities were offered to all students regardless of participation in the study. All students were assigned a non-identifying student number, and the data for each student was associated with the non-identifying number rather than with the student's name. The classroom teacher assigned student numbers and entered the data as they were gathered into each student's file. The researcher was unaware of numbers assigned to students to protect student identity and control for researcher bias. The researcher was in charge of training all teachers and volunteers who were involved in the study and was also responsible for some of the small-group instruction.

Researcher’s position. The researcher assumed the role of observer and data analyst. The regular classroom teacher provided the primary instruction for the study. Volunteers were solicited to administer the QRI-6, recognizing that although student answers would be unique, they would also be identifiable even when coded. The classroom teacher oversaw the STAR reading assessment in the computer lab. The researcher administered the CBM assessments. All completed assessments were then given to the classroom teacher who removed all identifying information from the student records and coded the student assessments with a non-identifying student number.

Summary
This study was developed to ascertain the relationship between a metacognitive teaching approach and first-grade student gains in reading ability. The researcher measured student growth through the student's rate of accuracy, self-correction rate, fluency rate, and comprehension level. Typical first-grade curriculum lacks in-depth instruction in comprehension technique and does not emphasize student metacognition as a method of increasing comprehension. This study amended the curricular instruction only to the extent that these metacognitive and comprehension techniques were added through an RT approach.

Students were assessed using a test/posttest model, and the data was anonymously compiled to eliminate researcher bias. The data were analyzed to determine if a potential relationship exists between the additional RT instruction and the growth rate of the students' reading ability following RT instruction. The normed percentile rankings as outlined by the publishers of the assessment materials used determined students' reading growth rates. Advancement by a student to a different percentile rank over the course of the study was considered evidence that the additional RT instruction potentially influenced the differentiation.
Chapter 4: Data Analysis and Results

Introduction

The purpose of this quantitative one group pre-test, post-test study was to determine if a relationship existed between metacognitive instruction and students’ growth rate for fluency, accuracy, self-correction rates, and comprehension in reading. The classroom teacher delivered metacognitive instruction to students in a first-grade classroom via a RT instructional approach. RT instructs students in a variety of techniques that require them to think about their reading at a deeper level, thus qualifying it as a metacognitive teaching approach. Two hypotheses were considered:

H₀ No relationship exists between metacognitive instruction, the RT method of learning, and student success in reading.

Hₐ A relationship exists between metacognitive instruction and student success in reading as evidenced by the student self-correction rate, student growth in fluency rate, student decoding accuracy, and student level of comprehension in first-grade readers.

The following four areas were examined for evidence of the benefit of the RT instruction:

1. Students demonstrated an increased level of accuracy in their decoding as evidenced through Curriculum-Based Measurement’s (CBM) word reading fluency (WRF) and passage reading fluency (PRF) scores (Easy CBM, 2016) and informal reading inventories, word lists, and passages found in the Qualitative Reading Inventory, sixth edition (QRI-6) assessments (Leslie & Caldwell, 2016).
2. Students progressed to higher levels of decoding at a pace that was more rapid than the pace students displayed before RT instruction as demonstrated by students’ percentile rankings on the CBM WRF and PRF subtests.

3. Students showed an increased level of comprehension as demonstrated by their QRI-6 passages and STAR Accelerated Reader (Renaissance Learning, 2016) assessments.

4. Students showed an increase in their rate of self-correction when decoding incorrectly as compared to self-correction rates before RT.

This chapter will describe the data-collection process and introduce the raw data compiled during the research phase. An analysis of this data will also be offered in this chapter.

**Descriptive Data**

The researcher selected a convenient sample of 17 students for participation in this study. All students were enrolled in a small parochial school in rural mid-Missouri. At the beginning of the research, students ranged in age from six years, zero months to seven years eight months. Eleven of the students were male, and six were female. Fourteen students identified as white, two identified as Hispanic, and one identified as other when asked for ethnic identification. Midway through the research, the sample size decreased to sixteen when one white, male student left the class. The data collected from this student were discarded.
Table 2
Descriptive Data

<table>
<thead>
<tr>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Hispanic</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

Of the 16 remaining students, 15 attended Kindergarten together in the research school and one student was new to the school. This commonality is an important factor for the study. Because 15 of the 16 students had a common educational background, the need to determine the impact of students’ previous educational experiences when analyzing the data was eliminated.

**Detailed Analysis Procedures**

Data were collected from each student in September of 2016 and again in February of 2017. The CBM’s WRF scores showed growth in the average score of 25 correct words per minute (CWPM) while CBM’s PRF scores showed an average score growth of 35 CWPM. The PRF raw scores caused an average percentile growth of 18 in students’ percentile ranks, increasing from an average percentile rank of 35 at the beginning of the study to an average percentile rank of 54 at the end of the study.
Table 3
Averaged Scores and Nationally-Normed Percentile Ranks for CBM WRF and PRF Subtests

<table>
<thead>
<tr>
<th></th>
<th>CBM</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WRF Scores</td>
<td>WRF PR</td>
<td>PRF Scores</td>
<td>PRF PR</td>
</tr>
<tr>
<td>September</td>
<td>8.3125</td>
<td>26.1875</td>
<td>7.25</td>
<td>35.25</td>
</tr>
<tr>
<td>February</td>
<td>33.6875</td>
<td>52.4375</td>
<td>42.9375</td>
<td>53.9375</td>
</tr>
<tr>
<td>Average Growth</td>
<td>25.375</td>
<td>26.25</td>
<td>35.6875</td>
<td>18.6875</td>
</tr>
</tbody>
</table>

