COMPARING THE EFFECTIVENESS AND EFFICIENCY OF ORAL AND WRITTEN RETELLINGS AS STRATEGIES FOR IMPROVING READING COMPREHENSION PERFORMANCE

DISSERTATION

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* * * * *

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Delays and deficits in the domain of reading continue to affect an alarming percentage of school-aged children with learning disabilities. Students who struggle with reading perform more poorly across other academic subjects and have difficulty catching up with their same-age peers. The gap between poor and competent readers continues to widen as students progress through educational curricula and more emphasis is placed on reading comprehension. There is a growing need for the implementation of empirically supported interventions that enhance reading comprehension for young students who struggle with reading. Although many effective interventions are available, those which are also efficient with regard to the time required for implementation will be better received by teachers and more applicable for classroom use.

The current study examined the instructional effectiveness and efficiency of three reading comprehension interventions on students’ cumulative number of comprehension questions answered correctly and cumulative comprehension rate. Specifically, alternating treatment designs were used to compare the effects of a passage review condition, an oral retelling condition, and a written retelling condition when paired with repeated readings and phrase drill error correction on reading comprehension performance. This study extended previous research findings by examining the effects of retelling as a strategy for improving both literal and inferential comprehension
performance, comparing oral retellings to written retellings on students’ reading comprehension performance, investigating the efficiency of retellings procedures, evaluating the effects of retellings procedures as a strategy for improving reading comprehension for elementary-aged students.

The results indicated that comprehension gains were made for all five of the students who participated in the study. Specifically, for the participant group, the oral and written retelling procedures led to similarly greater gains in overall comprehension when compared to the passage review procedure. The oral retelling procedure was found to be the most efficient in terms of increasing comprehension performance. Preferences for instructional approaches varied among participants. Social validity results indicated that all three instructional techniques are socially valid ways to teach reading comprehension skills to students identified as having reading comprehension difficulties.
Dedicated to my parents, Richard and Eileen Siegel, whose ever-present love, support, and humor-filled “expectations” continue to give me the strength and drive to reach all my dreams.
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CHAPTER 1
INTRODUCTION

This chapter includes background information relevant to the current study, along with the following: statement of the problem, purpose of the study, research questions, and significance of the study.

Background

In United States schools, the number one reason that students are referred for special education is for reading difficulties (Lentz, 1988). In fact, as many as 60-80% of students classified as learning disabled exhibit some type of reading deficit (Miller, 1993). According to the National Reading Panel Progress Report (2000) up to 69 percent of the nation’s fourth grade students are reading below the average proficiency level. This statistic is daunting, especially with the knowledge that reading is a necessary life skill critical for a child’s future well-being and societal productivity (Lyon, 2000).

Students with literacy problems are more likely to drop out of school (Kirsch, 1993). Among those who graduate from high school, very few go on to earn a college education (Kirsch, 1993; Scheffel, Shroyer, & Strongin, 2003). As adults, these former students are more likely to live in poverty, commit crimes, experience unemployment, be underutilized within society, and suffer from low self-esteem and motivation (Mercer, Campbell, Miller, Mercer & Lane, 2000; Nancollis, Lawrie, & Dodd, 2005; Scheffel et
The tendency for poor readers to live in communities of low socioeconomic status (SES) is part of an unfortunate cycle as poverty is a significant environmental risk factor for illiteracy (Starfield, 1992). Children who are reared in impoverished communities are more likely to fail to achieve the levels of reading proficiency that their middle to higher SES peers attain (Aram & Biron, 2004).

From the beginning of their schooling, these children are at a disadvantage in the area of reading, which very often negatively affects other aspects of life. For example, low reading skills have also been linked with social and externalizing behavior problems (Keilitz & Dunivant, 1986; Larson, 1988). From a mental health standpoint, reading problems are also correlated with a greater likelihood of internalizing behaviors, such as depression, especially in young students (Ackerman, Izard, Kobok, Brown, & Smith, 2007; Maughan, Rowe, Loeber, & Stouthamer-Loeber, 2003).

Unfortunately, more students are currently struggling with developing literacy skills than students in the past (U.S. Department of Education, 2003). This trend has occurred despite the fact that higher performing students are outperforming their high performing predecessors; the problem lies with the low-performing readers who are failing to compare even to underachieving readers from the past (U.S. Department of Education, 2003). This widening gap may be explained in part by the premise that children who are good at reading will read more, strengthen their vocabulary and learn more words, and thus, become even better readers. In contrast, poor readers start out with an underdeveloped vocabulary and know fewer words, making reading slower, more laborious, and less enjoyable. For these reasons, poor readers are less likely to read, and so further reading growth is impaired. This circumstance is described by Stanovich
(1986) as the Matthew Effects of reading which means that the “rich get richer” and the “poor get poorer.” Juel (1988) further discusses the Matthew Effect in respect to reading. First grade students who were assessed as poor word decoders, a skill heavily reliant upon phonological awareness, ultimately were still poor readers by the end of fourth grade whereas good readers in first grade continued to be good readers in fourth grade (Juel, 1988).

Amidst these alarming facts and statistics, there is hope with regard to the success of appropriate types and amount of early intervention. Research findings suggest that strong, empirically based reading intervention implementation in kindergarten can lead to an “inoculation effect” when students move on to first grade (Coyne, Kameenui, Simmons, & Harn, 2004). More often than not, reading instruction within these early grades involves helping students to gain letter naming and phonemic awareness along with decoding and word recognition skills. These foundational skills lead to reading fluency, vocabulary, and comprehension (Indrisano & Chall, 1995).

The National Reading Panel Report (2000) describes phonemic awareness, alphabetic principle, reading fluency, vocabulary, and comprehension as the “Big 5” areas necessary for reading development (NICHD, 2005). Although reading comprehension is the final stage in reading development, instruction in “reading to learn” should not occur only after students have mastered previous stages. Instead, instruction from early grade levels should provide students with the skills to construct meaning from text (Armbruster, Lehr, & Osborn, 2001).

When learning to read, many students do not intuitively realize that the main objective of reading is to derive meaning from text (Palinscar & Englert, 1988). Some
claim that “…the ultimate goal of all reading instruction is to produce competent readers who comprehend what they read” (Mathes, Fuchs, & Fuchs, 1997, p. 20). The ability to comprehend text is critical for success during formal schooling and throughout adulthood (Taylor, Alber, & Walker, 2002). Students who lack reading comprehension skills are less likely to learn required content of expository text, pass high-stakes tests, and are more likely to experience low self-efficacy and display behavior problems (Hall, 2004). Reading comprehension is not spontaneously acquired and so must also be promoted through instruction (Garner & Bochna, 2004).

Basic reading skills are necessary in order to establish deeper comprehension levels (Devault & Joseph, 2004; Torgesen, 1997). Interventions that influence reading comprehension by targeting critical component reading skills, such as decoding and fluency, are considered bottom-up strategies (Crowe, 2005). However, word recognition is not always sufficient for attaining comprehension (Stanovich, 1991). Interventions targeting strategies that directly aid in comprehension, such as using context clues, drawing on the reader’s background knowledge, and examining text structure are considered to be top-down approaches (Crowe, 2005). Instruction that focuses solely on these types of comprehension strategies may sometimes produce readers who can comprehend text but have poor decoding skills. An integrated approach to reading comprehension instruction, however, utilizes both indirect (bottom-up) and direct (top-down) methods (Crowe, 2005).
Repeated Readings with Corrective Feedback

Repeated readings involve a student reading and re-reading a passage until the student reaches a set fluency criterion (Samuels, 1979) and is a promising technique for improving reading comprehension. Corrective feedback is used to correct a mistake or error. Error correction can be immediate or delayed (Joseph, 2006). Corrective feedback methods have been found to promote accurate word recognition in a substantial number of studies (see McCoy & Pany, 1986 for a complete review), and more recent studies suggest the benefits of corrective feedback techniques on reading comprehension (Crowe, 2005).

Freeland, Skinner, Jackson, McDaniel, and Smith (2000) used immediate corrective feedback in the form of word supply during students’ oral readings. Three students participated in baseline and experimental conditions. The baseline session consisted of students reading a passage silently and answering corresponding comprehension questions. The experimental session involved repeated readings during which a passage was read orally two times and students received corrective feedback in the form of word supply on miscues and omissions. Results for two of the three participants show more total questions answered correctly on repeated reading passages than questions answered correctly on control passages. Similarly, two of the three students showed fairly consistent patterns of higher comprehension rates on repeated reading passages in contrast to their comprehension rates on control passages.

