The Effects of Reciprocal Teaching on Third and Fourth Grade Students' Reading Comprehension and Vocabulary Attainment

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Submitted to the Graduate Department and Faculty of the School of Education of Baker University in partial fulfillment of the requirements for the degree of Doctor of Education in Educational Leadership

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Date Defended: November 10, 2015

Abstract

This quasi-experimental study was focused on a specific strategy, reciprocal teaching (RT). During RT, students were explicitly taught how to predict, summarize, clarify, and question through teacher modeling. Through scaffolding, students independently used RT.

For one school year, a third grade class and a fourth grade class used RT as the primary strategy for instruction while other classes used strategies from a textbook. Two research questions provided the framework for the study. Research question one addressed the difference in the change in reading comprehension between students who used RT and those who did not. Results from a multivariate analysis of variance (MANOVA) revealed there was no difference in reading comprehension. Research question two addressed the difference in the change in vocabulary attainment between students who used RT and those who did not. Results from a MANOVA revealed there was a significant difference in vocabulary attainment between students who used RT and those who did not. Students who used RT had a lower vocabulary attainment average than those students who did not use RT.

The results of this study can be used in determining further action as a school district and as a teacher. While the extensive literature provides evidence that RT is effective in improving students' reading abilities, the results of this study raise questions as to whether it is effective compared to other reading instruction. Given the contrary results of this current study, further research on the effects of RT, perhaps even replication of the study, may be necessary.

Dedication

Words cannot adequately express how appreciative I am to so many people who have supported me along this intense journey. I could not have done it without those I love encouraging me as I hit bumps in the road, but continued.

My dear husband, Andy, has been my biggest cheerleader along the way. Your encouragement means the world to me. You never doubted me, even during times I doubted myself. I know how much you have sacrificed to help me reach my goal. It feels good that we have accomplished this together! We are done! Love you more!

To my sweet son, Oliver, you were born at the end of this journey. In fact, you are the main reason I did not give up this challenge. You will never remember the times I was in the bedroom typing away while Dad played with you and entertained you. I am thankful for that! I am so lucky that I am your mom. I'll love you forever!

To my mom, Linda, you have been my rock since the day I was born. You taught me that anything was possible with hard work and determination. You believed in me and believed in my drive. I am the person I am today because I had you as my best role model. Coming to the end of this doctoral journey is very bittersweet. I know how much it has meant for you to see me complete my doctorate. However, your health and your dementia may cause you to never fully understand that I am done. I am sorry I did not complete it earlier before you started losing who you are. I know you would have been proud.

My extended family and my close friends have been amazing. Sarah and Laura, you have continued to push me to complete this. Your support means the world to me. Now, I get to be the friend you deserve all the time!

Acknowledgements

Thank you, Dr. Russ Kokoruda, for your advice, encouragement, and support as I completed this process. You have reminded me to keep my eye on the finish line. Thank you, Dr. Katie Hole, for your help. Your expertise is very much appreciated. Dr. Sharon Zoellner, I appreciate your feedback, time, and support as you served on the dissertation committee.

To my Baker cohort friends, Thursday evenings were always fun with you. I will be forever grateful for the friends I made in the program. We encouraged each other no matter what.

I have had the opportunity to work with outstanding teachers and administrators throughout my career. I have learned so much about myself professionally as I worked by your side. Dr. Wendy McChristy, my sincerest appreciation goes to you. I have learned how to handle tough situations with grace and love. You have been an ear to listen and a shoulder to cry on. Thank you for pushing me to be my best.

Cody Hirschi, you were my partner in crime for so many years. We shared laughs, shared tears, and shared challenges. We focused on making a difference for the community we served. We were determined to act in the best interest of our students, no matter how hard it may be. I am thankful I had the privilege to be your right hand. Congratulations to you for nearing the end of your own doctoral journey.

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Chapter One

Introduction

To understand and make meaning of text is the essence of reading. Knowing how to decode or pronounce words is helpful, but reading also involves various other skills such as the ability to comprehend what is read (Lubliner, 2001). Teachers often complain about the inability of students to comprehend a wide range of text, from content-based textbooks to student-chosen literature (Scherer, 2005). Although students may be able to read aloud words presented in the various forms of text, they are unable to translate the text into meaning (Lubliner, 2001).

Some students are slower than others at developing the necessary skills to decode words. These students might fail to comprehend what is read because too much effort is given to the decoding of words (Eldredge, 1990). These students are unaware of the purpose of reading and are unable to use strategies that will enable them to comprehend text (Kelly, Moore, & Tuck, 1994). Student-constructed meanings and understandings of the text are therefore not attained.

Palincsar (as cited in Lubliner, 2001) described some students as:

> …adequate decoders of text, plodding along at a decent rate and making few errors as they read. Nevertheless, they were not readers in any meaningful sense of the word. They never chose to read for pleasure, and they saw little purpose for reading, believing that they could learn anything they need to know through first-hand experience. (p. vii)

Student attitudes toward reading, for academia or for pleasure, have been an issue as well. Some students no longer desire to read for enjoyment, seeing reading as nothing

more than a chore. Reading is restricted to the confines of the school day and walls of the classroom.

Poor attitudes and the lack of reading comprehension have become detrimental to students in the current information age. Lubliner (2001) suggests "The demands on students to read, comprehend, and evaluate complex information have never been greater" (p. 3). Students must have sophisticated comprehension skills in order to understand and apply any type of reading material set before them. Not only do these skills allow students to achieve in future grade levels, they also prepare them for the workplace (Ozckus, 2003).

To fully comprehend text, students must have an understanding of words, or vocabulary. Mandel (2008) stated:

> The process involved in attaching meaning to new words requires a person to actively think about a new word. When reading with the goal of increasing comprehension, people are required to actively think about what they are reading to truly understand the text (p. 8).

Thus, vocabulary attainment is necessary for students.

The aforementioned dilemmas have caused researchers to investigate the metacognitive skill of comprehension. Metacognition involves the students' ability to assess their own comprehension level as they read (Pressley, 2002). Palincsar (1982) focused her study on the comprehension of junior high students who were unable to understand expository text at grade level. In the study, both the teacher and students read in cooperative learning groups with specific instruction on four strategies: (a) summarizing text, (b) predicting what may be read later, (c) developing questions, and (d)

clarifying unfamiliar words, or vocabulary, or unclear ideas (Palincsar, 1982). These four strategies are metacognitive skills utilized by readers who comprehend effectively. In these student-teacher groups, a dialogue was established in which each member would take turns as discussion leader by practicing reciprocal teaching (RT), which included reciprocating, or mutually sharing, the learning by taking turns in summarizing, questioning, clarifying vocabulary or ideas, and predicting while reading a text. According to Ozckus (2003), predicting during reading sets a purpose for reading and comprehension, and questioning allows students to develop inferences, process the meanings of the text, and make connections between the text and other works or one's frame of reference. Clarifying allows readers to identify and explain unfamiliar words, or vocabulary, as well as unclear ideas, and summarizing requires readers to identify the main ideas of the text in a sequential order (Ozckus, 2003). Palincsar (1982) found student comprehension increased as a result of reciprocal teaching. Table 1 shows the purpose of each of the four strategies of reciprocal teaching.

Table 1

Reciprocal Teaching Strategies

Strategy	Purpose
Summarizing	Identify main ideas and organize ideas in a way to have a concise summary of what is read.
Questioning	Use questioning stems, such as who, what, where, when, why and how, to understand main ideas and details, and to develop inferences.
Clarifying	Locate difficult words and ideas and make meaning from them.
Predicting	Set a purpose for reading and provide sound reasoning for predictions.

Note. Adapted from "A Practical Guide to Reciprocal Teaching," by S. Lubliner, 2001, p. 11.

Kelly et al. (1994) found students who comprehend well use the self-monitoring techniques such as questioning, clarifying, predicting, and summarizing as they read.

However, many teachers do not directly teach these skills, hoping that students will develop them on their own (Salinger & Fleischman, 2005). Many students do not have the ability to develop these skills without direct instruction. When specific metacognitive instruction is provided, students make gains in reading comprehension (Kelly et al., 1994; Palincsar & Ransom, 1988). During the instruction, teachers scaffold or build upon these skills and what students already know how to do. The students internalize these four strategies and apply them when reading various types of texts in order to fully understand what is read (Carter, 1997).

Background

School District A, the target district in this study, is located in the Kansas City, Missouri metropolitan area. It includes both rural and suburban areas. School District A has 11 educational sites, including one early childhood center, five kindergarten through fourth grade elementary schools, one upper elementary school, one middle school, one senior high, one alternative school, and one vocational school.

Although the majority of students in the district are White (84.3%), a steady increase of Black and Hispanic students has taken place. There has also been a steady increase of students who are eligible for free or reduced lunch, up from 34.5% in 2003 to 48.8% in 2010. Table 2 shows the demographics of the school district from 2003 to 2010.

Table 2

School District A Demographics

School District Enrollment	2003	2004	2005	2006	2007	2008	2009	2010
Total	4,875	4,859	4,852	4,877	4,861	4,838	4,806	4,701
Black	4.9%	5.3%	6.0%	6.4%	6.4%	6.6%	6.7%	6.4%
Hispanic	2.8%	3.3%	3.8%	4.2%	5.7%	5.4%	5.9%	6.4%
White	89.3%	88.1%	86.4%	85.9%	84.3%	84.5%	83.5%	83.1%
Free/Reduced Lunch	34.5%	38.9%	40.6%	38.9%	43.6%	40.5%	42.9%	48.8%

Note. Adapted from "School Report Card," by Missouri Department of Elementary and Secondary Education, 2012, p. 1.

The classroom teachers began implementing reciprocal teaching as the primary strategy for reading comprehension at the start of the 2009-2010 school year. Teachers were trained how to implement this strategy through professional development and meetings with the school instructional facilitator. The control classrooms continued to use the reading comprehension strategies designed by Houghton-Mifflin Reading (2005) which was adopted by the school district during the school 2004-2005 school year.

Third and fourth grade students in one of the five elementary schools in the district were chosen for this study. For each grade level, treatment and control classrooms were chosen based upon the teachers' willingness to incorporate reciprocal teaching. All third and fourth grade students in these classrooms were part of the study, including students with learning disabilities, students who received Title I services, students who received after school reading tutoring, and students who were gifted.