The September scores were compared to the February scores using a paired *t*-test. The raw scores and percentile ranks showed a positive difference for both the PRF as well as the WRF. Specific *t*-test results for the CBM assessments are found in Table 4, averaged raw scores for these assessments can be found in Table 1, and raw scores for these assessments can be found in Tables 8 and 9 in Appendix A. Table 5 depicts the results of a one-sample *t*-test using the percentile rankings provided in Easy CBM’s (2016) detailed percentile table.
Table 4

CBM PRF and WRF *t*-test Results for Raw Scores and Nationally-Normed Percentile Rankings

<table>
<thead>
<tr>
<th></th>
<th>PRF Raw Score</th>
<th>WRF Raw Score</th>
<th>PRF Percentiles</th>
<th>WRF Percentiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>7.25</td>
<td>42.94</td>
<td>8.5</td>
<td>33.69</td>
</tr>
<tr>
<td>SD</td>
<td>9.14</td>
<td>26.07</td>
<td>6.58</td>
<td>15.94</td>
</tr>
<tr>
<td>SEM</td>
<td>2.28</td>
<td>6.52</td>
<td>1.65</td>
<td>3.99</td>
</tr>
<tr>
<td><em>p</em>-value</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
<td>0.0031</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Table 5

CBM PRF and WRF single-sample *t*-test Results for Percentile Rankings

<table>
<thead>
<tr>
<th></th>
<th>PRF Normed PR</th>
<th>PRF Study PR</th>
<th>WRF Normed PR</th>
<th>WRF Study PR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
<td>Winter</td>
<td>Sept.</td>
<td>Feb.</td>
</tr>
<tr>
<td>Mean</td>
<td>89.10</td>
<td>69.82</td>
<td>35.25</td>
<td>53.94</td>
</tr>
<tr>
<td>SD</td>
<td>17.33</td>
<td>27.93</td>
<td>30.98</td>
<td>21.02</td>
</tr>
<tr>
<td>SEM</td>
<td>1.58</td>
<td>2.27</td>
<td>7.75</td>
<td>5.26</td>
</tr>
<tr>
<td><em>p</em>-value</td>
<td>&lt;0.0001</td>
<td>0.0031</td>
<td>0.0336</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

The *p*-values for the CBM assessments showed a positive difference between the pre-test and post-test scores for the PRF and WRF assessments. In all cases, the *p*-value was found to be significant for the CBM assessments. The QRI-6 assessments were difficult to quantify because the assessment generates numerical data in a qualitative format. The researcher conducted a paired two-tailed *t*-test on these results. *P*-values for the total number correct on the word list, total errors, and the number of comprehension
questions answered correctly for the September and February assessments were found to have a positive difference. The *p-values* for all three numbers generated were found to be significant using ($\alpha = .05$) as evidenced in Table 3. The raw data used for the QRI-6 calculations can be found on Figures 2 to 5 in Appendix A.
Figure 1 shows the average scores for the CBM PRF and WRF for both the Easy CBM (2016) published normed sample and the study data. It appears that the students in the study group had a larger amount of growth than the students in the normed sample. This would seem to indicate that the metacognitive instruction offered in the study may allow students to achieve larger growth rates than traditional reading instruction.
Figures 2, 3, 4 and 5, located in Appendix A, track the raw scores from the QRI-6 word reading assessment. A comparison of the raw scores from the September assessments with the raw scores from the February assessment indicate that individual students demonstrated a strong tendency to increase their scores. The data (number correct) for Figures 2, 3, 4 and 5 are distributed by word level, including Pre-Primer 1 (pre-kindergarten-level words), Pre-Primer 2/3 (late pre-kindergarten/early kindergarten-level words), Primer (kindergarten-level words), and First (first-grade level words). Each word list contained 20 words with the exception of Pre-Primer 1, which contained only 17 words. The numbers on the side of the figures indicate the total number of words read correctly. The numbers on the bottom of the figures are the randomly assigned student numbers. The average number of words correct is shown on Table 6. The growth rate is also shown and broken down by word level and date of assessment, indicating the higher the level of word, the larger the average rate of growth due to the lower starting level. The provided nationally-normed statistical data provided in the QRI-6 is not sufficient to calculate a comparative analysis comparing the study data to the QRI-6 normed data.