Therrien, Wickstrom, and Jones (2006) examined the potential effects of repeated readings coupled with corrective feedback and a question generation strategy on reading achievement. Students participated in an initial reading of a passage and then were asked
to read a series of factual and inferential questions about the story from a cue card. Repeated readings of the same passage were completed until either set criterion was met or the story was read 4 times. During repeated readings, students participated in single-response repetition procedure for error correction (Wordsell, 2005). After the last reading of the passage, students answered the cue card questions orally. Results of this study indicate that repeated readings combined with question generation and single-response repetition error correction had a positive impact on students’ reading fluency and comprehension with a particular improvement in inferential comprehension.

Alber-Morgan, Ramp, Anderson, and Martin (2007) examined the effects that repeated readings paired with a prediction strategy would have on reading fluency and comprehension of middle school students with behavioral problems. In the repeated readings only condition, a systematic error correction procedure (Nelson, Alber, and Gordy, 2004) and performance feedback strategy (Chafouleas, Martens, Dobson, Weinstein, and Gardner, 2004) were employed. The repeated readings plus prediction condition involved the student predicting what the story would be about from simply reading the title, and no corrective feedback was supplied. Investigators found that the repeated readings intervention phase had a significant, positive effect on reading fluency, an immediate positive effect on literal comprehension, and a delayed positive effect on inferential comprehension. Repeated readings plus prediction did not result in any further gains in reading fluency, and, for only one student, influenced a positive change in the level and stability of literal and inferential comprehension. Investigators theorize that the
combined intervention likely had a positive effect for the other participants’
comprehension, but concrete conclusions were unable to be drawn due to possible ceiling
effects (Alber-Morgan et al., 2007, p. 26).

Another form of corrective feedback with growing support is phrase drill error
correction. Phrase drill error correction involves the instructor modeling the correct way
to read a miscued word and the student repeatedly practicing the phrase or sentence
which includes the erred word (Begeny, Daly, & Valleley, 2006). Daly, Martens, Dool,
and Hintze (1998) investigated the effectiveness of phrase drill error correction in
conjunction with listening passage preview and repeated readings strategies on the
number of words read correctly per minute in instructional and generalization reading
passages. Three elementary grade students, two boys and one girl, participated in the
study. The treatment conditions included combinations of contingent reinforcement for
rapid reading, repeated readings, listening passage preview, and phrase drill error
correction. For two participants, the listening while reading and phrase drill error
correction strategies in addition to the repeated readings did not lead to any further gains.
However, for one participant, reading performance improved modestly when the repeated
readings strategy was paired with listening passage preview and phrase drill error
correction. Further investigations examined phrase drill error correction as a stand alone
instructional strategy.

Begeny et al. (2006) compared the effectiveness of phrase drill error correction to
that of repeated readings on reading fluency gains. A single-subject, alternating treatment
design was implemented with one participant, an 8-year old boy referred for reading
difficulties. The three treatments included repeated readings, phrase drill error correction,
and reward. Results indicated that the phrase drill procedure was equal or superior to other conditions in reducing errors and leading to stable response levels. Researchers hypothesized that these findings could have been due to a possible negative reinforcement contingency; the length of time to implement the phrase drill error correction drill may have increased the chance that the student would read the erred word correctly during future readings to avoid repeatedly reading phrases. Begeny et al. (2006) addressed the need for further examinations of the use of phrase drill error correction on other reading outcomes and in conjunction with other instructional methods.

Repeated readings can also be utilized in student pairs. Strong, Wehby, Falk, and Lane (2004) examined the impact of paired repeated readings on comprehension for students receiving structured reading curriculum instruction. The repeated readings intervention involved paired students chorally reading an unfamiliar passage out loud two times with a research assistant. Word supply corrective feedback was provided by the research assistant. Word supply corrective feedback involves the instructor correcting any misread or omitted words by reading the correct word to the student.

After the choral reading, one student read the passage aloud while the other student followed along silently and provided word supply corrective feedback if the reader paused at an unknown word for more than three seconds. At the end of this reading, the second student then read the passage aloud and the first student followed along providing feedback. For four of the six participants, the paired repeated readings instruction led to increases in oral reading rates and more accurate responses to comprehension questions than were achieved with the structured reading curriculum instruction alone.
Further work with paired repeated readings was completed through a study by Staubitz, Cartledge, Yurick, and Lo (2005). Similar to the Strong et al. (2004) study, six students in either the fourth or fifth grade participated in paired, peer mediated repeated reading but, in this case, did not read chorally. Each student read a passage aloud individually while the other student followed along silently and followed a scripted phrase drill error correction procedure in the event of miscues. When appropriate, corrective feedback was also offered by the investigator. Although investigators noted that the peer-mediated instruction design may have put the weaker reader at a disadvantage because the stronger reader had a tendency to “dominate” the lesson by reading too quickly for his/her partner to catch and correct miscues (Staubitz et al., 2005, p. 61), results of this study demonstrated that paired repeated readings with phrase drill error correction led to improved reading fluency and reading comprehension for all participants.

Passage Review

Passage reviewing is typically an unstructured, self regulated re-reading of text in order to gain further understanding of what was initially read (Millis & King, 2001; Zabrucky & Commander, 1993). Passage review is a strategy often routinely used by proficient readers. Zabrucky and Commander (1993) performed a study in which both good and poor readers were observed to measure the extent to which they used a rereading strategy to enhance understanding and memory of text. Researchers found that both groups of readers do use silent rereading to further comprehension, but that poor readers fail to discriminate well during their review (Zabrucky and Commander, 1993).
For instance, good readers were more selective in their rereading, spending most of their time reviewing confusing or incongruent portions of the reading passage. In contrast, poor readers had a tendency to reread the entire passage.

A later study by Millis and King (2001) extended this research to examine the influence of passage review on comprehension. Once again, results indicated that both above and below average readers use a rereading as a strategy for increasing understanding of text but that better readers attend to more complex and significant details within the passage. This more discriminate rereading strategy results in the formation of a more complete idea of what is being communicated through text suggesting that teachers should encourage students to review reading material.

Unfortunately, “…those students who need the most help comprehending course material are those that would profit least from self-directed rereading” (Millis & King, 2001, p.63). Students who struggle with reading comprehension likely require more structured instruction in order to stay on par with their above average reader classmates. An instructional strategy with growing support for its effectiveness in increasing student comprehension is story retellings.

Oral Story Retellings

Oral story retellings have been most commonly used as a reading comprehension assessment measure. This procedure typically involves a student reading a passage for one minute and then orally restating what was read. Story retelling differs slightly from paraphrasing; paraphrasing involves rephrasing text in one’s own words, typically in a more condensed manner (Fisk & Hurst, 2003) while story retelling entails restating the story as directly as possible. Through a story retelling a student can demonstrate
understanding of the story by relaying major events and details in a cohesive and sequential manner and making logical connections between events (Hagtvet, 2003).

Having students read a passage and retell as much of the story as possible from memory can also be used as a strategy to enhance comprehension. The theory behind this strategy is based upon the supposition that, as they read, readers try to make sense of the text. “Retellings after reading provide another opportunity for the reader to continue to construct the text” (Goodman, 1982, p. 301). Utilizing oral story retellings as a way to increase reading comprehension shows promise within educational research.

Morrow (1985) conducted a two-part study comparing the effects of two strategies on listening comprehension. The first strategy required students to retell the story in their own words. The second strategy required them to draw a picture depicting the events in the story they had just read. Results indicated that there was some improvement for the students who retold the story over the students who drew a picture. Based on these results, Morrow (1985) concluded that students require instruction on retell procedures. This conclusion led to Morrow’s (1985) second study. This second study used the same procedures as the first investigation, but children in the retell group were provided with frequent practice in retelling components related to the structural framework of a story. Results of this study supported the hypothesis that frequent retelling practice would lead to greater gains in listening comprehension.

Recognizing that oral retellings were a successful way to improve listening comprehension, Gambrell, Pfeiffer, and Wilson (1985) conducted a study very similar to that of Morrow’s 1983 study to test retelling as a potential strategy for improving reading comprehension. Students were randomly assigned to either a retelling or illustrating
group. All students read a passage silently, and, at its conclusion, were asked to either retell all the important ideas in the story or illustrate all of the important ideas in the story depending on group assignment. Results support the use of oral retellings; the retelling group outperformed the illustrating group when answering ten literal and ten inferential comprehension questions.

In a subsequent study by Gambrell, Miller, King, and Thompson (1989) researchers compared the effects of a retelling strategy versus a questioning strategy as post reading activities. Fourth and fifth grade students were given stories to read and those in the retelling group were instructed to orally recall everything they could from what was read. Those students in the questioning group were asked questions pertaining to the story they just read. Results indicated that the retelling strategy was more effective than the questioning strategy for increasing reading comprehension based on a free-recall measure. Additionally, students in the retelling group outperformed students in the questioning groups in the ability to recall text-based propositions and story structure elements (Gambrell et al., 1989).