Third and fourth grade students from one classroom in each grade level were taught reciprocal teaching as their primary strategy for reading comprehension in English

Language Arts (ELA). Students, as suggested by Ozckus (2003), worked in small cooperative groups (4-5 students) to dialogue about the various types of text encountered. Each student facilitated learning by employing the four metacognitive comprehension strategies of summarizing, questioning, clarifying, and predicting. One classroom in each grade level within the same school was used as the control group and did not use the reciprocal approach.

Statement of the Problem

Palincsar's (1982) study served as the basis for researchers to investigate the improvement of reading comprehension. The National Assessment of Educational Progress (NAEP) tests a random sample of fourth and eighth grade students on an annual basis to evaluate growth in comprehension. NAEP (2011) recognizes reading to be an interaction between the reading, text, and skills necessary for students to develop meaning and understanding of what is read. Four aspects of reading are assessed: forming a general understanding, developing interpretations, making connections, and evaluating text structure. Table 3 illustrates the trend of reading average scores for selected years between 2000 and 2009.

Table 3

Trend in NAEP Reading Comprehension Average Scale Scores

Grade	2000	2002	2003	2005	2007	2009
Fourth Grade	213	219	218	219	221	221
Eighth Grade	N/A	264	263	262	263	264

Note. Possible range of scores 0-500. Adapted from "The Nation's Report Card: Reading 2011," by National Center for Educational Statistics, 2011, p. 1.

Randomly-selected students in several school districts across the United States took the NAEP test; however, district names were not released due to privacy issues. Table 3 provides the average reading scores from the national level in fourth grade and eighth grade. Each student in a particular grade level was given the same assessment for that year, which included multiple choice and constructed response questions. The scale scores in the table were derived from student responses and statistically represented a group of students. In NAEP Reading, possible scores ranged from 0 to 500. Although slight gains in each grade level were made, there was minimal growth in the national reading averages between 2000 and 2009. Such scores were below expected grade level results. Data in Table 3 indicate reading comprehension is an area in which much improvement is needed.

Research involving reciprocal teaching has been centralized on improving comprehension of a small sample of students who fall below grade level (Bigby, 2007; Diehl, 2005; Lindblom, 2000; Palincsar, 1981). Reciprocal teaching was used in these studies as a means of intervention for students with difficulties in reading comprehension rather than as a method for explicit comprehension instruction including vocabulary attainment instruction for all students. The struggling readers in each of these studies showed improvement after they were involved with reciprocal teaching for a limited amount of time.

Other studies have used reciprocal teaching in content other than reading such as mathematics, science, and social studies (Barton, Heidema, & Jordan, 2002; Brandenburg, 2002; Lederer, 1997). Results of the studies indicated it to be an effective

method for teaching comprehension in such specific content areas to increase student achievement.

Limited research on reciprocal teaching at the elementary level has been conducted. As a result, it would be prudent to investigate the effects of reciprocal teaching on developing reading comprehension and vocabulary attainment of elementary students. Incorporating all students and not restricting the study to students who are at-risk readers, as many other studies have done, will allow for an analysis of the effects of reciprocal teaching on reading comprehension for all students.

Purpose of the Study

The purpose of this study was to analyze the effects of reciprocal teaching on student reading comprehension and vocabulary attainment in an elementary setting. A class of third grade students and a class of fourth grade students used the reciprocal teaching strategy as the primary strategy for reading. To determine if there was a difference in reading comprehension and vocabulary attainment, a class of third grade students and a class of fourth grade students did not use reciprocal teaching.

Significance of the Study

Improving students' reading comprehension, including clarifying and understanding unknown words, or vocabulary, is a goal for educators. NAEP scores found in Table 3 provided evidence for the need to improve reading instruction. Educators research best practices in teaching strategies in order to improve students' ability to read. Studies regarding reciprocal teaching for students with low reading comprehension have occurred since its conception in Palincsar's (1982) original work with few studies focusing on RT for all students. The current study adds to the body of

research of RT as it includes students with all comprehension abilities. Conducting research about reciprocal reading at the elementary level has the potential to provide educators with data to support whether this strategy has a positive impact on not only a student's reading comprehension, similar to other studies, but also a student's vocabulary. Conclusions drawn from this study can provide insight on the effect of reciprocal teaching on reading comprehension and vocabulary attainment for upper elementary populations.

Delimitations

Roberts (2004) states delimitations are the boundaries of a study set by the researcher. The following delimitations are put forth so one may understand the factors controlled for this study.

1. Though four classrooms were involved, two elementary classrooms used reciprocal teaching, and two classrooms did not use this strategy. The treatment classrooms were chosen because of the teachers' willingness to implement reciprocal teaching.
2. Third and fourth grade students' data were used for this study because students within those grade levels begin to become fluent decoders and are beginning to enhance their reading comprehension strategies (Eldredge, 1990).

Assumptions

Roberts (2004) describes assumptions as what is taken for granted relative to a study. Therefore, the following assumptions were made for this study:

1. Teachers implementing reciprocal teaching had sufficient training and understanding of this strategy.
2. All variables which affected learning and student achievement were similar between the classrooms utilizing reciprocal teaching and the classrooms not utilizing this strategy.
3. Gates-MacGinitie Reading Tests Fourth Edition Forms S and T were valid and reliable measures of reading comprehension and vocabulary attainment.
4. Students put forth their best effort during all administrations of the Gates-MacGinitie Reading Tests.
5. Data retrieved from the school district were accurate.

Research Questions

The framework of a dissertation includes the research questions, which allow the researcher to present results (Roberts, 2004). The research questions were designed to evaluate two key components of reading: reading comprehension and vocabulary attainment. The research questions were developed to guide this quasi-experimental study.

RQ1. To what extent is there a difference in the change in reading comprehension, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching?

RQ2. To what extent is there a difference in the change in vocabulary attainment, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching?

Definitions of Terms

To understand fully reciprocal teaching and its effects, definitions of specific terms are necessary. The following key terms were used throughout this study.

Comprehension. Comprehension is the ability of the reader to understand and make meaning of what is read (Palincsar & Brown, 1984).

Metacognition. Metacognition is the ability of one to assess his or her cognitive process (Palincsar, 1982). Specifically applied to reading, metacognition describes the reader's ability to evaluate one's comprehension level (Pressley, 2002).

Reciprocal teaching. Reciprocal teaching is a strategy for explicitly teaching metacognitive skills used to aid student reading comprehension. Dialogue related to predicting, summarizing, clarifying, and questioning is used as students and the teacher summarize the text, generate questions, clarify unknown words and confusing ideas, and predict. Students and the teacher take turns in the role of the leader (Palincsar, 1982).

Scaffolding. Scaffolding is used by teachers to provide support to students as they activate prior knowledge and build upon these sets of constructs (Sarasti, 2007). In reading, a teacher models how to use a strategy or a skill to comprehend text. As students begin using the strategy or the skill, the teacher supports students by giving feedback and guidance for using the new knowledge. Gradually, the students become independent and can apply the strategy or the skill to new situations. This allows students to develop a purpose for reading as well as incorporate strategies to understand text that is more difficult.

Vocabulary. Vocabulary is the knowledge of words including definitions and how words can be applied to different contexts (Stahl & Fairbanks, 1986).

Overview of the Methodology

A quasi-experimental research design was used to measure the effects of reciprocal teaching on student achievement. To measure the effects of reciprocal teaching on student achievement, including reading comprehension and vocabulary, archival data from the Gates-MacGinitie Reading Tests (GMRT) Fourth Edition Forms S and T were retrieved. The Gates-MacGinitie Reading Test was used by the target district to assess student comprehension and vocabulary growth each year. A pretest was given in August 2009, and a posttest was administered in May 2010. The difference in scores was used to measure the extent of student reading comprehension growth and vocabulary growth for all classrooms in the study.

The Gates-MacGinitie Reading Test was scored by the criteria developed by the publisher of the tests. Data analysis took place to determine if there was a significant difference between both groups in reading comprehension growth and vocabulary growth. A multivariate analysis of variance (MANOVA) was conducted to address the research questions. The sample means for reading comprehension and vocabulary were compared between the two groups of students: those who used reciprocal teaching and those who did not. The level of significance was set at 0.05.

Organization of the Study

This study of reciprocal teaching is divided into five chapters. Chapter one included the introduction and rationale, the problem statement, the purpose of the study, the significance of the study, delimitations, assumptions, research questions, definitions of terms, and an overview of methodology. Further explanations of reading comprehension, vocabulary, and reciprocal teaching will be discussed in chapter two. In

chapter three, details will be given regarding the methodology chosen for this study. Findings of the study will be presented in chapter four. In chapter five, the findings, implications, conclusions, and recommendations for future study will be described. Each of these components will support the purpose of this study, determining the effects of reciprocal teaching on reading comprehension and vocabulary attainment.

Chapter Two

Review of the Literature

In the United States, many students fail to comprehend grade level text. Students state they do not like to read, only read when they are made to, or, many times, do not read at all (Scherer, 2005). By third grade, most students are able to decode words as they read, but do not understand the words they are reading, and they do not understand the complex process of comprehension. This process is abstract and unclear to many readers. According to Scherer (2005), teachers should uncover the complexity of reading through direct instruction of skills and modeling.

The complexity of comprehending texts is also affected by a reader's self-efficacy and belief in their own capability to employ reading strategies (Vacca, 2006). If a reader feels confident while reading a particular text, the reader will be able to use a variety of reading strategies to comprehend. Likewise, if a reader is not confident in their ability to use strategies in a text, the reader will be unable to comprehend. Vacca (2005) suggests a teacher must teach metacognitive strategies such as asking questions, answering questions, summarizing, monitoring comprehension, and participating in cooperative learning. By doing so, the self-efficacy of a reader will increase as one encounters a variety of texts because the reader has experienced success in comprehending.

Direct instruction of metacognitive strategies impacts students' vocabulary. Boulware-Gooden, Carreker, Thornhill, and Joshi (2007) concluded a multiple-strategy approach led to increased vocabulary attainment and comprehension. Third grade students in a school district in the southwest received direct instruction of metacognitive strategies for five weeks. During this time, the teacher modeled and scaffolded the

strategies and skills of monitoring comprehension, of generating questions, of answering questions, of participating in cooperative learning, and of summarizing. After the treatment, posttests indicated students who received the direct instruction of metacognitive strategies had an increased vocabulary and an increased ability to self-monitor comprehension using the Word Attack, Letter–Word Identification, and Spelling subtests of the 2001 Woodcock Johnson III (WJIII) Test of Achievement, the 2000 Gray Silent Reading Test, form A and B, and a criterion vocabulary test as compared to students who were in the control classrooms.