Table 6
QRI-6 Overall Word List \(t\)-test Results

<table>
<thead>
<tr>
<th></th>
<th>PrePrimer 1</th>
<th>Preprimer 2/3</th>
<th>Primer</th>
<th>First Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>14.44</td>
<td>16.63</td>
<td>7.69</td>
<td>17.31</td>
</tr>
<tr>
<td>SD</td>
<td>2.10</td>
<td>0.62</td>
<td>4.98</td>
<td>1.99</td>
</tr>
<tr>
<td>SEM</td>
<td>0.52</td>
<td>0.15</td>
<td>1.24</td>
<td>0.50</td>
</tr>
<tr>
<td>(p)-value</td>
<td>0.0006</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>
Table 7

Average Growth Rates for QRI-6 Word Lists

<table>
<thead>
<tr>
<th>QRI-6 Word List</th>
<th>t-test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>PrePrimer 1</td>
<td>Preprimer 2/3</td>
</tr>
<tr>
<td>September</td>
<td>13</td>
</tr>
<tr>
<td>February</td>
<td>17</td>
</tr>
<tr>
<td>Average Growth</td>
<td>30.7%</td>
</tr>
</tbody>
</table>

The QRI-6 assessment also offered insight into the potential metacognitive and comprehension levels of the students using self-correction rates, student error rates, and comprehension rates. Table 5 shows the calculated \textit{p-values} for these assessments. The student self-correction (SC) rate and student error rate both showed a strong \textit{negative} difference. The number of self-corrections decreased by 75\% while the number of errors declined by 72\%. There was not enough data provided to calculate comparative \textit{t-test} rates for the QRI-6 SC rate, student error rate, or comprehension level.

Table 8

QRI-6 Self-Correction Rates, Student Error Rates, and Comprehension Rates

<table>
<thead>
<tr>
<th>SC Rate</th>
<th>Student Error Rate</th>
<th>Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.00</td>
<td>0.25</td>
</tr>
<tr>
<td>SD</td>
<td>0.97</td>
<td>0.58</td>
</tr>
<tr>
<td>SEM</td>
<td>0.24</td>
<td>0.14</td>
</tr>
<tr>
<td>\textit{p-value}</td>
<td>0.0057</td>
<td>0.0012</td>
</tr>
</tbody>
</table>
The STAR assessments were taken periodically as a regular part of the curriculum. The percentile ranks (PR) for the pre- and post-test STAR assessments are compared in Table 6. Average rate of change was calculated by dividing the difference of initial PR and the final PR by the number of students in the sample. The result showed the average rate of change in percentile rank from September to February was +28.375. This means that on average, students in the study gained 28 points in the nationally normed percentile ranks over the course of the study. The table below lists the percentile ranks for each student and shows the student growth on this assessment.
Table 9

STAR Nationally-Normed Percentile Ranks and Growth Rate from September to February

<table>
<thead>
<tr>
<th>Student Number</th>
<th>September</th>
<th>February</th>
<th>Rate of Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>64</td>
<td>88</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>91</td>
<td>72</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>24</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>63</td>
<td>86</td>
<td>23</td>
</tr>
<tr>
<td>5</td>
<td>21</td>
<td>62</td>
<td>41</td>
</tr>
<tr>
<td>6</td>
<td>19</td>
<td>84</td>
<td>65</td>
</tr>
<tr>
<td>7</td>
<td>32</td>
<td>48</td>
<td>16</td>
</tr>
<tr>
<td>8</td>
<td>13</td>
<td>12</td>
<td>-1</td>
</tr>
<tr>
<td>9</td>
<td>54</td>
<td>75</td>
<td>21</td>
</tr>
<tr>
<td>10</td>
<td>8</td>
<td>6</td>
<td>-2</td>
</tr>
<tr>
<td>11</td>
<td>13</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>11</td>
<td>39</td>
<td>28</td>
</tr>
<tr>
<td>13</td>
<td>56</td>
<td>82</td>
<td>36</td>
</tr>
<tr>
<td>14</td>
<td>9</td>
<td>47</td>
<td>38</td>
</tr>
<tr>
<td>15</td>
<td>29</td>
<td>73</td>
<td>44</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>46</td>
<td>44</td>
</tr>
<tr>
<td>Average Percentile</td>
<td>26.375</td>
<td>54.75</td>
<td>28.375</td>
</tr>
</tbody>
</table>

Note. The average growth rate shown by students in this study was 28 percentile points. The sample’s average percentile rank in September was the 26th percentile. In February, the sample’s average percentile rank had jumped to the 55th percentile.

Figure 2 depicts the raw data for the percentile ranks on the STAR reading assessment from September and February. Percentile ranks show the placement of
student achievement as compared to the national sample taken by Renaissance Learning (2016). Possible scores for the percentile rank are between 1 and 99. In a nationally gathered sample of 54,570 students, Renaissance Learning (2016) found students went from an average score of 105 in the beginning of the year to an average scaled score of 204 at the end of the year. A one sample t-test was run on the data published by Renaissance Learning and a detailed comparison of the nationally-normed sample and the study sample is available in Table 9.

Table 10

A Comparison of STAR National Results to STAR Study Results

<table>
<thead>
<tr>
<th></th>
<th>STAR Normed Results</th>
<th>STAR Study Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Number</td>
<td>Fall</td>
<td>Spring</td>
</tr>
<tr>
<td>Mean</td>
<td>105</td>
<td>204</td>
</tr>
<tr>
<td>SD</td>
<td>68</td>
<td>112</td>
</tr>
<tr>
<td>SEM</td>
<td>0.29</td>
<td>0.48</td>
</tr>
</tbody>
</table>
A paired, two-tailed *t*-test was performed on the data that were gathered from the STAR percentile ranks from September and February. The results of this *t*-test are found in Table 7. The *p*-value was calculated at (*p* < 0.0001). This *p*-value is less than the alpha, which was set at (*α* = 0.05), making this a significant *p*-value.
Figure 3 shows the average scores for both the STAR nationally-normed sample and the STAR study sample. Study participants had a slightly larger rate of growth than evidenced in the normed sample. This would seem to indicate the effectiveness of the RT instruction offered during the study. A complete list of raw scores for the pre-test and post-test STAR assessment can be found in Appendix A.