A later study by Gambrell, Koskinen, and Kapinus (1991) adds further support for the use of oral retellings for reading comprehension and somewhat mirror’s Morrow’s (1985) second study. In this instance, proficient and less proficient fourth grade students were given four practice sessions in retelling stories they had read. Researchers found a significant improvement in the recall of story structure elements and in the correct answering of comprehension questions. The opportunity to practice the retellings was cited as a critical component of this study (Gambrell et al., 1991).
Written Retellings

Written retellings are very similar to oral retellings except that instead of reading a story and describing it aloud, students are asked to write everything they can recall after reading a text passage. The theory behind the use of written retellings stems from the knowledge that reading and writing share many of the same developmental components and are mutually reinforcing (Kutz & Roskelly, 1991). Specifically, both reading and writing acquisition rely on the same pre-literacy skills that are strongly predictive of later literacy success (Lonigan, 2006). Because the two domains share such similar features and follow a common developmental process, it makes sense, theoretically, that teaching reading and writing together may prove beneficial in making learning more efficient (Fitzgerald & Shanahan, 2000). Further, comprehension of text may be enhanced through writing.

Notetaking, for instance, can lead to more active engagement in the learning process (DiVesta & Gray, 1972). Active engagement helps students to move beyond the more superficial act of remembering text and aids in learning of text; “Learning requires deep understanding of the subject matter, so that the information acquired can be used productively in novel environments…” (Kintsch, 1994, p. 294). Strategic notetaking, in particular, has demonstrated to be an effective technique for students with learning disabilities for improving recall and comprehension of lecture information (Boyle & Wieshaar, 2001). Strategic notetaking involves training students to use a structured form with notetaking prompts as they listen to lectures. Boyle and Wieshaar (2001) concluded that the structure and format of the strategic notetaking procedure helped students to
recognize important information during lectures through metacognitive process such as summarization and chunking. These techniques then led to encoding and comprehension.

Only one study could be found that examined the effect of a variation of written retellings as an instructional strategy. Craig (2006) examined the effects of an adapted interactive writing intervention on reading outcomes including phonological awareness, spelling, and comprehension. The interactive writing instruction used in this study involved a tutor instructing a small group of students in activities such as text preview, text discussion, vocabulary instruction, and writing with scaffolding. Together the tutor and students verbally summarized the story, concentrating on the story elements. Students then wrote about the story and were provided with corrective feedback on spelling and word usage. In contrast to a group of students who participated in structured phonological awareness and alphabetic training, students who engaged in the interactive writing intervention performed better on measures of word identification, word reading development, and, most importantly, passage comprehension.

Instructional Effectiveness Versus Efficiency

In addition to being effective, reading interventions must be efficient in order to be perceived as feasible by teachers (Nelson et al., 2004). Lack of time is a pertinent issue for teachers in regard to intervention implementation, so instructional methods that are efficient will likely have a greater chance of being utilized within the classroom (Gresham, 1989). “Instructional efficiency can be defined as students’ rate of learning novel content and skills when learners interact with methods of instruction…” (Schmidgall & Joseph, 2007, p. 319). Including measures of efficiency in studies on instructional effectiveness helps to determine both how well different types of instruction
facilitate accurate responding and learning rates. In recent years, an increase in the number of studies examining learning rate efficiency can be seen in literacy research.

In particular, Cates and colleagues (2003) helped to facilitate a trend of measuring instructional effectiveness and efficiency within literacy research. Cates et al. (2003) examined instructional effectiveness and efficiency of three spelling interventions (interspersal training procedure, traditional drill and practice procedure, and a high-p sequencing procedure) on spelling performance of second grade students. Of particular importance, instructional time and student learning rate was considered in relation to its affect on academic treatment decisions. The number of correctly spelled words that were learned under each instructional condition acted as a measure of instructional effectiveness. Instructional efficiency was measured by the number of correctly spelled words learned per instructional time. This was calculated by multiplying the number of correctly spelled words by 60 seconds and dividing this quotient by the total amount of instructional time it took to implement a particular method. Results indicated that the most effective method varied across participants, but students as a group learned a statistically greater number of words under the traditional drill and practice condition when the amount of instructional time was considered.

Similar results were found when the instructional effectiveness and efficiency of three whole word-reading techniques was examined by Joseph and Nist (2006). As in Cates et al. (2003), conditions included a high probability sequence flash card drill, an interspersal training flash card drill, and a traditional flash card drill. Researchers found
that the different instructional conditions yielded no differences relative to effectiveness; however, the traditional drill was the most efficient method of word reading instruction when compared with instruction using ratio sequences.

Extensions of the Cates et al. (2003) and Joseph & Nist (2006) study were performed in 2007 by Schmidgall and Joseph and Joseph and Schisler respectively. Schmidgall and Joseph (2007) compared the effectiveness and efficiency of whole methods against a phonic analysis method (word boxes) on word reading skills of six first grade students. Joseph and Schisler (2007) compared the instructional effectiveness and efficiency among the use of phonic analysis, incremental rehearsal, and traditional drill and practice word reading techniques during repeated reading lessons. As in Joseph and Nist (2006), both of these studies found that all three methods led to gains in word reading performance, but the most time efficient method was the traditional drill procedure.

Statement of the Problem

It is clear from this review of studies that little research has been conducted on examining the effects of retelling as a strategy for improving comprehension performance. There have been even fewer studies that have compared various types of retelling (oral versus written) and passage review. Moreover, there have been no studies that have compared oral retellings to written retellings on students reading comprehension performance. In addition, researchers have yet to examine the efficiency of retellings for helping children comprehend text and this is an important variable to assess given the time constraints within a given school day. Among studies that have been conducted on the effects of retelling as a strategy, there have been very few that
evaluated the effects of retelling on reading comprehension performance with a sample of elementary grade students. When retelling procedures were implemented with young children, listening comprehension rather than reading comprehension was measured.

Purpose of the Study

The primary purpose of this study was to examine the instructional effectiveness and efficiency of oral retellings, written retellings, and a passage review procedure when paired with repeated readings and phrase drill error correction on reading comprehension performance for a sample of five third grade students with reading comprehension delays. This study was unique because it examined instructional effectiveness as well as instructional efficiency among oral retellings, written retellings, and a passage review procedure. This study expanded upon previous studies in the following ways: (1) It measured the effects of written retelling by comparing it to oral retelling and passage preview; (2) it examined these instructional variables with a sample of elementary grade pupils, whereas prior research has typically examined these variables with secondary grade level pupils (e.g., Boulineau, Fore, Hagan-Burke, & Burke, 2004; Kendou et al., 2005); (3) it measured how effective and efficient the instructional methods were for helping children comprehend text; and (4) it sought to determine if there were differential effects among the various instructional conditions on answering literal and inferential questions.
Research Questions

The following research questions guided this study:

1. Based on the number of cumulative comprehension questions answered correctly, which is a more effective method for improving overall reading comprehension for individual students as well as for students as a group: passage review with repeated readings and phrase drill error correction (PR), oral retelling with repeated readings and phrase drill (OR), or written retelling with repeated reading and phrase drill error correction (WR)?

2. Based on the number of cumulative literal comprehension questions answered correctly, which is a more effective method for improving literal reading comprehension for individual students as well as for students as a group: passage review with repeated readings and phrase drill error correction (PR), oral retelling with repeated readings and phrase drill (OR), or written retelling with repeated reading and phrase drill error correction (WR)?

3. Based on the number of cumulative inferential comprehension questions answered correctly, which is a more effective method for improving inferential reading comprehension for individual students as well as for students as a group: passage review with repeated readings and phrase drill error correction (PR), oral retelling with repeated readings and phrase drill (OR), or written retelling with repeated reading and phrase drill error correction (WR)?
4. Which is a more efficient method, as measured by learning rate, for improving reading comprehension for individual students as well as for students as a group, passage review with repeated readings and phrase drill error correction (PR), oral retelling with repeated readings and phrase drill (OR), or written retelling with repeated reading and phrase drill error correction (WR)?

5. Are the three instructional approaches a socially valid way to assess and teach comprehension skills to students with reading comprehension difficulties?

Significance of the Study

This study is particularly significant in that it will assess the instructional effectiveness and efficiency of oral retelling, written retelling, and a passage review procedure when combined with repeated readings of passages and phrase drill error correction. The research findings in the current study will help determine if a writing component will have significant effects on reading comprehension performance.
CHAPTER 2

REVIEW OF LITERATURE

This chapter describes the definition and importance of reading comprehension as well as the ways that reading comprehension is measured or assessed. Examples of reading comprehension activities and strategies are discussed with an emphasis on retelling procedures for improving reading comprehension. Information about the stages of reading development is covered, followed by discussions of reading comprehension theories and the use of reading comprehension approaches in instruction. A detailed discussion on the use of repeated readings, error correction and passage reviews as instructional approaches to supplement classroom reading instruction for students identified as having poor reading comprehension skills is included. The chapter will conclude with a discussion of instructional efficiency relative to reading interventions.