Mandel (2008) concluded RT affects students' ability to attain vocabulary. In this research, first graders in Canada were read to by the teacher. During read alouds, the teacher taught students how to predict, question, summarize, and clarify. Students began to lead the discussion and focused on unknown vocabulary to clarify. After two and a half weeks, students were assessed using Picture Peabody Vocabulary Test and Flight Word Vocabulary Tests. Students who used RT significantly outperformed students who did not use RT indicating RT positively affects students' vocabulary attainment.

The need for teachers to explicitly teach reading strategies is apparent. One such method for teaching reading comprehension is reciprocal teaching. In this chapter, reciprocal teaching will be explored as a strategy to engage students in reading. This chapter contains a review of literature and provides a summary of key ideas related to the study. The first section examines a historical perspective of reciprocal teaching including the characteristics of the strategy. The second section focuses on the current research of reciprocal teaching, including the use of this strategy in other content areas and, more specifically, in the English Language Arts.

History of Reciprocal Teaching

The reciprocal teaching (RT) strategy was first developed by Palincsar and Brown (1984). The researchers noticed students were able to decode words they encountered while reading, but they were unable to comprehend the text. The need for reading comprehension strategies was the basis for this study. Palincsar and Brown (1984) studied which reading comprehension deficits were present in seventh grade students who comprehended poorly, but who proficiently decoded words. Using Vygotsky's (1978) research on how students construct meaning and learn, Palincsar and Brown (1984) incorporated social interaction, the zone of proximal development, as well as four comprehension strategies (summarizing, questioning, clarifying, and predicting) to create RT.

Vygotsky (1978) referred to the zone of proximal development as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (p. 86). By using the theory of zone of proximal development, Palincsar and Brown (1984) created a treatment group that used RT, in which an adult model and students took turns reading text aloud. The adult model demonstrated explicitly how to employ the comprehension activities of summarizing, questioning, clarifying, and predicting through sharing his or her metacognition. Through direct modeling, students observed how proficient readers use these strategies to comprehend text. By scaffolding, the adult model gradually released control of dialogue so students could use the comprehension activities with teacher support and, eventually, independently. Students spoke with each other and interacted

with the text in increasingly sophisticated ways during the six-week treatment. Palincsar and Brown (1984) wrote:

> By asking students to summarize a section of text, one is simultaneously requesting that they allocate attention to the major content…and that they check to see if they have understood it… In requesting that students compose questions on the content, one is also asking for a concentration on main ideas…and a check of the current state of understanding… Asking students to clarify requires that they engage in critical evaluation as they read…and asking them to make predictions concerning future content involves them in drawing and testing inferences. (p. 120)

Palincsar and Brown (1984) noted students who used RT intervention, when compared to the control group, improved the quality of summaries and questions as measured by the instructor. Criterion-referenced comprehension assessment scores of students who used RT improved. After treatment, students were able to employ summarizing, questioning, clarifying, and predicting without the support of the teacher when reading unfamiliar texts. Students also improved their performance on standardized assessments.

Palincsar, Brown, and Martin (1987) continued studying RT and its impact on student learning. For this particular study, the researchers investigated the peer interaction in RT. One of the aspects that made RT unique is the dialogue students have regarding summarizing, questioning, clarifying, and predicting. Instead of having an adult model, Palinscar et al. (1987) trained seventh grade peers to tutor other seventh grade students who comprehended poorly, but were sufficient decoders of words. Once

again, a model demonstrated how to use the four comprehension activities and scaffolded in a way that students gradually were able to summarize, clarify, question, and predict. During treatment, the researchers transcribed the dialogue of the groups to determine if there was a difference between having an adult model or a peer model. Multiple measures including criterion-referenced and standardized assessments determined students receiving RT increased their comprehension, which led to the conclusion peer models were able to provide scaffolding needed for RT similarly to the adult model.

Palincsar and Ransom (1988) presented addition evidence for the use of RT. Reading comprehension was determined to be a complex process for students, especially those with poor comprehension. These students had difficulty monitoring their reading comprehension through metacognition and had difficulty adapting and employing strategies to aid in comprehension. Students incorrectly thought reading was linked to one's ability to know all of the words rather than comprehending text through using a variety of skills. For these students, the process of reading comprehension was unclear. Palincsar and Ransom (1988) suggested teachers explicitly instruct how to use metacognition and use a variety of strategies to help comprehension. To teach this, the authors suggested teachers share their metacognition through "think-alouds," in which teachers shared their thought process during reading. By doing this, students had a clearer understanding of the complex decision making of a proficient reader to monitor comprehension such as rereading, asking questions, or determining important parts of the text. After modeling metacognition numerous times, teachers asked students about their metacognition to determine the students' self-awareness as readers. Specifically, the

teachers asked students to summarize, question, and think aloud as they read so teachers and students could determine the students' ability to comprehend.

The dialogue between the teacher and the student when using think-alouds can be translated to RT. According to Palincsar, Ransom, and Derber (1988), the conversation in RT is critical as students and teachers share their meaning of the text. Dialogue is described as a conversation between the teacher and the students that is focused on a purpose to construct meaning and monitor one's ability to comprehend. At first, dialogue is led by the teacher as he or she explicitly teaches and models how to ask questions about the text, summarize important ideas, clarify ideas, and predict what will occur next. The teacher scaffolds instruction to release control to students as they begin to lead dialogue. Through listening to this dialogue, teachers can easily assess students' strengths and weaknesses to provide additional teaching and guided practice. When Palincsar et al. (1988) studied students who used RT instruction, the authors concluded the increased comprehension could be attributed to the teacher-student focused dialogue.

Using the early RT research, Kelly et al. (1994) sought to determine the effectiveness of RT by replicating the work of Palincsar and Brown (1984). In the study by Kelly et al. (1994), 18 students in grades 4 and 5 were selected based on their poor performance on a reading comprehension test. Unlike previous studies, students were placed in mixed ability groups inside of the regular classroom, based on the suggestions of Palincsar and Brown (1984) to have a peer model of strong comprehension in RT groups. During the 20 days of instruction, the teacher scaffolded RT by explicitly teaching how to summarize, question, clarify, and predict. As dialogue occurred and strategies were taught, the teacher released control of leading dialogue to the students.

By doing so, students internalized these strategies as they increased metacognition ability and shared their thoughts with peers. The researchers conducted reading comprehension assessments during RT, after RT, and 8 weeks after instruction. The students who used RT showed significant improvement in reading comprehension and maintained this level in the 8-week follow-up assessment. These findings further supported early studies of RT.

RT can be used at levels other than elementary and the middle grades. Weedman and Weedman (2001) conducted a study of RT during a two-year implementation at a high school. Similar to other studies, the researchers found many of the students who struggled with comprehension were able to decode words. Because students were not able to make meaning from what they read, the high school created a system-wide implementation of RT. In each of the classes, all students used RT instruction with the primary focus of generating questions for what had been read. The researchers found three primary types of questions when working with content texts: questions about facts, questions related to inferences, and questions using prior knowledge about the subject. By focusing on content-related questions, students were prepared for the rigor of questioning on the ACT and SAT. Each content teacher used RT as a strategy to teach reading comprehension. The 22-day instruction began with a pretest of the students' ability to answer the three types of questions. The teacher modeled questioning, clarifying, summarizing, and predicting to groups of students. The RT groups practiced the four strategies with teacher support and gradually used the four strategies with coaching from the teacher as needed. Posttests measured student growth in their ability to answer the three types of questions. The results determined 60% of students increased

their ability to answer factual questions, and more than 75% of students increased their ability to answer inferred and prior knowledge questions.

Rosenshine and Meister (1994) conducted a meta-analysis with 16 of the early studies of RT, including journal articles and dissertations to determine the effectiveness of RT on reading comprehension. In each of the studies, RT began with the teacher explicitly teaching questioning, summarizing, clarifying, and predicting to students. The teacher modeled the use of these strategies and explained the metacognition that occurred through think-alouds. Gradually, the teacher released the leadership of the dialogue to the students. Students practiced these strategies with the guidance of the teacher as the teacher provided immediate feedback to students. Because of the scaffolding created by the teacher, students eventually led discussion of the text by each assuming a responsibility. For example, one student would ask a question about the text while others would answer, or one would clarify any confusing words or ideas. In each of these studies, explicit instruction and scaffolding of strategies occurred. However, the implementation of RT varied by the number of RT sessions, by the grade level of the students, by the number of strategies taught, by the size of the RT group, and by the assessment used to measure comprehension.

Rosenshine and Meister (1994) determined the instrumentation used to assess student comprehension after RT varied. For studies using standardized assessments, the effect size of RT was .32, and for studies using experimenter-developed comprehension assessments, the effect size of RT was .88. The researchers also determined the number of RT sessions, the grade level of the students, the number of strategies taught, and the size of the RT group had no effect on the students' comprehension ability.

Characteristics of reciprocal teaching. RT can be characterized by the similar components in each of the studies. Lubliner (2001) and Ozckus (2003) each wrote professional development literature regarding the implementation of RT in the classroom as a way to teach reading comprehension. The structure of RT is founded on explicitly teaching the reading comprehension strategies of summarizing, questioning, clarifying, and predicting through teacher modeling. These strategies are found to be those metacognitive strategies that good readers use to monitor their comprehension. After the explicit instruction, the teacher models how to use the strategies by discussing each one during reading (Lubliner, 2001; Ozckus, 2003). According to Ozckus (2003), the teacher scaffolds instruction through modeling, think-alouds, and discussion in order for students to construct meaning of text. By doing so, students are able to monitor their comprehension as they internalize the strategies while they dialogue with the teacher and with students.