Table 11

STAR Assessment *t*-test Results

<table>
<thead>
<tr>
<th></th>
<th>September</th>
<th>February</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>26.38</td>
<td>54.75</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>21.14</td>
<td>29.57</td>
</tr>
<tr>
<td><strong>SEM</strong></td>
<td>5.29</td>
<td>7.39</td>
</tr>
</tbody>
</table>

*p*-value <0.0001
The null hypothesis purported that no relationship would be found between metacognitive instruction using the RT method of learning and student success in reading. The three types of assessments gave a variety of results to consider when pondering this hypothesis. The STAR reading test, CBM assessment, and QRI-6 inventory all showed a strong positive difference, in most areas. Since all three types of assessments show positive difference, it is possible to reject the null hypothesis and conclude that a relationship does indeed exist between RT instruction and student growth in reading ability.

The alternative hypothesis suggested a relationship exists between metacognitive instruction and student success in reading as evidenced by the student self-correction rate, student growth in fluency rate, student decoding accuracy, and student level of comprehension in first-grade readers.

The alternative hypothesis suggested an apparent relationship exists between the metacognitive instruction delivered over the course of the research period and student success in reading as determined by a pre-test, post-test method of research. Evidence for this hypothesis was gathered using three types of assessments (CBM, QRI-6, and STAR tests) which monitored for the following: student self-correction rate, student growth in fluency rate, student decoding accuracy, and student level of comprehension in first-grade readers. Data gathered in September was compared to data gathered in February, and changes in student percentile ranks were tracked.

**Summary**

Sixteen students were included in the sample obtained for the research project. Students were assessed at the beginning of the instructional time, at a midpoint of the
research time, and again at the end of the instructional period. When comparing the pre- and post-test data for each of these, the data showed a positive difference to varying degrees between instruction in the RT method and student growth in reading. The CBM PRF data showed an increase of 18 percentile points over the course of the study. This growth is a statistically significant increase, with the $p$-value reflecting a strong positive difference between these figures. The Accelerated Reader STAR reading assessment showed an average growth of 28 percentile points, as shown in Table 4 above. A further discussion on the implications of this data is found in Chapter Five.
Chapter 5: Discussion and Conclusion

Introduction

In a traditional learning setting, early emergent readers are not often offered direct, explicit instruction in comprehension of the material. Dooley (2011) asserted that students at this level can build upon prior literary experiences to deepen comprehension of materials read. This school of thought is gaining momentum as researchers seek to determine the validity of this premise. This study has been designed to ascertain the value of the above premise by offering metacognitive comprehension instruction to early emergent readers. This chapter will take an in-depth look at the results of the study and what they mean.

This study was directed by the following research question:

R1: To what extent is there a relationship between metacognitive instruction using RT and increasing student success for first-grade emergent readers as evidenced by CBM (Easy CBM, 2016), QRI-6 (Leslie & Caldwell, 2016), and STAR Accelerated Reader (Renaissance Learning, 2016) assessment results?

The Summary of the Results section provides a brief overview of the study. The Discussion of the Results section offers a brief synopsis of the study results. In the Discussion of the Results in Relation to the Literature section, the study results are compared to the research found in chapter two, Literature Review. The Recommendations for Further Research section offers insight into the practicalities of the study and recommendations for improvement during replication. The Limitations section addresses the limitations contained in this study. The practical results of the study are examined in the Implication of the Results for Practice, Policy, and Theory section. In
the *Recommendations for Further Research* section, suggestions are offered regarding how to improve and replicate the study.

**Summary of the Study**

This study was undertaken with the goal of examining a potential relationship between instruction in the art of metacognitive thinking for the early emergent reader using an RT methodology and student success in reading. Specifically, the research sought to describe the potential relationship between metacognitive instruction using RT and student reading growth for first-grade emergent readers. Test and posttest results for CBM (Easy CBM, 2016), QRI-6 (Leslie & Caldwell, 2016), and STAR Accelerated Reader (Renaissance Learning, 2016) were used to define the potential difference of this relationship. Researchers such as Stricklin (2011) and Schünemann, Spörer, and Brunstein (2013) agree that the metacognitive processes taught in the RT methodology are beneficial to students in the older grades; however, little research has been conducted for students in the emergent-literacy stage of reading development.

Pratt and Urbanowski (2016) asserted that teaching readers to self-monitor and self-correct is key to opening the door to deeper comprehension for all readers, including emergent readers. Lysaker and Hopper (2015) argued that teaching decoding to emergent readers is not teaching these readers a new skill. Rather, these emergent readers are learning decoding skills that are built on the foundation of the listening comprehension that they have learned through their parents and teachers who have been reading books aloud to them since birth. What Lysaker and Hopper, Dooley (2011), and others have asserted is that teaching students to independently decode literature is akin to teaching them to open for themselves the door that has been opened *for* them many times. This
new skill of decoding is merely offering independence to the familiar task of understanding literature.