Defining Reading Comprehension

The ultimate goal of reading is to gain meaning and understanding from text. However, according to the 2000 National Reading Panel Report, reading comprehension is a skill that many children fail to achieve (National Reading Panel, 2000). Failure to
gain this skill can have significant long-term effects; “Reading is a fundamental skill on which academic success, secure employment, and personal autonomy depend” (Calhoon, 2005, p. 424). The 2003 National Adult Literacy Report indicated that literacy levels increase with each increasing level of education (Kutner, Greenburg, Jin, Boyle, Hsu, & Dunleay, 2007), a fact that supports the need for continuous and ongoing comprehension instruction throughout the education process.

Reading comprehension can be defined as the process of perceiving and extracting meaning from written text (Anderson, Hiebert, Scott, & Wilkinson, 1985; Mastropieri & Scruggs, 1997) or “constructing a supportable understanding of a text” (Neufeld, 2005, p. 302). Comprehension is not an automatic byproduct of reading even for proficient readers; readers must intentionally seek out meaning from text (Alexander & Jetton, 2000; Garner & Bochna, 2004). The National Reading Panel includes in their definition of reading comprehension the importance of an intentional interaction between reader and text. In conjunction with this consciously initiated interaction, the act of comprehending requires an understanding of vocabulary, the recognition and recall of specific details from the text, and the ability to make inferences, draw conclusions, and predict outcomes (Sencibaugh, 2007).

Due to the numerous facets involved, reading comprehension instruction varies greatly in content, focus, and strategy use. For instance, some instructional strategies follow a “bottom-up” approach (Crowe, 2005) because reading comprehension is influenced by targeting basic reading skills such as word decoding (the ability to read words by sounding them out), vocabulary, and reading fluency (reading with appropriate accuracy, speed, and expression). Instruction that specifically targets strategies that
directly aid in comprehension, such as using context clues, drawing on the reader’s background knowledge, and examining text structure is considered to follow a top-down approach (Crowe, 2005). Some examples of these types of strategies are question generation techniques, text summarization/retelling, and story mapping. Frequently, both bottom-up and top-down strategies are used in conjunction in what is known as an integrated approach (Crowe, 2005). More critical than the use of bottom-up or top-down strategies, however, is the use of explicit and direct reading instruction.

Explicit and direct instruction is characterized by clearly describing the target skill and then teaching the skill in a purposefully direct manner (Joseph, 2006). Unlike the development of language, there exists no specific “reading section” of the brain that bears the responsibility of literacy acquisition. Reading does not develop naturally; direct instruction is based on the assumption that children cannot be expected to learn to read without at least minimal instruction and that the majority of children will benefit greatly from explicitly taught skills (Gersten, Fuchs, Williams, & Baker, 2001).

Reading Development

Learning to read is a process that begins very early and may span two or more decades of one’s academic life. A very comprehensive model of reading development that is well-cited in reading literature is Jeanne Chall’s (1983) reading development model. Chall’s paradigm consists of six developmental stages. In the past, a widely held belief in educational research was that children took the first steps toward learning to read when they entered school at or around the age of five. Now, however, experts agree that children enter an emergent reading stage well before schooling and perhaps as early as infancy (Sulzby, 1985). What may be considered conventional reading, or “real” reading,
is actually preceded by a stage during which children exhibit pre-reading behaviors. Chall’s stage 0, reflects this emergent reading phase, though it is termed the pre-reading stage. This stage begins at birth and children typically remain in it until about six years of age. Gaining an awareness of and becoming familiar with print, developing oral language, and developing phonological awareness is key at this point in the development of reading. During this time children generally demonstrate actions such as pretending to read storybooks, sometimes reciting favorite stories near verbatim and using appropriate prosodic features (Sulzby, 1985). Another activity characteristic of this stage is “reading” common signs or logos (Idrisano & Chall, 1995).

Stages 1 and 2 can be considered the “learning to read” stages and consist of skills acquired during the first, second, and third grades. Stage 1, labeled the initial reading stage, is typically reached in the first grade and may span into the beginning of grade two. During this stage, children learn the alphabetic principle (the concept that letters represent sounds) and phonological awareness (the ability to identify the sound structure of words). Children also begin to decode words in this stage. In stage 2, the confirmation and fluency stage, children develop their reading fluency which consists of reading connected text accurately, quickly, and with expression (Samuels, 1979). After stage 2, there is a shift from the “learning to read” phase to a “reading to learn” paradigm meaning that children must begin to approach reading as a means for gathering information.

Although the remaining reading development stages require students to hone basic literacy skills, comprehension is the most critical aspect of reading throughout these later stages. During stage 3, which generally spans grades four through eight, students are
confronted with increasingly unfamiliar and more complicated vocabulary and reading material (Indrisano & Chall, 1995). Despite this shift, students must continue to refine their reading skills because a large majority of educational information is communicated through textbook reading during these grades. Comprehension becomes paramount as students are expected to extract the necessary information for learning from their reading. Stages 4 and 5 occur during high school and college, respectively, and the process of reading requires comprehending text at an analytical level with maturity that leads to critical thinking in order to construct a deeper understanding of text.

Similarl to Chall’s developmental stages, the National Reading Panel Report (2000) outlined the following “Big 5” areas of reading as foundational for reading development: phonemic awareness, alphabetic principle, reading fluency, vocabulary, and comprehension (National Reading Panel, 2000). To some effect, these five components of early reading are sequential; the most basic of early reading skills, such as phonemic awareness, alphabetic principle, and reading fluency, are considered to develop first, followed by vocabulary acquisition and comprehension (Indrisano & Chall, 1995).

Largely, educational practice has followed this notion of precedence; in the early primary grades most attention has been paid to the teaching of basic reading skills, while vocabulary and reading comprehension are more stressed beginning in fourth grade and become essential skills to have in middle and high school. The National Reading Panel synthesized the research on reading comprehension and overall conclusions based on this synthesis stress the critical need for children to develop reading comprehension skills in order to access lifelong learning (NICHD, 2000).
Although reading comprehension is the final stage in reading development, delaying comprehension instruction until students have mastered previous stages may not be the most beneficial to students (NICHD, 2000). Instead, instruction from early grade levels to advanced grade levels should provide students with the skills to construct meaning from text (Armbruster, Lehr, & Osborn, 2001; NICHD, 2000). In fact, some (Marshall, 1983) purport that children as young as those in first grade are capable of understanding that the stories they read share common organizational text patterns.

This assertion is further supported through Garner and Bochna’s (2004) study which examined the ability of first grade students to respond to reading comprehension instruction. In this study an intervention/comparison design was used with 37 first grade students in both the intervention and comparison groups. The intervention group received instruction in the form of a story grammar procedure while the comparison group received the normal basal reading series used in their school’s reading curriculum. The story grammar procedure teaches students to recognize and outline the main character, setting, story problem, attempted solution, and solution to a story. Results indicated that the strategies learned through the story grammar technique were successfully applied during independent reading of narrative text as measured by answering comprehension questions for students in the first grade. Specifically, this study supports that first grade students are capable of comprehending main story elements such as characters, setting, problem, and solution (p. 73) therefore supporting the inclusion of reading comprehension instruction in early elementary grades.
Reading Comprehension Assessment

An essential element of any form of reading instruction is accurate assessment. Assessing reading performance, including comprehension of text, is necessary to determine a child’s level of mastery and areas of weakness (Joseph, 2006). Because of the multiple components of reading comprehension (attention to detail, vocabulary understanding, inference making, etc.) this skill can be measured in a number of ways.

Curriculum-based reading measures are a direct way to assess student progress using brief, timed samples made up of academic material derived directly from the student’s school curriculum (Wright, 1992). A particular benefit of curriculum-based measures is that the samples, or probes, can be administered frequently, quickly, and repeatedly; this progress monitoring helps educators detect and address academic weakness and make instructional decisions before the weaknesses become severe deficits (Joseph, 2006). Three common forms of reading comprehension assessment that can be used within a curriculum-based measurement paradigm include the cloze passage procedure, oral retelling procedure, and multiple choice questioning.

A cloze procedure involves presenting a reading passage in which every nth word within the text is deleted and the reader must supply the missing word. This procedure is based on the gestalt concept of completing a pattern to create closure, hence the word ‘cloze’ (Steinman, 2002). Cloze passages can be used in several different ways. Every nth word, whether it be 5th or 7th, etc. can be deleted and the reader must generate the correct word for the blank on his or her own. Alternatively, the passage could be set up in such a way that every nth word is deleted, but the reader is also provided with a multiple choice format and must choose which option is most appropriate. This variation is often referred
to as a Maze procedure. Another variation on the cloze procedure is to delete only specific types of words, such as adjectives or verbs (Steinman, 2002). The cloze-elide method (Manning, 1986) involves the addition of words, and the reader is asked to identify irrelevant additions and delete them.