The RT approach begins with direct instruction of the four strategies. While Lubliner (2001) suggests the following order of instruction — questioning, clarifying, summarizing, and predicting — Ozckus (2003) states the order in which the strategies are taught does not affect the goal of increased comprehension. Since proficient readers employ the strategies in unison, the teacher should make connections between the strategies. Once direct instruction of the strategies occurs, Lubliner (2001) states the teacher can model using the strategies during the teacher-led stage. This allows students to understand the teacher's metacognitive process. As students practice the strategies, the teacher gives feedback to students as the dialogue occurs. Students begin to participate and lead discussion more. During the collaborative stage, students use the strategies with

a partner to practice the RT dialogue. Once students are able to accomplish the dialogue in pairs, students are put into groups of four or five to form RT groups during the reciprocal stage. RT groups work independently to dialogue about the text. Students take turns using each of the strategies to support each other's comprehension of the text. The final stage, metacognition, is when students are able to independently monitor their comprehension as they employ the four strategies simultaneously (Lubliner, 2001).

As mentioned before, the four strategies of questioning, clarifying, summarizing, and prediction were determined to be the strategies that successful readers use while reading (Palincsar & Brown, 1984). Lubliner (2001) suggests questioning should be taught first. The process of being able to generate questions about text is complicated. Lubliner (2001) stated "Students must be able to read a text, understand its message, draw inferences from the text, make connections between the passage and the rest of the text, and integrate information from the text with prior learning" (p. 13). By directly teaching students how to question and modeling how to do so, the teacher helps students process this information quickly. Teachers and students practice using this skill by asking a variety of questions, including those questions based directly on the text or those questions requiring inferences (Ozckus, 2003).

By learning how to clarify, students are able to derive meaning from unfamiliar words to gain vocabulary (Lubliner, 2001) or to derive meaning from confusing ideas (Ozckus, 2003). Lubliner and Smetana (2005) conducted a study in a California elementary school regarding the effects of vocabulary instruction on a student's ability to comprehend. The researchers found students who have larger vocabularies felt more confident and found it better able to comprehend texts. Conversely, students who have a

smaller knowledge of words and meanings felt inadequate when reading and could not accurately comprehend text. Lubliner and Smetana (2005) created a control group as well as an experimental group who would receive direction instruction of how to clarify words when reading. To begin, the teacher modeled how to use metacognitive strategies. When encountering unknown words, Lubliner's (2001) earlier research suggests teachers instruct students to replace the word with a possible synonym, to study the structure of the word such as word roots or affixes, to ask an expert for help, to access one's memory of the work, or to mark the word in order to define it later. Lubliner and Smetana (2005) determined the explicit instruction of the metacognitive strategies of clarifying words increased students' vocabulary. By doing so, students' comprehension increased as well. To clarify ideas, Ozckus (2003) states a teacher should model how to reread the confusing parts of the text, to continue reading to find clues, to use prior knowledge or to discuss the confusing part with another person. By teaching these steps in clarifying, students are equipped with tools to use as they monitor their comprehension (Ozckus, 2003).

In order for a student to be able to summarize, a teacher must instruct students in determining the main idea of what is read (Lubliner, 2001). To summarize, a student must recall what is read, put information in a logical order, and discern the key ideas from the text. By modeling and scaffolding how to summarize, the teacher helps students monitor their comprehension (Ozckus, 2003).

Prediction, the final of the four strategies, helps readers anticipate what will occur later in the text (Ozckus, 2003). While reading, students look for clues from the text and draw inferences from these clues to determine what will occur next (Lubliner, 2001).

Evidence for predictions must be present, which causes students to monitor their comprehension rather than randomly guessing what will occur next (Lubliner, 2001).

Hashey and Connors (2003) found in their research there is not a particular order in which RT strategies should be taught. Instead, it is when the strategies are used in unison by the students that RT is most effective. The researchers provided professional development for teachers from grades 3-8 on how to use RT as a strategy to teach reading. For two years, RT was modeled, scaffolded, and led by students while the researchers regularly collected informal and formal data to determine if students effectively predicted, questioned, clarified, and summarized. Students' confidence increased as they understood what was read. Reading inventories were administered to students during the two years, which determined increased use of these comprehension monitoring strategies and an increase in comprehension.

The social aspect of RT allows students to learn from each other. Each member of the RT group is responsible for a strategy while sharing one's thinking to develop a collective understanding of a text (Palincsar & Herrenkohl, 2002). By practicing these strategies with a group, the students should internalize these strategies and apply them as they read independently (Pressley, 2002). Through direct instruction, modeling, guided practice, collaborative learning, and independent practice, the strategies of RT should result in students increasing their reading comprehension through metacognition (Lubliner, 2001; Ozckus, 2003).

While working in RT groups, Stricklin (2011) suggested visual aids could be utilized during discussion to motivate students. To add tangible items to scaffold RT, Stricklin (2011) suggests using bookmarks with the strategies listed, spinners to

determine which strategy should be discussed first, sticky notes for students to write their thinking, and sentence starters for each of the strategies. Stricklin (2011) states the hands-on approach of RT can make discussion more enjoyable for students.

Review of Current Research on Reciprocal Teaching

The early research of RT provided the foundation for recent RT studies. Evidence of the effectiveness of RT has been collected in various content areas and at various grade levels, which will be described in the next section. Current research on the use of RT in the English Language Arts classroom, which is most similar to the design of this study, will be explored in the last section.

Reciprocal teaching in other content areas other than ELA. In all content areas, students will encounter various texts. While the purpose of reading may be to read to learn content, the strategies students use to comprehend text do not change. Salinger and Fleischman (2005) supported the efforts of all teachers, no matter the content, to teach reading comprehension strategies directly to students. The authors specifically investigated a strategy in which teachers model how students can interact with text through questioning. This approach, Questioning the Author, requires the teacher to think aloud and question as the teacher reads content-based text. The questioning leads to determining the main idea of the text to ensure understanding of what is important. Through the modeling, students gain insight into the thinking of the teacher. As students practice Questioning the Author independently, the teacher supports students by asking comprehension questions to students. Significant improvement in students' abilities to answer questions about the text was found after this strategy was taught. Students used

metacognition to monitor their ability to understand as a result of the direct instruction, modeling, and scaffolding provided by the teacher.

Science text can be complex and technical as new and sophisticated vocabulary is found throughout the reading. The use of RT in a science classroom has been evaluated in several studies to determine its impact on students' comprehension. In research conducted by King and Parent Johnson (1998), fifth graders from five classroom in a public school district in Michigan used RT in the science classroom. The RT strategy was introduced through explicit modeling of each of the comprehension strategies. While reading science text, the teacher gave examples of meaningful dialogue when summarizing, questioning, clarifying, and predicting. Scaffolding led to the gradual release of control of dialogue to the students, which allowed teachers to give specific feedback and praise. The researchers discovered when RT was consistently used, the dialogue of RT groups mirrored the modeling of the teacher. In addition, students were more capable of monitoring their comprehension after receiving RT instruction and gained a deeper understanding of the content in the text. On researcher-designed assessments and standardized assessments, students who used RT demonstrated a high degree of science comprehension. Further research on use of RT in the science classroom was conducted in fourth and fifth grades in one intermediate school in the United States (DiLorenzo, 2010). In this study, students with various abilities including students with learning disabilities and students who comprehended on grade level were directly taught the four strategies in RT. After RT instruction, pretest and posttest scores provided evidence that RT increased student science comprehension. After several

months, additional assessments were given, and the increase in science comprehension was maintained (DiLorenzo, 2010).

When students encounter word problems in mathematics, they can use comprehension strategies. Van Garderen (2004) found students who have difficulty in reading often have difficulty in solving word problems due to low comprehension. The researcher found explicitly teaching a modified version of RT helped students. When students encountered word problems, the teacher modeled how to clarify any parts of the problem or vocabulary that were confusing, followed by questioning to identify the key parts of the problem. Summarizing the purpose of the word problem was explicitly taught so students had a clear understanding of what the problem was asking them to do. Finally, instead of predicting, the teacher modeled how to create a plan for solving the word problem, which included various mathematical strategies. Similarly to RT in reading, the teacher scaffolded to allow students to control the dialogue. The author suggested by modifying RT, students' comprehension of mathematical word problems would improve.

Collen (2011) conducted research on RT in a fifth grade mathematics classroom in a suburban school district in upstate New York. Instead of the modified version Van Garderen (2004) suggested, students in this study were directly taught the four strategies of summarizing, questioning, clarifying, and predicting in order to comprehend word problems. Collen (2011) found non-significant pretest and posttest results between students who used RT and students in the control group.

As students encounter nonfiction text in social studies, it is imperative they comprehend as they read. Lederer (2000) conducted research on the use of RT in social

studies with 128 students from rural New Mexico in fourth, fifth and sixth grades, with specific focus on students with learning disabilities. The teachers taught and modeled the four comprehension strategies of RT. Through scaffolding, the teachers provided support in using the strategies as students began to lead RT groups to comprehend social studies text. To monitor student success, four comprehension assessments were given. After using a mixed-design MANOVA, the researcher found all students who used the RT strategy improved their reading comprehension compared to the control group. Lederer (2000) found students who were learning disabled significantly improved their ability to summarize after the use of RT in the social studies classroom.

Hogewood (2004) researched the effects of RT in a ninth grade social studies classroom in a suburban high school in the Washington, D.C. metropolitan area. For one group, RT was used as designed by Palincsar and Brown (1984). In a second class, students used RT instruction as a whole class and used these strategies together. For the third group, students used only questioning and summarizing when reading social studies text. For each of the three groups, Hogewood (2004) found improvement in comprehending social studies text. Based on the results, Hogewood (2004) suggested RT could be simplified to include only questioning and summarizing as strategies.

RT research expanded to the postsecondary level with the research conducted by Howard (2006). Twenty-two freshmen enrolled in a business course in a historically black college in a Midwestern state in the United States received explicit instruction in the four strategies of RT as the teacher modeled application of the strategies while reading nonfiction text. The teacher created a structure to release control of dialogue to students as RT was implemented. As a result, there was a significant difference in scores

on a business-based assessment for students who used RT as compared to a control group who did not use RT.

Researchers suggest RT can be used when learning a foreign language. Sun (2010) researched the effects of RT on eighth graders in Taiwan who were learning English. In the experimental group, the English teacher modeled how to use each strategy. Similar to other studies, the teacher controlled the dialogue and gradually released the leadership to students. After 10 weeks of treatment, pretest and posttest analysis showed students in the treatment group scored higher on English comprehension assessments than those students who received traditional instruction. Questionnaires were also administered, and results indicated students who used RT believed they were aware of metacognition. Students' self-efficacy with their abilities to read was higher than their peers in Taiwan who were learning English in a traditional manner.