Miller (2013) brought a unique perspective to the concept of comprehension instruction when she asserted that this instruction need not be a linear pattern following the tried-and-true gradual release of responsibility model. Miller instead proclaimed that the process is allowed to be messy. This assertion is profound: because real life is messy, teaching real students is messy. Miller’s philosophy frees the classroom teacher to meet the student where they are and take the hand of each student to bring that student into the process. This philosophy also works well with the assertion made by Lysaker and Hopper (2015) that even students newly introduced to independent decoding can be taught to comprehend in a deep and meaningful way.

Sixteen first-grade students were selected to participate in this study. These students were assessed at the beginning and end of the research period to track student growth in reading. During the research time frame, students were offered direct and explicit instruction in metacognitive-thought processes and comprehension of materials taught via the RT method. This instruction lasted roughly 6 months from September 2016 until February 2017. Student assessments from the CBM (Easy CBM, 2016), the QRI-6 (Leslie & Caldwell, 2016), and STAR Accelerated Reader (Renaissance Learning, 2016) all showed a strong positive difference between student instruction and student-reading growth. With all three assessments showing a positive difference, this study points to a positive relationship between student growth in reading and metacognitive instruction via the RT method.
Summary of the Findings and Conclusion

Students in this study were offered additional instruction in metacognitive thought processes using an RT approach. This instruction was offered in a real-world classroom. Students in this study came from a wide range of backgrounds and experiences. 17.81% of students enrolled in the school could be considered to be of a low socio-economic background, and 18.75% could be considered to be from a minority background. The minority percentage may seem small until the setting for the school is considered. In rural mid-Missouri, an 18.75% minority enrollment in a small parochial school is a higher than average enrollment percentage.

The classroom was not sanitized to remove the real stress of daily classroom scheduling difficulties and conflicts. Wherever possible, the RT instruction was given in a linear fashion building one day upon the last, although this was not universally true over the course of the research study. As Miller (2013) noted, not all instruction falls neatly into the gradual release of responsibility model. At times, particular students need to backtrack to review materials with instructional assistance while others need to be freed to fly forward on their own. While the approach of meeting students, where they are, is messy, Miller purports that it is beneficial to the students.

While the chaos of daily classroom life could be seen as a weakness in the study, it also adds validity to this study. The classroom environment was not absolved of its typical routines for the duration of this study, which allows the study to have a valid real-world application. The convenient sample was taken from one classroom of students who were not handpicked for this study. The average student’s decoding level at the beginning of the study was significantly below expected levels. This class was seemingly
less than ideal for a research study. The researcher considered the conjecture that if the study were successful with struggling emergent readers, the study would be more generalizable to other classrooms whose percentage of struggling readers might perhaps be lower than the percentage in the research classroom. As shown via the raw scores in Appendix A, the student scores from September to February made significant progress. Accelerated Reading STAR (Renaissance Learning, 2016) percentile ranks increased an average of 28 points over the course of the study. CBM (easy CBM, 2016) PRF assessments reflect students read an overall average of 7.2 CWPM in September with a range of scores from 0-31 CWPM and an average of 42.9 CWPM in February with a range of scores from 7-94 CWPM. The percentile ranks for the CBM passage reading began at an average of 35.25 and increased to an average percentile rank of 53.93. In a similar way to the STAR assessment, the average percentile rank for students in the sample group increased 18.68 percentile points.

When the researcher examined the QRI-6 (Leslie & Caldwell, 2016) assessment individually, each of the word lists from the PP list to the First list shows marked improvement both individually and overall. The calculated \( p \)-value for these word lists was determined to show a positive difference between instruction offered and gains shown. The QRI-6 also provided potential insight into the metacognitive thoughts of the students. The QRI-6 student self-correction rate showed significant negative change from September to February with a calculated \( p \)-value of \( p < 0.0001 \). The QRI-6 student reading error rates also showed significant negative change with a \( p \)-value of \( p = 0.0012 \). The negative change in student error rate is a sign of student reading growth; however, the negative change in student self-correction rates is not a sign of growth.
Worthy to note is that the percentage of change in both of these was nearly equal with the self-correction rate changing -75% and the student error rate changing -72%.

The CBM showed an increase in self-correction (SC) rates, which could be considered evidence for an increased level of metacognitive thought. Students who monitor their reading using a metacognitive thought process are more likely to notice errors and correct those errors without external indication (Harvey & Goudvis, 2013).

The passage reading fluency (PRF) assessment in September showed an average SC rate of 0.0625 words per student in one minute. In February the SC rate for the PRF assessment was 0.5625, a gain of 800%. The raw data for the SC rate can be found in Appendix A. The percentage of improvement appears monumental. However, the actual raw data shows that even in February, students self-corrected about once every two minutes, a somewhat minimal amount of self-correction.