As an assessment tool, the Cloze passage has been found to be an effective way to determine how a reader is utilizing the context of a sentence or paragraph to get the meaning of the text (Cohen, 1988; Guthrie, 1973; Steinman, 2002). A more current way of using cloze passages is as a timed activity (Deno, Maruyama, Espin, & Cohen, 1990) which coincides with timed measures of oral reading fluency. This form of cloze passages involves students completing a multiple choice style cloze procedure in a certain number of minutes and the number of correct responses is recorded. Timed multiple choice procedures can therefore be used as a curriculum based assessment tool for monitoring reading comprehension progress (Wiley & Deno, 2005) which, in turn, can help inform teachers as to when changes in instruction are necessary (Joseph, 2006).

Another form of assessment that is used in conjunction with oral reading fluency measures is the oral retelling procedure. This procedure involves a student reading a passage for one minute and then orally retelling what was read. The student is given one minute to relay everything he or she can about the story and the number of words the student uses during the retelling is recorded. Through a story retelling, a student can demonstrate understanding of the story by relaying major events and details in a cohesive and sequential manner and making logical connections between events (Hagtvet, 2003). Although every word that appears relevant to the story during the retelling is counted, determining whether or not the student has truly gained meaning from the story is often
difficult (Joseph, 2006). A more direct way of measuring comprehension which still coincides with oral reading fluency and fits within a curriculum-based assessment format is the use explicit questioning using a multiple choice format.

A multiple-choice questioning procedure involves a student reading a passage and answering both literal and inferential questions corresponding to the passage. Literal questions pertain to details that are readily found within a reading passage. For instance, “What is the main character’s name?” Inferential questions require students to use their knowledge of text facts and details to make connections and generalizations. The correct responses to inferential questions are not directly found within the passage; students must connect details from the story with a broader, more general understanding of related concepts. For example, an inferential task might involve having the student predict what is likely to happen next in a story. The number of comprehension questions that a student is able to answer accurately is a measure of the extent to which the passage was understood.

Reading Comprehension Strategies

Although reading comprehension instruction is necessary from the very beginning of a child’s academic journey, a poignant shift in reading activity occurs in the fourth grade especially. At this time, reading becomes an integral part of every school subject as a means for gathering information from expository text whether it be in the context of science, history, mathematics, etc. (Kulak, 1993; Stanovich, 1986). For example, students with poor reading comprehension may not understand what math word problems are asking them to solve (Sibley, 2006). Although an understanding that text conveys information is, in part, developed naturally through repeated exposure,
comprehension is not entirely accessed without explicit instruction (Garner & Bochna, 2004). This is especially true for those students who struggle with reading. Poor readers often lack the awareness that comprehension is the ultimate the goal of reading (Palinscar & Englert, 1988). Additionally, struggling readers require the necessary skills for successful reading comprehension, such as developing a plan for their reading, monitoring their understanding of the text, and drawing on background information and context clues to aid in comprehension. Therefore, students who struggle with reading need instruction that is more intensive and explicit than what is necessary for the average reader in terms of intervention and motivation (Aarnoutse & Schellings, 2003).

Because reading comprehension is largely thought of as a skill that becomes necessary as students enter middle school grades, comparatively fewer studies have examined the effects of reading comprehension instruction for younger students (Boulineau, Fore, Hagan-Burke, & Burke, 2004; Kendou et al., 2005). However, with the signing of the No Child Left Behind Act (NCLB) in 2002 and the reauthorization of the Individuals with Disabilities Education Improvement Act (IDEIA) in 2004, more attention is being given to reading comprehension instruction in the primary grades. Gersten, Fuchs, Williams, and Baker (2001) compiled a review of research on reading comprehension strategies for students with disabilities. This review described strategies for comprehending narrative and expository text implemented with a wide age range of students. Two main conclusions from the Gersten et al. (2001) review are that comprehension instruction must be explicit and should occur early within reading education.
As reading comprehension instruction becomes more prevalent in the early grades, agreement on the most effective techniques for instruction is somewhat elusive (Crowe, 2005). For instance, the National Reading Panel identified 16 different categories of reading comprehension instruction within the published reading literature (NICHD, 2000). However, the Panel reported that only the following 7 categories were supported with a solid scientific basis: comprehension monitoring, cooperative learning, graphic and semantic organizers, question answering, question generation, story structure, and summarization. A significant conclusion made by the National Reading Panel is that teaching a combination of reading comprehension techniques is most effective for teaching children necessary reading comprehension skills (NICHD, 2000).

The following is a discussion of reading comprehension instruction strategies or programs which utilize one or more of the 7 instructional categories with empirical support identified by the National Reading Panel.

**Direct Instruction**

Earlier in this chapter, the importance of explicit and direct instruction was conveyed. In this discussion, the term direct instruction was referred to a principle of effective teaching (Joseph, 2006). Direct Instruction is also a widely known method of reading instruction developed by Engelmann and colleagues in 1964 (Lingo, Slaton, & Jolivette, 2006). The term "Direct Instruction" in this case refers to a highly scripted method for teaching that is fast-paced, provides explicit teacher-directed instruction, and involves constant interaction between students and the teacher. This method has been adapted to create over 60 different reading programs over the past forty years. The three major Direct Instruction programs are Reading Mastery (formerly Direct Instruction
System for Teaching and Remediation, or DISTAR) developed by Engelmann & Bruner (1988), Horizons (Engelmann, Engelmann & Davis, 1997), and Corrective Reading (Engelmann, 1988; Engelmann et al., 1999).

Reading Mastery (Engelmann & Bruner, 1988) is a leveled program that utilizes a phonic approach concentrated on teaching sounds in isolation and sound blending in order to decode words. The lessons are structured to involve a lot of student participation through choral responding and ample opportunities to practice skills. Students are supported through scaffolding and shaping techniques and receive immediate corrective feedback (Joseph, 2006). Comprehension is addressed through story-listening activities and other activities designed to develop the children's oral language comprehension. These comprehension activities are gradually integrated into the reading activities as students become more competent decoders. Reading comprehension skills become the focus of the instruction in the third level of the program.

Horizons (Engelmann et al., 1997) was designed to address various criticisms of Reading Mastery. Specifically, Horizons uses regular type as compared to altered orthography (print) and introduces spelling and capitalization lessons earlier in the curriculum. This program focuses on teaching children to decode words and comprehend stories beginning in kindergarten. Students are assessed individually every ten lessons which gives teachers the necessary information the need in order to determine mastery of skills.

Corrective Reading (Engelmann, 1988; Engelmann et al., 1999) is a direct instruction strategy designed to promote reading accuracy (decoding), fluency, and comprehension skills of students in third grade or higher who are reading below their
grade level. All lessons in the program are sequenced and scripted and can be implemented in small groups of four to five students or in a whole-class format. This curriculum is geared toward children who struggle with either learning to read or reading to learn (comprehension). Throughout the levels of instruction decoding lessons help to improve word attack skills and understanding of text, and comprehension lessons develop critical thinking skills (Hummel, Wiley, Huitt, Roesch, & Richardson, 2002). The Corrective Reading program boasts considerable evidence as a program for improving word reading skills and reading fluency from the reading research but lacks support when it comes to improving comprehension skills.

A comparison study by Thompson (1992) examined the gains made in reading fluency performance between a group of students receiving Corrective Reading instruction and a group of students who were taught using a whole language approach and a group of students taught with a traditional basal reading series. Despite the fact that the students in the Corrective Reading group had lower cognitive scores and a lower average socioeconomic status compared to the whole language group or traditional group, greater gains were seen in the Corrective Reading group’s performance on the Woodcock Johnson reading test. A pre-test post-test design was utilized and results showed that the students instructed with the Corrective Reading program made an average gain of 21 words per minute as compared with an average gain of 13 words per minute for the traditional group, and 7 words per minute for the whole language group (Thompson, 2002, as cited in Lingo, Slaton, & Jolivette, 2006).

Malmgren and Leone (2000) examined the effectiveness of a reading program involving Corrective Reading on the reading performance of incarcerated youth with a
history of reading failure. The participants in this student received daily reading
instruction involving the following elements: 1) direct instruction of both decoding and
comprehension skills via the Corrective Reading curriculum; 2) whole language reading
instruction comprised of reciprocal peer tutoring with an emphasis on student
summarization and prediction; and 3) oral reading by the teacher (Malmgren & Leone,
2000). Forty-five African American males (average age was 17 years) participated in this
study. Researchers implemented a pre-test post-test design using the Gray Oral Reading
Test, 3rd edition which assesses oral reading rate, accuracy of oral reading, rate and
accuracy combined ("passage" score), comprehension and an overall composite score of
reading (Oral Reading Quotient). Overall gains were reported for all areas except
comprehension. Malmgren and Leone (2000) concluded that although the results of their
study suggest that it is possible to improve reading skills for low achieving juvenile
delinquents with a relatively brief intervention (p. 245), comprehension skills may be
more resistant to change within a short period or that the Corrective Reading program
with regard to comprehension was not as effective as it was for reading fluency (p. 246).