Armbrister (2010) researched RT for students who were English Language Learners in Florida. The researcher believed the collaborative nature of RT through dialogue and scaffolding would be beneficial for third, fourth, and fifth graders. Students were taught each of the four strategies through teacher modeling. With scaffolding, the students applied each of these strategies while reading a new language. RT positively affected student comprehension while also improving self-efficacy (Armbrister, 2010). RT was taught to fifth graders who were learning English, which was determined to be effective in improving student reading comprehension (Casey, 2011). The effects of RT on English Language Learners, and more specifically, the effects of questioning and clarifying were studied (Williams, 2010). Once again, students were directly taught each

of the four strategies through teacher modeling. The teacher scaffolded instruction to allow students to become more independent.

Silverman (2005) specifically investigated vocabulary instruction for English Language Learners in kindergarten in a metropolitan area in the northeast. In the study, a teacher read a storybook aloud to students to increase vocabulary. While reading aloud, a teacher highlights a new word and engages students in a rich discussion of meaning of the new word. Unlike other read alouds, the focus is on vocabulary attainment instead of reading comprehension. Silverman (2005) concluded students who were encouraged to use new words in a variety of context, who were given time to compare and contrast vocabulary meaning, and who encountered words on multiple occasions were able to increase their vocabulary and comprehension.

Through qualitative research, Williams (2010) concluded RT was effective as a way for English Language Learners to improve their reading comprehension. The researcher began intervention by directly teaching a small group fourth-grade English Language Learners in Texas how to predict, question, clarify, and summarize. Once each strategy was taught explicitly, students began to utilize each strategy with the support of the teacher. The discussion about the text among students increased. By transcribing student conversations, the researcher noticed students primarily relied on questioning and clarifying to understand the text. Students asked each other for help when encountering new vocabulary or unfamiliar word usage. Peers were able to problem-solve together by referring to the text and their own prior knowledge. As students became more confident in applying these strategies in a small group, students were able to transfer their practice of questioning and clarifying vocabulary and ideas to the mainstream classroom. Ramos

(2012) found RT to be effective in supporting bilingual fourth grade students in Texas. Four students received instruction in RT. The teacher modeled how to predict, question, summarize, and clarify while reading text. Through scaffolding, students began to lead discussion as they read text. The researcher assessed each student weekly using teacher-created assessments. Students were also given fluency tests in English and were interviewed on their usage of each of the four components of RT. After the conclusion of the treatment, data analysis determined students who used RT significantly increased reading comprehension.

For students who know English and are learning a foreign language, RT can be taught to increase comprehension in the new language. Barrett (2003) studied RT as students learned Spanish. Twenty-one students from a suburban Ohio school district received explicit instruction in the strategies. However, Barrett (2003) modified the clarifying strategy to have students listen to each other speak Spanish. During the eight days of RT, the researcher observed, audiotaped, and interviewed students as they discussed texts written in Spanish. Students kept journals of their progress, as well as completed written and oral assessments. Results indicated RT was effective in teaching a foreign language. Students improved their comprehension of Spanish, and their fluency improved due to the dialogue in RT.

In research, at a private school district in Washington, by Hancock (2012), the effects of RT on middle-school students' comprehension and vocabulary were analyzed. The strategies of RT were directly taught to students in science, English, and history through teacher modeling. An additional strategy, evaluating text, was used and described as reciprocal teaching-plus. During the 12-week instruction and

implementation, the teachers created scaffolds to support students in using the strategies as they became more independent. Hancock (2012) used the Gates-MacGinitie Reading Test as a pretest and posttest to measure students' comprehension and vocabulary in the treatment and control groups. Results indicated there was no significant difference between treatment and control groups, leading the researcher to determine reciprocal teaching plus did not affect students' comprehension and vocabulary.

Reciprocal teaching in ELA. RT instruction was originally designed by Palincsar and Brown (1984) to be used as a way to teach struggling readers in the English Language Arts (ELA) classroom in order to improve reading comprehension through explicit teaching of four strategies. In action research conducted by Hashey and Connors (2003), RT was used to teach the four strategies individually to all students in third through eighth grades in a school district in New York. The teacher modeled how the four strategies were applied to comprehend and monitor comprehension while reading various texts. While students practiced using each strategy, the teacher supported students as they became independent in using RT. Through observation of student dialogue during RT, it was noted students became more confident as their abilities to comprehend text increased (Hashey & Connors, 2003). The dialogue and cooperative nature of RT created a structure in which students were responsible for constructing a shared meaning of the text.

RT is appropriate for students at the primary level as they are learning to read. Myers (2005) adapted RT to be used with kindergartners in a school in California. The teacher taught and modeled how to use each of the comprehension strategies through think-alouds. Once modeling was complete, the teacher encouraged students to practice

predicting, questioning, summarizing, and clarifying during a shared-reading of a book. By doing so, the teacher could informally assess and support each of the student's abilities to use the strategies while listening to a read aloud. Pilonieta and Medina (2009) supported the modifications of RT in the primary grade levels by using cue cards with pictures and whole group discussion during shared-reading of a book. The researchers found improvement in student comprehension by modifying RT to be age-appropriate for primary students. Research conducted by Magnuson (2009) focused on the effects of RT on first grade students' comprehension, students' attitude towards reading, and time on task during discussion of the reading. Results indicated there was not a significant difference in reading comprehension or attitudes towards reading after RT, but the dialogue between students was more focused on the reading as the teacher modeled and scaffolded discussion.

Similar to Palincsar and Brown's (1984) research, six fourth grade students who comprehended poorly, but decoded words well, were instructed using RT for 20 sessions while attending an Arizona elementary school (Diehl, 2005). Each of the four comprehension strategies were explicitly taught by the teacher and modeled to demonstrate how the strategies helped in metacognition. The dialogue transitioned from being controlled by the teacher to students discussing texts with the support of the teacher and eventually independently. Through pretest and posttest results and transcription of the student dialogue, Diehl (2005) determined RT to be effective in increasing student comprehension and mastery of these strategies. More specifically, students relied on their world experiences rather than the text itself when making predictions. Questioning to clarify ideas from the text frequently led to group discussion to help monitor the

group's understanding of the text. Michaux (2011) recreated the original research (Palincsar & Brown, 1984) with students in tenth grade in an urban school district in the United States. Two groups were established, one with students who used RT and one who received traditional reading instruction. Through pretest and posttests using standardized assessments, no significant difference in reading comprehension between the two groups was found.

Todd and Tracey (2006) studied the effects of RT on students' understanding of vocabulary and of text. In New Jersey, four fourth grade students who had learning disabilities received RT instruction as an intervention over a six-week period. Students were assessed with teacher-created assessments to determine the growth of students' vocabulary and reading comprehension. For three of the four students, vocabulary and reading comprehension increased while one student demonstrated little change. The research concluded RT was an effective strategy for students to increase vocabulary and comprehension.

Mandel, Osana, and Venkatesh (2013) studied the effects of RT on vocabulary attainment for a sample of 50 first graders in a large suburban area of Canada. Students were explicitly taught how to predict, question, clarify, and summarize as the teacher read aloud text. As students became more proficient in using RT, the teachers released control of the discussion of the stories including understanding of vocabulary to the students. The control group of students also listened to the teacher read aloud stories, but the discussion was led by the teacher. Students were assessed using the Receptive Flight Word Vocabulary Test and the Expressive Flight Word Vocabulary Test. The results

indicated students who used RT significantly increased their vocabulary as compared to those students who did not use RT.

Hacker and Tenent (2002) researched RT in different elementary schools in a large urban area of the mid-southern region of the United States during a three-year treatment time. During this time, the researchers focused on and observed the direct instruction of the four strategies of RT, the dialogue related to RT, and the ways in which teachers scaffolded RT to allow students to gain control over the dialogue and application of strategies. As a result of the implementation of RT, students' achievement in reading comprehension increased on a benchmark posttest as compared to the pretest as 73% of students met or exceeded the expected reading comprehension growth within the school year. Students were surveyed concerning their perceptions of RT. Eighty-two percent of students liked using RT, and 85% of students believed it helped them become better readers.

Weedman (2003) continued the research of RT and students' reading comprehension. For this study, three groups of ninth graders in a Kentucky public school were formed. One group used RT instruction as outlined by Palincsar and Brown (1984). Another group of students was taught only summarizing through modeling and scaffolding, and the third group used only questioning. Gates-MacGinitie Reading Tests were used as pretest and posttests. Results indicated there was no significant difference in reading comprehension between the group that used all four RT strategies and the two groups that focused on one.

Galloway (2003) followed Rosenshine and Meister's (1994) meta-analysis by updating the field of research by conducting a traditional meta-analysis of current

research of RT. A moderate effect size was found for the use of RT. Unlike Rosenshine and Meister's (1994) study, the meta-analysis indicated no significant difference in effect size for norm-referenced assessments and experimenter/teacher-generated assessments. It was also determined RT was effective in improving student reading comprehension during the instruction and implementation of the strategies, and the improvement was maintained after treatment.

Takala (2006) researched RT in fourth- and sixth-grade classrooms in Finland. All students in the mainstream classes used explicit instruction in the four RT strategies. Students had teacher support as they began to direct discussion during the five weeks of treatment. Results from pretests, posttests, and maintenance tests, or tests after a given amount of time after treatment, created by a teacher indicated RT was beneficial in improving students' comprehension.

The effects of RT on reading comprehension for students who read on grade levels were explored by Sarasti (2007). Fifteen third graders in a large urban school in the Southeast region of the United States were taught the four comprehension strategies through direct instruction and teacher modeling. Scaffolding allowed students to practice using these strategies with teacher support and eventually to lead the dialogue about the text. The researcher used curriculum-based measurement maze probes to assess student comprehension before, during, and after treatment. Sarasti (2007) concluded RT was effective in increasing students' comprehension. Halberstam (2008) researched RT in third grade in a private school in New York. In the experimental design, students were divided into groups based on reading ability and used RT instruction. Results from a standardized test revealed students who participated in RT outperformed students who

did not in reading comprehension. Halberstam (2008) concluded RT to be highly effective in improving students' reading comprehension.