The data cannot include the instances where students silently self-correct their reading. Logically, if students are self-correcting aloud, they are likely also self-correcting silently. How can one account for silent correction? It is possible that a higher rate of accuracy in reading may indicate that students are having a higher rate of internal self-correction. In the area of passage reading (PRF), students read with an average accuracy rate of 29.5% in September and an average accuracy rate of 88.4% in February. In the area of word reading (WRF), students read with an average accuracy rate of 52.1% in September and an average accuracy rate of 85.6% in February. If the higher accuracy rate indicates a higher rate of internal self-correction, the CBM PRF and WRF both assessments both show a significant growth rate with a difference of 33.5 percentage points in WRF and 58.9 percentage points in PRF.
As the ultimate goal of reading, comprehension is the natural culmination of the data review. All decoding efforts are meaningless unless the student can demonstrate an understanding of what has been read. When considering the comprehension level of the students in this study, the STAR test and the QRI-6 comprehension questions are directly indicative of student success in this area. The STAR test showed a \( p \)-value of \( p < 0.0001 \), and the QRI-6 comprehension scores showed an increase from an average of 4.06 correct in September to 4.75 correct in February, giving a \( p \)-value of \( p = 0.0109 \).

With an alpha value set at \( \alpha = 0.05 \), both the STAR test and the QRI-6 comprehension question assessment \( p \)-values show a significant improvement in student scores.

The above findings show a benefit to students in the teaching of metacognitive thought and comprehension theory to emergent readers. Overall, students gained a significant number of percentile points over the course of this study. The implication for practitioners is clear: research shows these methods to be successful for readers at all levels of instruction, implying that students from any classroom would benefit from this RT methodology.

Many practitioners in the primary classroom have become accustomed to following a traditional reading instruction model as prescribed by a basal reading program. While basal reading programs have their place in the educational system (Afflerbach, 2011), some practitioners are turning away from a sole instructional basis in basal programs in favor of a literature-based approach (Dewitz & Jones, 2013). Dewitz and Jones argued that experienced teachers know what is necessary for the instruction of the students in their care and do not need the prescriptive program found in a basal program to meet these needs.
Researchers and scholars such as Pratt and Urbanowski (2016) and Lysaker and Hopper (2015) have begun to embrace the concept of deliberate comprehension strategy instruction in the primary classroom as a beneficial practice for early emergent readers. Teachers who embrace this concept, often use trade books as a means of delivering this instruction as was done in this study. Royce (2015) noted that standards-based instruction could be achieved well through the use of trade books, the process utilized with RT in this study.

This research study supports the findings of Pratt and Urbanowski (2016) in their assertion that the RT method is widely beneficial to all students, including the earliest readers. Loveless (2015) defines student engagement as a curiosity, motivation, and desire to learn. Komariah, Ramadhona, and Silviyanti (2015) contended that students who participated in the RT method of instruction were more engaged in the materials taught than those who were not offered this method of instruction. Increased student engagement is good news for practitioners as Loveless noted a strong difference between student engagement and student achievement. By definition, the RT method engages students in the learning process and as a result boosts student achievement. The increased student engagement leads to the question: is the RT method successful in itself, or is the success of RT found in the level of student engagement? More research is needed to confirm a potential correlation or causation between metacognitive instruction and student success in reading; however, initial results – including the results from this study – seem to indicate an inherent connection between the two.
Limitations. The most severe limitation of this study is the small sample size of students. This small sample size limits the generalizability of the study to other classrooms. A number of mitigating factors contribute to the generalizability to help counteract the limitations of the small sample size, such as the random nature of the selected sample, the overall level of student decoding ability at the onset of the study, and the eclectic composition of the sample.

Additional limitations of the study include the researcher’s employment in the research school and the overall nature of the one group pre-test, post-test study. Due to the employment concern, neutral volunteers were sought to administer the QRI-6, the most identifiable of the assessments given. This concern also led the researcher to arrange for the classroom teacher to code all data collected with a random student number instead of student identifying information. The selection of one group pre-test, post-test research study was the best fit for the study: however, due to the nature of one group pre-test, post-test research studies, causation will not be identified as a result of this study.

Implications

Theoretical implications. The 21st-century learner must be able to read with discernment and to determine the quality of materials at hand (Hein, 1991). Reading has been a foundational skill and will only gain in importance moving forward as our society continues to rely on reading as a source of knowledge. Metacognitive skills are crucial to the astute reader to aid him or her in ascertaining the quality of new information and integrating the new information into the reader’s prior knowledge (Andreassen & Bråten, 2010; Zhou, 2015). Early readers are rarely afforded the opportunity to experience
comprehension instruction and are typically limited to instruction in decoding only (Afflerbach, 2011; Dewitz & Jones, 2013).

From early readers to accomplished readers, all students seem to experience benefit from the RT method approach (Lysaker & Hopper, 2015; Tarchi & Pinto, 2016; Komariah, Ramadhona, & Silviyanti, 2015). It is impossible to separate the benefit derived from student engagement and the benefit resulting from the RT method alone as the implementation of the RT method boosts student engagement (Komariah, et al., 2015). Student engagement is known to increase student achievement (Loveless, 2015) and this study reflects a significant boost in student achievement levels as reflected in the CBM (easy CBM, 2016) and STAR (Renaissance Learning, 2016) reading assessments. An average rate of gain of 18.68 percentile points in the CBM assessment and 28 percentile points for the STAR reading assessment was documented as a result of this research study.