Results of a study by Lingo et al. (2006) also show that the Corrective Reading
program enhances reading performance for students, but comprehension was not
measured. In this study, participants were seven middle school students with behavioral
problems who were receiving resource room services in the areas of reading and behavior
improvement. A multiple-probe design across students was used, and a control group of 7
middle school students in general education served as a comparison group. The new
version of Corrective Reading (Engelmann et al., 1999) was used in this study, which
involved 45 minutes sessions with the following instructional sequence of tasks: teaching
word attack skills, teaching sight word reading, teaching storybook reading, facilitating individual silent reading, teaching workbook exercises, and facilitating independent workbook exercise (Lingo et al., 2006).

As a dependent measure, after each lesson, participants were given a passage to read for one minute, and their oral reading fluency, reading errors, and reading achievement were assessed. Significant results include overall increase in the mean number of words that were read accurately in one minute as well as a significant decrease in the mean number of errors made during readings. Further, the Woodcock Johnson Reading Mastery Test was administered as a pre and posttest and statistically significant gains were observed on this assessment. An additional dependent variable in the Lingo et al. (2006) study was behavioral performance. A direct observation checklist was used to record positive behaviors such as staying in the assigned instructional area, following directions, and staying on task. However, no relationship between improved reading performance and a reduction in inappropriate behaviors was established in this study (Lingo et al., 2006, p.280).

*Communicative Reading Strategy*

An integrative approach to teaching reading, Communicative Reading Strategy (CRS) shares much of the explicit teaching format found in Direct Instruction with specific focus on reading comprehension performance. This type of instruction uses several conversational components to help children construct meaning from text. In Crowe (2005), eight elementary school aged students took part in a study comparing CRS instruction with a traditional decoding-based feedback approach. Four students (two boys and two girls) were assigned to each group. CRS instruction was implemented by first
having participants review the previous instruction session by answering five to six comprehension questions. Students then made predictions about the next chapter to be read by looking at the corresponding pictures. Guidance and cues were provided by the interventionist throughout the reading, which helped to activate the students’ background knowledge, explain unfamiliar words and grammar, and to form connections in meaning throughout the text (Crowe, 2005). Use of summarization was also encouraged in an attempt to enhance comprehension. The comparison group received instruction involving word supply on oral miscues, re-reading of miscues, encouragement to sound out unknown words, and a syllable breakdown of unknown words. All participants received one hour of intervention twice a week over a 5-week period.

Performance was assessed using the Reading Comprehension subtest of the Gray Oral Reading Test, Revised edition as well as investigator constructed comprehension questions designed to evaluate long-term comprehension. A pretest-posttest design was used to compare CRS with the traditional decoding-based feedback approach. Overall, CRS was found to be more effective for increasing oral reading comprehension. Those students receiving CRS instruction were able to recall more story details in both immediate and delayed assessments. This study was an extension of a previous study by Crowe (2003) that showed CRS led to greater gains in reading comprehension as well as oral and written language performance than did a decoding-based feedback approach for intermediate aged students.
**Helping One Student To Succeed**

Another program utilizing an integrated instruction approach is the Helping One Student To Succeed (HOSTS) program. HOSTS is a one-on-one tutoring program delivered by volunteer tutors that is meant to supplement classroom curriculum through the use of personalized interventions based on student strengths and weaknesses (Burns, Senesac, & Symington, 2004). This program was implemented in a study by Burns, Senesac & Symington (2004) to examine its effectiveness in improving reading achievement for children in kindergarten through fourth grade who were identified as at-risk for reading delays as indicated by district reading assessments. Kindergarten through fourth grade students in six elementary schools participating in the HOSTS program made up the experimental group and students in four schools not participating in the HOSTS program were selected for a control group based on how well they matched the experimental group’s demographics. Activities on decoding skills, vocabulary, literature, writing, and critical thinking were completed by the student daily under the tutelage of a trained volunteer. When compared with a control group, students receiving HOSTS mentoring, in general, showed significantly more improvement in the areas of initial sound fluency, reading fluency, comprehension, and overall reading performance based on measures such as the DIBELS, Gray Oral Reading Test: fourth edition (GORT-4), and the Test of Early Reading Ability: Second edition (TERA-2).

**Self-Modeling**

Self-modeling is a procedure in which students see themselves on videotapes that show desired behaviors. Hitchcock, Prater, and Dowrick (2004) examined the effects of instructional tutoring and video-self modeling on the reading performance of four first
grade students with reading difficulties and who were at risk for reading disabilities. Within a multiple baseline design, students received the following instructional conditions: tutoring to increase reading fluency, tutoring to increase reading fluency plus video self-monitoring, tutoring to increase reading comprehension, and tutoring to increase reading comprehension plus video self-modeling. Fluency instruction incorporated shared and repeated readings, sight word review, and discussion with the tutor to relate the content of the passage to the student’s own experiences.

Comprehension instruction involved these same activities with the addition of story mapping with direct instruction and guidance. Story mapping is a technique where students create a visual aid focusing on main story elements such as main character, plot, etc. The basic idea of story maps is versatile and can be used before reading a passage to activate prior knowledge. It can be used during reading as a method of recording important story elements and used after reading to review and summarize content from text. Further, it can be used with many different age groups, ability levels, and student populations. (Boulineau et al, 2004). The self-modeling component within the comprehension instruction involved the viewing of a video made up of clips of the student displaying appropriate and positive reading skills.

After approximately 40 sessions, results indicated that tutoring paired with video self-modeling increased both reading fluency and comprehension for all four of the participants (Hitchcock et al., 2004, p. 99), with the video component helping to “…accelerate reading fluency skills and consolidate reading comprehension skills” (p. 100). Other implications from this study include the improvement in behavior of the students as well as increased motivation to take part in reading activities.
Peer-Assisted Learning Strategies

Having same-age peers work together is, potentially, an efficient way to encourage both positive peer interactions and reading habits throughout the classroom by pairing stronger readers with weaker readers. Reciprocal same-age tutoring consists of two classmates taking turns as the tutor or tutee, even if one reader is consistently stronger than the other (Van Keer & Verhaeghe, 2005). A program that uses this type of peer mediation is PALS, a supplemental tutoring program that stands for “Peer Assisted Learning Strategies” (Fuchs, Fuchs, Thompson et al., 2001). Different levels of this program exist for different grades. In 2001, Fuchs, Fuchs, and Yen et al. observed that first grade students participating in a PALS program that incorporated peer-delivered basic reading skills activities paired with peer repeated readings of passages significantly outperformed control groups on measures of phonological awareness, alphabolics, fluency, and comprehension. PALS activities include instruction in sounds and words where the student “coach” prompts his or her partner, the “reader”, to respond (i.e. saying the sound of the letter the coach points, sounding out a word, or reading sight words in a timed activity).

In summary, methods of Direct Instruction that involve substantial interaction between students and teachers have been found to increase word reading, reading fluency, and, in some cases, reading comprehension. Reading Mastery (Engelmann & Bruner, 1988) and Horizons (Engelmann et al., 1997) are both programs which have a strong focus on addressing reading comprehension instruction for young students but these programs have not frequently been utilized within literacy research studies. Although Corrective Reading (Engelmann, 1988; Engelmann et al., 1999) also includes
lessons specifically for comprehension instruction studies have found that most gains are made in the areas of reading fluency rather than in comprehension (Lingo et al., 2006; Malmgren & Leone; Thompson, 1992). The Communicative Reading Strategy program led to comprehension gains (Crowe, 2005). Programs which also have been found to have positive effects on reading comprehension include the Helping One Student to Succeed program (Burns et al, 2004), the Self-Modeling program (Hitchcock et al., 2004), and the Peer-Assisted Learning Strategies program (Fuchs et al., 2001).

The Relationship between Fluency and Reading Comprehension

Although the connection between early reading skills and comprehension is still not completely understood, scholars generally agree that the relationship between these skills, especially reading fluency and reading comprehension is reciprocal, meaning that “…an increase in one leads to an increase in the other” (Vaughn et al., 2000, p. 326). Oral reading fluency is demonstrated by reading connected text accurately, quickly, and with expression (Samuels, 1979). One theory suggests that a certain degree of fluent reading is necessary before one can sufficiently comprehend text; until reading becomes more automatic, cognitive resources are directed toward word reading and decoding instead of attending to reading content (Samuels, 1979). Sometimes, however, cases arise in which a student can read text fluently but, at the end of a passage, is unable to recall what he or she has just read. Students with these characteristics are commonly referred to as “word callers” meaning they are able to recognize and read words in connected text, but they do not make connection between the words and the information or thoughts the words are conveying. The following sections describe strategies which, when used in conjunction
with one another, take advantage of the reciprocal nature of fluency and comprehension by improving skills in both areas.