After 12 weeks of RT implementation through modeling and scaffolding, Greenday (2007) analyzed the effects of RT on students' comprehension and self-monitoring on students with learning disabilities in an elementary school in suburban area of Mississippi. RT was effective in improving students' reading comprehension as they began to understand reading to be complex and more than decoding words. Self-efficacy increased as success in comprehension was achieved.

The impact of RT on self-efficacy was studied by Nagle (2012). For six weeks, second grade students in a northern California elementary school were explicitly taught the four strategies of RT. Over time, the teacher modeled the use of the strategies, and as scaffolding occurred, students began to lead discussions when they read text. Results gleaned from questionnaires and interviews before and after RT instruction indicated RT enhanced students' self-efficacy and interest in reading.

Summary

In this chapter, the pertinent literature in the history of reciprocal teaching was summarized including its founding through the initial work of Palincsar and Brown (1984). The characteristics of reciprocal teaching were discussed, including direct and explicit instruction of summarizing, questioning, clarifying, and predicting through teacher modeling and scaffolding to support students' metacognition and control of discussion. Current research was reviewed, including research in various content areas including mathematics, science, history, postsecondary business, and foreign language.

Finally, current literature regarding reciprocal teaching in ELA was summarized. In the next chapter, the methodology of the study is described.

Chapter Three

Methods

The purpose of this study was to analyze the effects of reciprocal teaching on student reading comprehension and vocabulary attainment in an elementary setting. In this chapter, the methodology of the study is described. The chapter begins with research design, population and sample, and sampling procedures. The instrumentation is described including measurement, validity, and reliability. In-depth data collection procedures, data analysis, and hypothesis testing are presented. Finally, the limitations of the study are shared.

Research Design

This study was quantitative in nature. Gall, Gall, and Borg (2005) describe quantitative research as studying a sample that represents a population, as well as using statistical methods to analyze data. More specifically, a quantitative design was used to determine the extent of differences between independent variables. The independent variables of this study were the presence of reciprocal teaching and the absence of reciprocal teaching. The dependent variables were reading comprehension and vocabulary scores on the Gates-MacGinitie Reading Tests.

Population and Sample

The school district included in this study is located in a suburban/rural area in the Kansas City, Missouri metropolitan area. Of the five elementary schools in the district, one elementary site was chosen based on teachers' willingness to implement reciprocal teaching. The school included kindergarten through fourth grade classrooms, with three

or four classes in each grade level. Table 4 shows the enrollment demographics of the school.

Table 4

School Demographics

School Enrollment	2004	2005	2006	2007	2008	2009	2010
Total	382	382	393	400	401	350	350
Black	1.8%	0.8%	1.0%	1.5%	2.0%	1.4%	1.4%
Hispanic	1.0%	0.8%	1.5%	13.3%	3.7%	2.9%	5.7%
White	96.9%	97.9%	96.7%	84.0%	93.8%	95.7%	92%
Free /Reduced Lunch	48.9%	44.0%	37.4%	44.3%	38.4%	37.9%	45.5%

Note. Adapted from "School Report Card," by Missouri Department of Elementary and Secondary Education, 2012, p. 1.

The population for the study included two third grade classrooms and two fourth grade classrooms in the school. One classroom from each grade level utilized reciprocal teaching, and one from each level did not. In the fall of 2009, 29 third graders and 24 fourth graders began the year in the treatment classroom for a sample size of 53 students. In the spring of 2010, 26 third graders and 24 fourth graders ended the year in the treatment classroom for a sample size of 50 students. Only data from students who completed Form S (Fall) of the Gates-MacGinitie Reading Test and Form T (Spring) of the Gates-MacGinitie Reading Test were included.

Sampling Procedures

In this study, convenience sampling procedures were used. Lunenburg and Irby (2008) describe convenience sampling as a method in which the researcher uses volunteers to create the sample. Classroom teachers voluntarily implemented reciprocal

teaching in classrooms due to previous job-embedded professional development and book studies. The teachers had a high interest in this instructional strategy. The control classrooms were selected based on not implementing reciprocal teaching and using Houghton Mifflin Reading (2005) instructional strategies, which were the target district's adopted curriculum.

Instrumentation

Gates-MacGinitie Reading Tests (GMRT) Fourth Edition Forms S and T were used as the instruments to assess the reading comprehension and vocabulary attainment of all students. The first edition of GMRT was adapted from the research of Gates, who developed two reading tests, *Gates Silent Reading Test* and *Gates Primary Reading Tests* in 1926 (MacGinitie, MacGinitie, Maria, & Dreyer, 2000a). MacGinitie et al. (2000a) adapted these original tests and continued to improve the assessments of Gates-MacGinitie Reading Tests (GMRT) Fourth Edition Forms S and T.

Gates-MacGinitie Reading Tests serve multiple purposes. MacGinitie et al. (2000a) describe the reasons for the assessment as the following:

- Identifying students who need further diagnostic information and individualized instruction
- Planning of instruction based upon student needs
- Dialoguing with students regarding their progress in reading comprehension and vocabulary attainment
- Evaluating the effectiveness of instructional strategies and programs
- Reporting to parents and the community regarding reading progress (p. 2)

GMRT was an appropriate instrument in this study because of the assessment of comprehension and vocabulary. GMRT is a nationally recognized norm-referenced test with sound research as a basis for its development. The fourth edition is the current edition of GMRT with the most recent norming. The levels used in this study (Level 3 and Level 4) are appropriate for students in each corresponding grade level.

For third grade students (Level 3) and fourth grade students (Level 4), each test consists of two paper-and-pencil multiple-choice subtests. The first subtest specifically measures a student's vocabulary. MacGinitie et al. (2000a) describe this section as a test of word knowledge, not the ability to derive meaning from context. Students are given 45 items with a tested word in a phrase. Students are then to select a word or phrase meaning the same or nearly the same as the underlined word. Students are allotted 20 minutes to complete this subtest.

The comprehension portion of the assessment measures the student's ability to comprehend various types of writing. Students are required to read 11 passages of various lengths and various contents that have been published in books or periodicals. To answer correctly the 48 items in 35 minutes, students must construct understanding explicitly or implicitly. The GMRT is administered in a precise environment with a script for teachers to read.

The date of testing and the form used (S or T) are also entered so the interactive results manager (iRM), can provide information based upon the norms of the test. Form S is administered in the fall and normed for the 11^{th} week of the school year. Form T is administered in the spring and normed for the 34^{th} week of the school year.

Measurement. After the GMRT is administered, teachers grade each test using the answer key provided. The answer key includes the letter of the correct multiple-choice answer. Teachers use the key to independently grade tests. Raw scores (RS), or number of items answered correctly, are entered into interactive results manager (iRM), which is a software component purchased with the test package.

The iRM provides detailed information on individual students as well as class information. Raw scores (RS) are provided for each subtest as well as the composite score. Derived scores accompany the RS. Derived scores include percentile rank (PR), normal curve equivalent (NCE), stanine, extended scale score (ESS), and grade equivalent (GE) for each subtest and for the entire test. Each derived score provides specific information for each subtest and the composite. PR "describes the position of a raw score obtained by a particular student in a particular grade within the set of scores obtained by the students in that grade in the norming group" (MacGinitie et al., 2000b, p. 19). PRs are converted statistically into NCE scores, which are related to a student's achievement compared to peers in the norming group. Stanine is calculated by dividing the range of reading achievement into nine equal parts with the mean of 5 and standard deviation of 2. Stanine also describes the relationship between a student's achievement and the norming group. ESS is a continuous scale for all grade levels based upon a student's achievement related to the achievement of all students in all grade levels. The median of 500 corresponds to PR of 50 for students in fifth grade in the fall. GE represents the relationship between RS and an estimate of grade level. For example, GE of 4.5 is interpreted as fourth grade in the fifth month. If a student receives 4.5 GE, it is as if a fourth grader in the fifth month took the exact test. However, it cannot be implied

the student could read text on the level of a fourth grader in the fifth month (MacGinitie et al., 2000a).

Validity and reliability. Lunenburg and Irby (2008) state the need for instrumentation used in research to be valid and reliable, which the GMRT is valid and reliable. GMRT measures a student's vocabulary and reading comprehension. During the third revision of GMRT, MacGinitie et al. (2000a) used various analyses to ensure the assessment was valid. The creators of the assessment reviewed the students' ability to complete the majority of the test in the time allotted. By doing so, students were given enough time to answer questions so that the GMRT would assess the students' comprehension and vocabulary rather than their speed. During the field-testing for Form S, 91% of third grade students and 87% of fourth grade students completed the entire vocabulary subtest in the set amount of time. For the same form, 81% of third grade students and 79% of fourth grade students completed the entire comprehension subtest. During the field-testing for Form T, 95% of third grade students and 92% of fourth grade students completed the entire vocabulary subtest. Eighty-eight percent of third grade students and 88% of fourth grade students completed the entire comprehension subtest.

The design of the assessment also leads to its validity. Each level of the GMRT is age appropriate based on students' reading development and vocabulary. For example, comprehension progresses from students' ability to understand stories that are read aloud to reading expository texts and inferring meaning. The Fourth Edition correlates with the Third Edition (Level 3, $r = .92$; Level 4, $r = .92$). Since the Third Edition was valid, the correlation provides more evidence to the validity of the Fourth Edition.

Reliability is defined as "the degree to which your instrument consistently measures something from one time to another" (Roberts, 2004, p. 136). One type of reliability is internal consistency, which measures how one item in the assessment relates to all other items in the instrument. Kuder-Richardson Formula 20 (KR-20) reliability coefficients were determined for the instrument (McGinitie et al., 2000b). Lunenburg and Irby (2008) noted internal consistency coefficients of .80 or higher are considered acceptable. In Table 5, KR-20 coefficients for each of the subtests and the total assessment are listed to demonstrate the reliability of the GMRT.

Table 5

GMRT Internal Reliability

GMRT Test	Fall KR-20	Spring KR-20
Level 3, Grade 3 Vocabulary	0.92	0.92
Level 3, Grade 3 Comprehension	0.92	0.92
Total	0.96	0.96
Level 4, Grade 4 Vocabulary	0.92	0.92
Level 4, Grade 4 Comprehension	0.93	0.93
Total	0.96	0.96

Note. Adapted from "Gates-MacGinitie Reading Tests: Manual for Scoring and Interpretation" by McGinitie et al., 2000b, p. 11.