**Practical implications.** The instruction offered in this study was a perfect example of what Miller (2013) and Lysaker and Hopper (2015) asserted to be a quality instructional practice. The classroom teacher often had to revise materials, meeting various students at different points along the class’ educational journey. When initiating the study, the students displayed a very low decoding and comprehension level as evidenced in the raw scores found in Appendix A. At the end of this study, despite the significant gains made, the majority of the students remained at a decoding level lower than expected for their classroom placement.

Students’ listening comprehension and level of engagement with the materials offered during the RT class time could not be measured in this study. Students who
seemed to struggle to reach an expected level of decoding independence, excelled when offered the opportunity to engage with their materials on a meaningful level. The classroom teacher noted that students’ frequently understood the presented materials at a deeper-than-expected level. One reason for this may lie in the literature-rich educational environment students had been exposed to before decoding instruction.

**Future implications.** Carreker (2016) asserted that students’ listening comprehension is directly correlative to their reading comprehension. Carreker purported that students with a high listening comprehension and low reading comprehension are likely to attain a high reading comprehension when these students’ decoding skills catch up to their comprehension skills. Lysaker and Hopper (2015) also asserted a presence of a strong correlation between listening comprehension and reading comprehension. This study did not address the students’ ability to comprehend materials read to them.

The classroom teacher in this study noted that the level of engagement found in the classroom during the RT instructional time was very high. Loveless (2015) asserted that student engagement is strongly indicative of high student achievement. The classroom teacher also noted that the students in this study seemed to enjoy participating in the materials offered as a part of the study and also seemed to be able to apply the methodologies taught to other areas of instruction with positive results.

A reasonable projection can be presented that if these students continue in the RT comprehension instruction in first grade, they should be more successful in their readings. This projection has numerous implications for subject areas beyond reading and literature study. Beginning in approximately the fourth grade, students read to learn in every subject. Students, who have been previously taught to comprehend their reading at a
deeper level, should potentially be more successful when they progress from learning-to-read to reading-to-learn. Students who utilize metacognitive awareness during their readings should also be better able to discern what materials they understand and what they need to study further. It is not unreasonable to project that students, who are successful with the RT skills taught in this study and who continue to practice these skills moving forward, may become highly successful students. Those students who master the art of metacognition and comprehension may become competent learners and discerning adults in the future.

**Recommendations**

**Recommendations for future research.** The research presented in this study could be strengthened in the following ways:

1. This study could be replicated with an experimental-research design using a larger sample size. Ideally, the sample chosen for this study would involve hundreds of students in a variety of school settings. A strong argument for causation could be argued from the results of such a study if half of the sample was offered traditional reading instruction with the inclusion of RT instruction and half of the sample was offered traditional reading instruction without RT instruction, .

2. A second improvement suggested for this study design would be a substitution for the QRI-6 assessment. The QRI-6 is an excellent assessment, but it did not mesh as well as anticipated with the overall *quantitative* design of the study. If the study is replicated true to the original design, the QRI-6 should be omitted or replaced. If the researcher desires to retain the QRI-6 assessment, the
research design could be adjusted to allow for both quantitative and qualitative data.

3. The results of this study indicated that early emergent readers benefit from an in-depth instruction of metacognitive and comprehension skills. This research study applied the Reciprocal Teaching (RT) approach to instruction. Further research could choose a different approach to metacognitive and comprehension instruction to determine precisely what it is about the metacognitive methodology that caused the success of the research. It is possible that the success of RT lies less in the instruction offered and more in the level of student engagement with the material. However, separating the RT method from the higher level of student engagement is impossible because the RT method fosters an increase in student engagement with the material. A different approach to teaching the metacognitive and comprehension skills tested in this study would be beneficial in testing what may precisely cause the increased student success in displaying reading accuracy and comprehension.

The data for this study suggests a moderate to strong positive relationship between metacognitive instruction and reading success. An empirical study following an experimental-research design would serve to confirm the relationship indicated by this research. The experimental-research design would be the best way for the researcher to corroborate the indicated relationship; however, a quasi-experimental design in which two classrooms were compared would also be beneficial to the confirmation of this study’s findings.
**Recommendations for practitioners.** Those who teach reading at any level should confidently consider the in-depth study of metacognitive and comprehension skills. The data from this study suggests that practitioners should not hesitate to engage early readers in an in-depth study of the deeper meaning of the texts that are read in the classroom. This deeper study should include texts that are read independently as well as texts that are read aloud to students.

**Recommendations for future practice.** The researcher recommends that all students, including early emergent readers, be offered the opportunity to engage with text in a deep and meaningful way. Students should be allowed the opportunity to predict, clarify, question, and summarize text at a variety of levels. Students who are afforded these opportunities should prove better equipped to delve deeply into a variety of texts and materials with the confidence that they possess the skills needed to dissect and comprehend familiar and unfamiliar materials.

**Conclusion**

This study was developed to show the value of direct and explicit comprehension instruction in the primary classroom. Traditional classroom instruction focuses on phonics and decoding instruction while omitting overt comprehension instruction beyond a basic recall and retell of materials read. Students included in the sample for this study received direct instruction in the process of metacognitive thought via the RT method. The study focused specifically on the question: To what extent does a potential relationship exists between metacognitive instruction using RT and increasing student success for first-grade emergent readers as evidenced by CBM (Easy CBM, 2016), QRI-6 (Leslie & Caldwell, 2016), and STAR Accelerated Reader (Renaissance Learning, 2016)
test and posttest results? While causation cannot be shown via a correlative research study, a moderate-to-strong positive difference was shown between metacognitive instruction and student reading growth.