Repeated Readings

Repeated readings involve a student reading and re-reading a passage until the student reaches a set fluency criterion (Joseph, 2006; Samuels, 1979). Reading fluency is defined as reading connected text accurately, quickly, and with prosody (Samuels, 1979), and extensive research has found repeated readings to be exceptionally effective for improving student performance in this area of reading (Bryant et al., 2000; Daly, Murdoch, Lillenstein, Webber, and Lentz, 2002; Devault & Joseph, 2004; Mercer, et al., 2000; O’Shea, Sindelar, and O’Shea, 1985; Vaughn et al., 2000). However, examinations have produced conflicting results on the effectiveness of using repeated readings to improve reading comprehension (Therrien, 2006); although some studies produced results indicating improved comprehension, results of other studies have not been as promising. For instance, Dowhower (1987) was one of the first researchers to directly measure the influence of repeated readings on students’ comprehension performance. Using a time-series experimental design, Dowhower (1987) instructed seventeen second grade students in five sessions of repeated readings with five different passages. Comprehension performance was measured by asking the same five literal questions after the first reading of the passage and after the final repeated reading of the passage. Results showed that repeated readings led to increased understanding of passages based on performance on post-test questions compared to performance on pre-test questions.

A study by Stoddard, Valcante, Sindelar, O’Shea, and Algozzine (1993) drew similar conclusions concerning the effects of repeated readings on comprehension. In this
study, fourth and fifth grade students received instruction involving repeated readings and sentence segmentation and intonation. Though the added training in sentence segmentation and intonation did not appear to have a significant added effect, researchers found that the repeated readings aspect of the reading instruction increased reading rate and comprehension for participants.

A study by Valleley and Shriver (2003) examining the effect of repeated readings on the comprehension performance of four secondary students yielded different results. Participants in this study were given fourth grade reading passages from the Timed Reading Series (Spargo, 1989) which were slightly above their instructional reading levels. Passages were reread until a criterion of three consecutive fluency improvements of at least one additional word correct was met. Comprehension was measured using free recall questions from generalization Social Studies and English problems, ten multiple-choice questions from the corresponding fourth grade Timed Readings passages, and cloze readings modified from the ninth grade Timed Readings passages. Results of this study indicated that repeated readings alone did not increase comprehension of text for participants.

Repeated Readings With Corrective Feedback

More promising results for the benefits of repeated readings regarding comprehension have been found when repeated readings instruction is paired with a form of corrective feedback on errors made while reading. Corrective feedback has various forms and different names, but, in essence, is a technique used to correct a mistake or error that can be immediate or delayed (Joseph, 2006). Corrective feedback methods have been found to promote accurate word recognition in a substantial number of studies
(McCoy & Pany, 1986), and more recent studies suggest the benefits of corrective feedback techniques on reading comprehension (Crowe, 2005). The following studies include a corrective feedback component in conjunction with repeated readings when evaluating effects on reading comprehension performance.

A study by Freeland et al. (2000) was very similar in design to that of the aforementioned study by Valleley and Shriver (2003). However, in this case immediate corrective feedback in the form of word supply was provided during students’ oral readings. The three students in this study took part in a control session during which a reading passage was read silently and corresponding comprehension questions were answered. This session was followed by a repeated readings intervention during which students orally read two times, and received corrective feedback in the form of word supply on miscues and omissions. Word supply is an error correction technique that involves the instructor providing the correct word when a student reads it incorrectly or omits a word. Delayed comprehension was measured the following day through a series of corresponding comprehension questions. Results for two of the three participants show more total questions answered correctly on repeated reading passages than questions answered correctly on control passages. Similarly, two of the three students showed fairly consistent patterns of higher reading comprehension rates on repeated reading passages relative to control passages. Reading comprehension rate refers to the amount of information a student is able to comprehend per minute of reading time; this concept will be explained in more detail in a later section of this chapter.

In an investigation examining the potential effects of repeated readings instruction on reading achievement when combined with a question generation intervention,
Therrien et al. (2006) also utilized a corrective feedback component. Students in the intervention group were instructed to read a passage as quickly as they could but were reminded to attend closely to the text so that they would be able to answer comprehension questions. At the end of the first reading, students were presented with a cue card containing factual questions pertaining to the basic story structure (e.g., “Who is the main character?”) as well as inferential questions (e.g., “How did the main character feel?”). Students were instructed to read these questions aloud before orally rereading the passage. Repeated readings continued until either a pre-established criterion of correct words per minute was reached or the student read the passage four times.

During the repeated readings the students were provided with word supply corrective feedback on miscues and omissions. Word supply corrective feedback involves the instructor correcting any misread or omitted words by reading the correct word to the student. In addition, students were asked to repeat the supplied words. This is considered a single-response repetition procedure for error correction (Wordsell, 2005). After the last reading of the passage, students answered the cue card questions orally. When appropriate, scaffolding was offered and students were instructed to look back to the passage for answers. Results of this study indicate that repeated readings combined with question generation and single-response repetition error correction had a positive impact on students’ reading fluency and comprehension with a particular improvement in inferential comprehension.

Alber-Morgan et al. (2007) examined the effects that repeated readings paired with a prediction strategy would have on reading fluency and comprehension of middle school students with behavioral problems. This study employed the following two
conditions: (1) repeated readings with systematic error correction (Nelson, Alber, and Gordy, 2004) and performance feedback (Chafouleas, Martens, Dobson, Weinstein, and Gardner, 2004) and (2) a repeated readings plus prediction strategy. The procedures for the first condition involved the instructor correcting the student miscues, instructing the student to repeat the supplied word, and providing praise for a correct repetition. Additionally, all miscues were reviewed using single-response repetition at the completion of the reading. This was performed by the instructor pointing to each reading error and asking the student to read the word; once again praise statements were given for correct responses. If the student did not read the word correctly, the error correction drill was repeated.

The repeated readings plus prediction condition involved the student predicting what the story would be about from simply reading the title. The student then read the first two sentences and was instructed to modify this prediction. Next, the entire passage was read and the student participated in a brief discussion with the instructor about how closely the prediction matched with the story’s true events. The student then participated in two one-minute repeated readings of the passage just as in the repeated readings with systematic error correction and performance feedback condition, but at no point was corrective feedback supplied during this condition. Investigators found that the repeated readings intervention phase had a significant, positive effect on reading fluency, an immediate positive effect on literal comprehension, and a delayed positive effect on inferential comprehension. The repeated readings plus prediction strategy did not result in any further gains in reading fluency, and, for only one student influenced a positive change in the level and stability of literal and inferential comprehension. Investigators
theorized that the combination of repeated readings and prediction strategy likely had a positive effect for the other participants’ comprehension, but concrete conclusions were unable to be drawn due to possible ceiling effects (Alber-Morgan et al., 2007, p. 26).

Another form of corrective feedback with growing support is phrase drill error correction. Phrase drill error correction involves the instructor modeling the correct way to read a miscued word and the student repeatedly practicing the phrase or sentence which includes the erred word (Begeny, Daly, & Valleley, 2006). Daly, Martens, Dool, & Hintze (1998) investigated the effectiveness of phrase drill error correction in conjunction with listening passage preview and repeated readings strategies on the number of words read correctly per minute in instructional and generalization reading passages. Three elementary aged students, two boys and one girl, participated in the study. The treatment conditions included combinations of contingent reinforcement for rapid reading, repeated readings, listening passage preview, and phrase drill error correction. For two participants, the listening while reading and phrase drill error correction strategies in addition to the repeated readings did not lead to any further gains. However, for one participant, reading performance improved modestly when the repeated readings strategy was paired with listening passage preview and phrase drill error correction. Further investigations examined phrase drill error correction as a stand alone instructional strategy.

Begeny et al. (2006) compared the effectiveness of phrase drill error correction to that of repeated readings on reading fluency gains. A single-subject, alternating treatment design was implemented with one participant, an 8-year old boy referred for reading difficulties. The three treatments included repeated readings, phrase drill error correction,
and reward. Results indicated that the phrase drill procedure was equal or superior to other conditions in reducing errors and leading to stable response levels. Researchers hypothesized that these findings could have been due to a possible negative reinforcement contingency; the phrase drill error correction drill increased the chance that the student would read the erred word correctly during future readings. Begeny et al. (2006) addressed the need for further examinations of the use of phrase drill error correction on other reading outcomes and in conjunction with other instructional methods.