The instrument used in the study met the criteria for validity and reliability.

Data Collection Procedures

Prior to analysis of data, a proposal for research was submitted on June 16, 2015 to the Baker University Institutional Review Board (IRB) to protect the human subjects of this study (see Appendix A). Baker University IRB approved the study on July 2,

2015 (see Appendix B). The IRB Proposal for Research and the IRB Approval Letter can be found in the appendices. In February 2012, the researcher met with the district administrator about the purpose of the study and gained permission to use the results from the 2009-2010 school year (see Appendix C). Archived GMRT student results were collected with the permission from the school district. Every student in the district took the GMRT in Fall 2009 and in Spring 2010, including those in classrooms with reciprocal teaching and those in classrooms without reciprocal teaching. The 2009-2010 school year was chosen based upon the researcher's knowledge of the implementation of reciprocal teaching in one third grade classroom and one fourth grade classroom.

Once the data were obtained, student results from both the treatment and the control classrooms for those who did not take Form S and Form T were removed. The student results included a raw score for Vocabulary, Comprehension, and Total. For each subtest and for the total assessment, student results included NCE, PR, stanine, GE, and ESS. Once the data was received, the data analysis and hypothesis testing were conducted.

Data Analysis and Hypothesis Testing

The data analysis section details the procedures used by the researcher to analyze the data obtained in order to test the hypotheses.

> **RQ1.** To what extent is there a difference in the change in reading comprehension, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching?

H1. There is a difference in reading comprehension, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching.

RQ2. To what extent is there a difference in the change in vocabulary attainment, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching?

H2. There is a difference in vocabulary attainment, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching.

In order to analyze data, a MANOVA was conducted to address the research questions. The sample means for reading comprehension and vocabulary were compared between the two groups of students: those who used reciprocal teaching and those who did not. The level of significance was set at 0.05.

Limitations

Roberts (2004) describes limitations as uncontrollable factors that may influence a study. The following limitations were identified:

1. The relatively small sample size can affect the results of the study. The size of the treatment sample was determined by the teachers' desire to implement reciprocal teaching as well as the fluctuating size of the class due to student transfers.
2. Fidelity of the implementation of RT and of Houghton-Mifflin Reading (2005) may affect results of the study.

3. Factors influencing a student (i.e., parental support, student attitude, socioeconomics) may affect results.

Summary

The study design and procedures used to conduct the study were described in chapter three. The population and the sample were discussed including the sampling procedures of the study. The Gates-MacGinitie Reading Test was described, including its measurement, validity, and reliability to support its use in the study. Procedures for data collection in this study were outlined. The hypotheses were presented as related to the research questions. Gates-MacGinitie Reading Test archival data were analyzed using a MANOVA. The study's limitations were given to describe uncontrollable factors. The statistical analysis used to determine whether reciprocal teaching had an effect on vocabulary and reading comprehension is described in chapter four.

Chapter Four

Results

The purpose of this study was to determine the implications of RT on student reading comprehension and vocabulary attainment. The study was conducted to determine the differences in reading comprehension and vocabulary attainment between third and fourth grade students who used RT and those students who did not. Presented in this chapter are the results of the data analysis for the study's research questions and related hypotheses. A MANOVA was conducted to address the research questions. Additionally, the descriptive statistics for the study's sample is included in this chapter.

Descriptive Statistics

The data for the study included 104 students who were administered the Gates-MacGinitie Reading Test in 3rd and 4th grades. From this group, eight students did not take either the Fall GMRT or the Spring GMRT and were removed from the data set due to incomplete information. Another eight students were removed from the data set because results indicated chance scores, which implies the student guessed while taking either portion of the GMRT. After filtering, data from 88 students were included in data analysis, which included 45 third graders and 43 fourth graders. Of the 88 students, 46 students used RT and 42 did not use RT.

Hypothesis Testing

In this section, each research question is listed followed by a hypothesis statement. After each hypothesis, the results of the testing are described. For all

hypotheses a MANOVA was used to test the differences in average reading test scores between those students who used RT and those students who did not.

RQ1. To what extent is there a difference in the change in reading comprehension, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching?

H1. There is a difference in reading comprehension, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching.

The results of the analysis indicated there was not a statistically significant difference in reading comprehension between students who used RT and those who did not, $F = 0.008$, $df = 1, 86$, $p = .929$. Those students who used RT ($M = 8.00$, $SD = 6.579$) had a slightly lower reading comprehension average than those students who did not use RT ($M = 8.12$, $SD = 5.902$). These results indicate there was no difference in reading comprehension for students who used RT and those who did not use RT. This does not support H1.

RQ2. To what extent is there a difference in the change in vocabulary attainment, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching?

H2. There is a difference in vocabulary attainment, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching.

The results of the analysis indicated there was a statistically significant difference in vocabulary attainment between students who used RT and those who did not, $F = 4.189$, $df = 1, 86$, $p < .05$. Those students who used RT ($M = 5.35$, $SD = 4.710$) had a lower vocabulary attainment average than those students who did not use RT ($M = 7.67$, $SD = 5.896$). Students who did not use RT increased their vocabulary attainment significantly more than those who did use RT. This supports H2.

Summary

In this chapter, the descriptive statistics of the data set, including the data that were removed from the study, were given. A MANOVA was completed for all research questions and corresponding hypothesis statements. The results indicated there was not a significant difference in reading comprehension for students who used RT and those who did not use RT. Specifically, the reading comprehension of students who used RT was slightly lower than the group of students who did not. There was a significant difference in vocabulary attainment as students who did not use RT increased their vocabulary more as measured by the GMRT as compared to those who did use RT, which supported the hypothesis statement. Chapter five includes a summary of the study, overview of the problem, purpose statement and research questions, review of methodology, major findings, findings related to the literature, implications for action, recommendations for future research, and concluding remarks.

Chapter Five

Interpretation and Recommendations

Building a community of readers is a goal for many schools. School officials research, investigate, and implement best practices in teaching reading to ensure students comprehend what is read and increase their understanding of vocabulary. This study was conducted to determine the effects of RT on students' reading comprehension and vocabulary attainment in the third and fourth grades. The results of this study add to the body of work investigating the effects of RT as an effective method of teaching reading. Chapter five includes a summary of the study and of the findings as well as recommendations of future research of RT.

Study Summary

The importance of reading is a value held by all. It is a common goal for school districts, teachers, and parents to strive for all students to read grade-level text successfully while using metacognitive strategies to self-monitor their understanding of the text. Strategies for improving student comprehension and vocabulary have been extensively studied to determine best practices. One such strategy is RT, which is the focus of the current study. Provided in the following sections are an overview of the study by reviewing the problem, purpose statement and research questions, review of the methodology, and major findings.

Overview of the problem. Limited research has been published determining the effects of RT for all students within a classroom, which includes those students who read proficiently and those students who do not read proficiently. While many researchers seek to find the effects of RT on reading comprehension, few studies have determined the

effects of RT on vocabulary attainment. Therefore, the current research was conducted to determine the effects of RT on reading comprehension and vocabulary attainment for all students in a third grade class and all students in a fourth grade class.

Purpose statement and research questions. The purpose of this study was to determine the effects of RT on reading comprehension and vocabulary attainment after a year-long implementation of RT. The data collected were used to determine if statistically significant differences were present in growth means for comprehension and for vocabulary attainment for students who used RT and students who did not use RT. To guide the study, two research questions were developed: (1) To what extent is there a difference in the change in reading comprehension, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching? and (2) To what extent is there a difference in the change in vocabulary attainment, as measured by the Gates-MacGinitie Reading Test, between students who used reciprocal teaching and students who did not use reciprocal teaching?

Review of the methodology. Using a quasi-experimental design, two classrooms of third graders and two classrooms of fourth graders were administered the Gates-MacGinitie Reading Test in the fall to establish a baseline of reading comprehension and vocabulary attainment for the school year. A third grade class and a fourth grade class used RT, while a different third grade class and a different fourth grade class did not use RT. The year-long implementation of RT began with students receiving explicit instruction on the metacognitive strategies of questioning, summarizing, clarifying, and predicting. The teacher modeled how to use these strategies through think-alouds while reading text. Through scaffolding, students began to lead dialogue as they questioned,

summarized, clarified, and predicted to understand the text. In the spring, students who used RT and students who did not use RT were administered the Gates-MacGinitie Reading Test. To determine if there was a significant difference in receiving RT and not receiving RT, a MANOVA was conducted to compare the sample means for reading comprehension and vocabulary attainment between the two groups of students: those who used RT and those who did not.

Major findings. The fall and spring GMRT data of 88 students in third and fourth grades were analyzed in this study. Of this data set, 46 students used RT and 42 students did not use RT. After a MANOVA was completed for each of the research questions and corresponding hypotheses, results indicated there was not a significant difference of means in reading comprehension between students who used RT and students who did not use RT. In fact, students who used RT had a slightly lower comprehension growth mean as compared to the comprehension growth mean of students who did not use RT. There was a statistically significant difference for vocabulary attainment; however, students receiving RT did not have a higher change in scores. Students who did not use RT had a significantly higher growth mean in vocabulary attainment as compared to those students who did use RT.

Findings Related to the Literature

The goal of this research was to determine if there was a difference in reading comprehension and vocabulary attainment for students who used RT and students who did not use RT. Historical and current research regarding RT was described in chapter two. In this section, the findings of the current study will be related to the review of research from chapter two.

Research for RT started with the study of Paclincsar and Brown (1984) which determined RT to be an effective intervention for increasing reading comprehension for students who comprehended poorly. This intervention lasted for eight weeks. Since this initial study, RT has been the focus of many researchers to determine the effectiveness of this strategy. Hacker and Tenent's (2002) research of RT spanned three years. During that time, the reading comprehension of students increased as students used RT. In the current research, student reading comprehension did increase. However, when comparing students who used RT and students who did not use RT, the current research findings showed there was not a significant difference in comprehension gains. Halberstam (2008) used standardized testing as a measure of determining if there was a difference between reading comprehension of students who used RT and students who did not use RT. Results indicated students who used RT outperformed students who did not use RT.