Further study is needed to confirm the results of this research; however, the results are strong enough to indicate the value of the thought process and should give practitioners pause to examine their classroom instruction in light of this evidence. Other researchers such as Pratt and Urbanowski (2016) and Lysaker and Hopper (2015) advocate for comprehension instruction for students who are new to independent reading as a means of building upon prior knowledge gained from listening to materials read before decoding instruction. This study would seem to support those who advocate for this level of instruction in the primary classroom.
References


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http://dx.doi.org/10.1037/a0014319


http://www.ncte.org/journals/ej


http://www.rwctic.org/#!thinking-classroom/cumh


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https://www.acteonline.org/techniques/#.VxkN4WQrlb0


doi: 10.1080/00050060210001706746


Appendix A: Raw Scores

Table 12

CBM Passage Reading Fluency Raw Scores

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<td>Percentile</td>
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Passage Reading Fluency

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97
Table 13

CBM Word Reading Fluency Raw Scores

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Table 14

STAR Accelerated Reader Raw Scores

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Figure 4

A Summary of the Initial and Final QRI-6 Pre-Primer 1 Word List Raw Scores

Note. Figure 2 shows a comparison of the Pre-primer 1 word list scores from the QRI-6 tests administered in September and the same assessment as administered in February. Three students achieved perfect scores (17/17) in September and did not show growth in this area.

Figure 5

A Summary of the Initial and Final QRI-6 Pre-Primer 2/3 Word List Raw Scores

Note. Figure 3 shows a comparison of the Pre-primer 2/3 word list scores from the QRI-6 tests administered in September and February. Universal growth was noted at this level.
Figure 6

A Summary of the Initial and Final QRI-6 Primer Word List Raw Scores

Note. Significant growth is seen in the Primer level word list from the QRI-6 assessments taken in September and February. Eleven of sixteen students were unable to read any of the words on this list in September, while only one student was unable to read any of the words on this list in February.

Figure 7

A Summary of the Initial and Final QRI-6 First Grade Word List Raw Scores

Note. Figure 5 shows student growth on the QRI-6 first-grade level word list. In September, thirteen of sixteen students were unable to read any of the words on this list, by February that number dropped to five. This figure reflects significant student growth in reading over the course of the study.
Appendix B: Permission Forms

CONSENT FORM

Research Study Title: A Study of the Effects of Metacognitive Instruction on Reading Comprehension in the Primary Classroom
Principle Investigator: Mrs. Sara Wing
Research Institution: Concordia University, Portland
Faculty Advisor: Dr. Donna Graham

Purpose and what you will be doing:
The purpose of this study is to deliver instruction in metacognition (thinking about thinking). Students will be instructed using the reciprocal teaching technique which involves incorporating the following skills while reading: predicting, clarifying, questioning, and summarizing. No changes will be made to the regular curriculum apart from the addition of the reciprocal teaching methods. Students will be assessed using curriculum-based measurements from www.easyCBM.com, qualitative reading inventory from QRI-6 by Leslie and Caldwell, 2016, and via the Accelerated Reader STAR reading test from Renaissance Learning. Data collection will begin on or after August 19, 2016 with the final assessments to be performed on or before December 22, 2016. Reciprocal teaching instruction will begin the week of September 26, 2016. No one will be paid to be in the study. No incentive will be offered to those who choose to participate. Participation is voluntary, and all students will benefit from the additional instruction regardless of participation. Students will be assigned a non-identifying student number and student data will be kept apart from student identifying information.

Risks:
There are no risks to participating in this study other than providing student information. However, we will protect your information. Student identifying information will be kept separate from student assessment data for the purposes of this study, and will not be submitted along with the research. When I or any of my investigators look at the data, none of the data will have your name or identifying information. I will only use students’ assigned student number to analyze the data. I will not identify
any student, parent, or institution in any publication or report. Your information will be kept private at all times.

**Benefits:**
The data collected will be used solely for the purposes of the academic dissertation to be submitted to Concordia University, Portland Oregon. The data will not be published in any way apart from this dissertation.

**Confidentiality:**
This information will not be distributed to any other agency and will be kept private and confidential. The only exception to this is if you tell us abuse or neglect that makes us seriously concerned for your immediate health and safety.

**Right to Withdraw:**
Your participation is greatly appreciated. You are free at any point to choose not to engage with or stop the study. This study is not required and there is no penalty for not participating.

**Contact Information:**
You will receive a copy of this consent form. If you have questions you can talk to or write the principle investigator or classroom teacher. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board.

**Your Statement of Consent:**
I have read the above information. I asked questions if I had them, and my questions were answered. I volunteer my consent for this study.

_______________________________                   ___________  
Student Name  

_______________________________                   ___________  
Parent Signature  

_______________________________                   ___________  
Investigator Name  

_______________________________                   ___________  
Investigator Signature
Appendix C: Statement of Original Work

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University-Portland Academic Integrity Policy during the development and writing of this dissertation.

2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the Publication Manual of The American Psychological Association.

Digital Signature

Sara E. Wing

Name (Typed)

8/23/2017

Date