Hancock (2012) sought to determine if there was a significant difference in reading comprehension and vocabulary attainment for students who used RT for 12 weeks and students who did not use RT. Hancock determined there was not a significant difference in comprehension, which is supported by the current study. Hancock also found there was not a significant difference in vocabulary attainment between students who used RT and students who did not use RT. In the current study, it was determined there was a significant difference; however, students who did not use RT had higher vocabulary attainment as compared to students who did use RT.

Eldredge (1990) researched the effects of RT on comprehension and vocabulary attainment for low-achieving students who used RT for eight weeks and low-achieving

students who did not use RT. Eldredge (1990) found there was a significant difference between the two groups, with the students who used RT performing higher than the students who did not use RT. This research, as well as many other studies referenced in in chapter two, is not supported by the current study.

Conclusions

The conclusions section contains the implications for action, or how the results of this study can be applied to the field of education. It also includes suggestions for further research in the area of RT. Concluding remarks are also presented.

Implications for action. The results of this study can be used in determining further action as a school district and as a teacher in determining the best practices for reading instruction. The differences in reading comprehension and vocabulary attainment between students who used RT for a school year and students who did not use RT were analyzed. While the extensive literature on RT provides evidence that RT is effective in improving students' reading abilities, the results of this study raised questions as to whether it is effective compared to other reading instruction. Given the contrary results of the current study, further research on the effects of RT, perhaps even replication of the study, may be necessary. The school and school district should continue to implement RT and Houghton-Mifflin Reading (2005) in order to collect data to support or to negate the findings of this study. Teacher training of effective strategies for teaching reading and vocabulary including RT should continue to make certain teachers are implementing strategies with fidelity. Teachers should also collect formal and informal assessment data to study the impact of each of the strategies.

Professional organizations for reading instruction should include this research in the body of literature for RT. While the findings are contrary to previous literature, the results indicate possible strategies other than RT are more effective in teaching reading comprehension and vocabulary. School districts, teachers, and professional organizations should use the data from the current study to cautiously determine if RT is the most effective way to increase reading comprehension and vocabulary attainment.

Recommendations for future research. Given the results of this study, it is apparent that further research is needed on the effectiveness of RT as a strategy to improve students' reading comprehension and vocabulary attainment. Many studies, including the original study by Palincsar and Brown (1984), concluded RT to be an effective intervention for students who were low-achieving readers. In this study, the analysis of the data determined there was not a significant difference between students who used RT for a year and students who did not use RT. It is encouraged the current study be replicated to determine if similar results can be found.

To further investigate if there is a difference between reading comprehension and vocabulary attainment for students who use RT and students who do not use RT, a similar study should occur in grades other than third and fourth. The study can also be expanded to include data from more than one school year to determine if there is a significant difference between the presence of RT for multiple school years and the absence of RT for multiple school years and to what degree.

While this study included all students within a given classroom, the data were not disaggregated based on demographics or ability level. A study in which data are analyzed by socio-economic status, gender, ethnicity, special education, Title I, and

gifted would be beneficial to the research of RT to determine if there is a difference in the effects of RT on reading comprehension and vocabulary attainment on different student subgroups.

The difference between the presence and the absence of RT was the focus of this study. Teachers who implemented RT did so with fidelity as they received professional development throughout the school year. Likewise, teachers who did not use RT used other strategies suggested by a reading series (Houghton-Mifflin Reading, 2005) with fidelity while receiving professional development. A framework for a future study should be analyzing each component of RT and each strategy (i.e., making generalizations, summarizing, paraphrasing, retelling, questioning) of the reading series (Houghton-Mifflin Reading, 2005), to determine the effectiveness of the reading series on reading comprehension and in vocabulary attainment.

Rosenshine and Mesiter (1994) conducted a meta-analysis of RT. They concluded students who used RT performed better on teacher-created assessments as compared to standardized assessments. Galloway (2003) conducted a similar meta-analysis and found there was not a significant difference in effect size between teacher-created assessments and standardized assessments. Given a standardized assessment was used as a measurement instrument in the current study, additional research is advised to determine if there is a difference in results due to how student achievement is measured. Furthermore, additional standardized assessments other than Gates-MacGinitie Reading Test should be used.

Concluding remarks. RT has been researched extensively as an intervention to help struggling readers improve. The current study's purpose was to add to the research

to determine if there was a difference specifically in reading comprehension and vocabulary attainment for students who used RT and students who did not use RT. The current study results were contrary to much of what had been reported in relevant literature. There was not a significant difference in comprehension between the two groups. In fact, the group of students without RT had a slightly higher growth average in reading comprehension. Likewise, the groups of students without RT had a higher growth average in vocabulary attainment than the students who used RT.

The results of this study should compel school districts and teachers to analyze the instructional practices used in teaching reading. While school districts and teachers strive to ensure students are proficient readers, it is imperative they use instructional practices supported by research.

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Appendices

Appendix A: IRB Proposal for Research

BAKER UNIVERSITY

SCHOOL OF EDUCATION
GRADUATE DEPARTMENT

Date:_____
IRB PROTOCOL NUMBER _____
(IRB USE ONLY)

IRB REQUEST
Proposal for Research
Submitted to the Baker University Institutional Review Board

I. Research Investigator(s) (Students must list faculty sponsor first)

Department(s) **School of Education Graduate Department**

	Name	Signature	
1.	Dr. Russ Kokoruda	Russell D. Kokoruda	Major Advisor
2.	Dr. Katie Hole	Katie	Research Analyst

Principal Investigator: Sarah Brown
Phone: 816-456-7210
Email: sbc88b@comcast.net
Mailing address: 16418 E. 4th St. Ct. N
Independence, MO 64056

Sarah Brown

Faculty sponsor: Dr. Russ Kokoruda
Phone: 913-344-1221
Email: Russ.Kokoruda@bakeru.edu
Expected Category of Review: __x__Exempt ____Expedited ____Full

II: Protocol Title

The Effects of Reciprocal Teaching on Third and Fourth Grade Students' Reading Comprehension and Vocabulary Attainment

Summary

The following summary must accompany the proposal. Be specific about exactly what participants will experience, and about the protections that have been included to safeguard participants from harm. Careful attention to the following may help facilitate the review process:

In a sentence or two, please describe the background and purpose of the research.

The purpose of this study is to analyze the effects of reciprocal teaching on student reading comprehension and vocabulary in an elementary setting. In two classes, third and fourth grade students, including students with learning disabilities, students identified as low-achieving readers (Title I), students capable of reading grade-level text, and students who are gifted, used the reciprocal teaching strategy in communication arts classes.

Briefly describe each condition or manipulation to be included within the study.

There will be no condition or manipulation in this study.

What measures or observations will be taken in the study? If any questionnaire or other instruments are used, provide a brief description and attach a copy.

No measures or observations will be taken. Archived Gates-MacGinitie Reading Test data will be used for this study.

Will the subjects encounter the risk of psychological, social, physical, or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.

The subjects will not encounter any psychological, social, physical, or legal risk.

Will any stress to subjects be involved? If so, please describe.

No stress will be experienced.

Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.

The subjects will not be deceived or misled in any way.

Will there be a request for information that subjects might consider to be personal or sensitive? If so, please include a description.

There will be no request for information that subjects might consider to be personal or sensitive.

Will the subjects be presented with materials that might be considered to be offensive, threatening, or degrading? If so, please describe.

The subjects will not be presented with materials which might be considered to be offensive, threatening, or degrading.

Approximately how much time will be demanded of each subject?

There will not be time demanded of each subject. The researcher is utilizing archived data that has been collected by the school district.

Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.

The subjects in this study are two classes of 3rd grade students and two classes of 4th grade students in a school district in Missouri. The Gates-MacGinitie Reading Test was taken by all elementary students in the district twice each year. Only archived achievement scores will be utilized. There will be no solicitation of the subjects.

What steps will be taken to ensure that each subject's participation is voluntary? What if any inducements will be offered to the subjects for their participation?

Subjects will not directly participate in this study. No inducements will be offered to the subjects as only their archived data will be used.

How will you ensure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.

Subjects will not be contacted for this study and therefore a written consent is not necessary.

Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.

No aspect of the data will be made a part of any permanent record that can be identified with the subject.

Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher or employer? If so, explain.

What steps will be taken to ensure the confidentiality of the data?

All collected data will remain confidential and will be kept in a password-protected file on a password-protected computer. The data will be stored for a minimum of three years before it is destroyed per Baker University guidelines.

If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?

There is no risk associated with this study.

Will any data from files or archival data be used? If so, please describe.

Yes, all data used is archival student achievement data collected by the school district. The data gathered in this study will be anonymous student scores from the Gates-MacGinitie Reading Test. Scores will be by grouped by classes and classes will be identified as treatment and control. These scores will be raw data, which includes Percentile Ranking, Grade Equivalency, and Stanine.

Appendix B: IRB Approval Letter

Baker University Institutional Review Board

July 2, 2015

Dear Sarah Brown and Dr. Kokoruda,

The Baker University IRB has reviewed your research project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.

Please inform this Committee or myself when this project is terminated or completed. As noted above, you must also provide IRB with an annual status report and receive approval for maintaining your status. If you have any questions, please contact me at CTodden@BakerU.edu or 785.594.8440.

Sincerely,

Chris Todden EdD
Chair, Baker University IRB

Baker University IRB Committee
Verneda Edwards PhD
Sara Crump PhD
Erin Morris PhD
Scott Crenshaw

Appendix C: Request to Conduct Research

To Whom It May Concern;

I am requesting permission to conduct research, *The Effects of Reciprocal Teaching on Third and Fourth Grade Students' Reading Comprehension and Vocabulary Attainment*, in the school district. The purpose of this study is to analyze the effects of reciprocal teaching on student reading comprehension and vocabulary attainment in an elementary setting. In two classes, third and fourth grade students, including students with learning disabilities, students identified as low-achieving readers (Title I), students capable of reading grade-level text, and students who are gifted, used the reciprocal teaching strategy in communication arts classes.

All data used is archival student achievement data collected by the school district. The data gathered in this study will be anonymous student scores from the Gates-MacGinitie Reading Test. Scores will be by grouped by classes and classes will be identified as treatment and control. These scores will be raw data, which includes Percentile Ranking, Grade Equivalency, and Stanine.

The researcher will not use the school district's name in the study.

Sarah Braun
Signature of Applicant

[redacted]
Approval Signature