Phrase drill error correction paired with repeated readings instruction has been found to have a positive effect on comprehension. Strong, Wehby, Falk, and Lane (2004) examined the impact of paired repeated readings on comprehension for students receiving structured reading curriculum instruction. The repeated readings intervention involved paired students chorally reading an unfamiliar passage out loud two times with a research assistant. Word supply corrective feedback was provided by the research assistant. Word supply corrective feedback involves the instructor correcting any misread or omitted words by reading the correct word to the student.

After the choral reading, one student read the passage aloud while the other student followed along silently and provided word supply corrective feedback if the reader paused at an unknown word for more than three seconds. At the end of this reading, the second student then read the passage aloud and the first student followed along providing feedback. For four of the six participants, the paired repeated readings
instruction resulted in an increase in oral reading rates and more accurate responses to comprehension questions than were achieved with the structured reading curriculum instruction alone.

Further work with paired repeated readings was completed through a study by Staubitz, Cartledge, Yurick, and Lo (2005). Similar to the Strong et al. (2004) study, six students in either the fourth or fifth grade participated in paired, peer mediated repeated reading but, in this case, did not read chorally. Each student read a passage aloud individually while the other student followed along silently and followed a scripted phrase drill error correction procedure in the event of miscues. When appropriate, corrective feedback was also offered by the investigator. Although investigators noted that the peer-mediated instruction design may have put the weaker reader at a disadvantage because the stronger reader had a tendency to “dominate” the lesson by reading too quickly for his/her partner to catch and correct miscues (Staubitz et al., 2004, p. 61), results of this study demonstrated that paired repeated readings with phrase drill error correction led to improved reading fluency and reading comprehension for all participants.

To summarize the findings regarding repeated readings, when implanted without a form of corrective feedback, two studies (Dowhower, 1987; Stoddard et al., 1993) found positive effects for reading comprehension. One study (Valleley & Shriver, 2003) reported results that indicated repeated readings did not increase comprehension of text for participants. More promising results were found when some form of corrective feedback was used in conjunction with repeated readings. Three studies (Freeland et al., 2000; Therrien et al., 2006; Strong et al., 2004) found increases in comprehension
performance when having students perform repeated readings and offering word supply corrective feedback on miscued words during the initial and repeated readings. Alber-Morgan et al. (2007) found that repeated readings with systematic error correction had delayed positive effects on comprehension, and repeated readings paired with phrase drill error correction led to improved comprehension for all participants in Staubitz et al. (2004).

Passage Review

Passage reviewing is typically an unstructured, self regulated re-reading of text in order to gain further understanding of what was initially read (Millis & King, 2001; Zabrucky & Commander, 1993). Passage review is a strategy often routinely used by proficient readers. Zabrucky and Commander (1993) performed a study in which both good and poor readers were observed to measure the extent to which they used a rereading strategy to enhance understanding and memory of text. Researchers found that both groups of readers do use silent rereading to further comprehension, but that poor readers fail to discriminate well during their review (Zabrucky and Commander, 1993). For instance, good readers were more selective in their rereading, spending most of their time reviewing confusing or incongruent portions of the reading passage. In contrast, poor readers had a tendency to reread the entire passage.

A later study by Millis and King (2001) extends this research to examine the influence of passage review on comprehension. Once again, results indicated that both above and below average readers use rereading as a strategy for increasing understanding of text but that stronger readers attend to more complex and significant details within the passage. This more discriminate rereading strategy results in the formation of a more
complete idea of what is being communicated through text suggesting that teachers should encourage students to review reading material. Unfortunately, “…those students who need the most help comprehending course material are those that would profit least from self-directed rereading” (Millis & King, 2001, p.63). Students who struggle with reading comprehension likely require more structured instruction in order to stay on par with their above average reader classmates. A strategy that offers a structured procedure for reading text is the reciprocal teaching strategy.

**Reciprocal Teaching**

Reciprocal teaching is a reading strategy introduced by Palincsar and Brown (1984) involving cooperative teaching between the teacher and students. A typical reciprocal teaching lesson follows a set format. Students read a short reading passage in a small group. This reading is followed by a teacher-led discussion of the reading; the teacher demonstrates the use of reading strategies and models how to apply the strategies. The strategies are questioning, where students learn to generate a question centered on the main idea of the text; clarifying text inconsistencies, where the students learn to stop at difficult words or sections of text and ask for help if necessary; summarizing, where students must paraphrase sections of text; and predicting, where students make an attempt to foretell how the text will continue based on information from the passage (Brand-Gruwel, Aarnoutse, & Van Den Bos, 1998). As the students become more proficient in using the strategies, the teacher provides less modeling and the students take on more responsibility as discussion leaders.

Palincsar and Brown (1984) first substantiated support for this strategy when results of their study indicate that students with poor decoding skills trained by the
reciprocal teaching method outperformed poor decoders in a control group on standardized reading comprehension tests. A study by Brand-Gruwel et al. (1998) extended this research with a similar study investigating the effects of a reciprocal teaching strategy for students with poor decoding skills and poor reading comprehension. 157 fourth grade students participated in this study; half of them received the reciprocal teaching intervention program and half of them acted as a control group and received their school reading curriculum instruction. The intervention program consisted of twenty 45 minute lessons, ten of which were reading lessons, five of which were listening lessons, and five of which were combined reading and listening lessons. During the lessons clarifying, questioning, summarizing, and predicting strategies were first explicitly taught and modeled by the teacher. They were then practiced through reciprocal teaching in small groups of students (Brand-Gruwel et al., 1998). When compared to a control group, the students who received the explicit and reciprocal training performed better on tests of comprehension. Participants’ maintenance test performance failed to show long-term benefits which, researchers suggest, may be indicative of the need to intensify the explicit instruction of these types of strategic tasks by incorporating it into the daily reading curricula and other supplemental reading instruction (Brand-Gruwel, et al., 1998).

Paraphrasing

One of the strategies incorporated into reciprocal teaching as mentioned, paraphrasing can also be utilized in isolation as an instructional strategy. Paraphrasing is the act of rephrasing text in one’s own words, typically in a more condensed manner (Fisk & Hurst, 2003). Often is the case that students are instructed to paraphrase text and
the result is a near replicate of the original with a few words stated differently. However, paraphrasing should involve rewriting that concentrates on expressing main ideas and story details in one’s own words (Fisk & Hurst, 2003). When students receive explicit instruction in how to paraphrase constructively, this strategy can have positive effects on overall reading comprehension. Katims and Harris (1997) implemented a study examining the effectiveness of a paraphrasing strategy called RAP on reading comprehension. RAP stands for Read a paragraph, Ask yourself questions about the main idea and details, and Put the main ideas and details into your own words using complete sentences. Participants were 207 seventh grade students participating in district-mandated reading classes. The students were randomly assigned to either the experimental group which received the paraphrasing instruction, or a control group which received reading instruction through the district-mandated reading program, Reading Workshop (Atwell, 1987).

The paraphrasing instruction involved the following procedures: (1) Students rehearsed the meaning of each step of the RAP strategy, (2) the teacher verbally and physically modeled the RAP strategy using a think-aloud procedure, (3) students silently read an expository passage while actively implementing the RAP strategy, (4) students answered 10 multiple-choice questions pertaining the passage without referring back to the text, (5) the students scored their answers during a teacher-led group discussion, (6) direct feedback was provided to the students and the passage was discussed at length identifying where the main idea and supporting details were located within the passage and how to generate correct paraphrases, and (7) students were called upon to recite their individual paraphrases of different parts of the passage and to discuss their appropriate
use of the RAP strategy (Katims & Harris, 1997). A comparisons of gains made from pretest to posttest indicate that students exposed to the paraphrasing instruction made greater gains in reading comprehension than students in the control group.

In summary, passage reviewing is a procedure utilized by both good and poor readers, but studies have found that poor readers have more difficulty discriminating between important and less relevant details which leads to less substantial gains in comprehension (Zabrucky & Commander, 1993; Millis & King, 2001). Reciprocal Teaching (Palinscar & Brown, 1984) has been found to lead to improvements on tests of comprehension (Palinscar & Brown, 1994; Brand-Gruwel et al., 1998), however, students’ failure to maintain test performance suggests that more explicit and intense instruction of the reciprocal teaching strategies may be necessary to see long-term gains for poor readers. One study (Katims & Harris, 1997) supports explicit instruction in paraphrasing; results suggested that students who learned to paraphrase reading material made greater comprehension gains than students in a control group.

**Oral Story Retellings**

A strategy similar to paraphrasing is oral story retellings, which involve having students read a passage and retell the story or events with as much detail as possible. The theory behind this strategy is based upon the supposition that, as they read, readers try to make sense of the text. “Retellings after reading provide another opportunity for the reader to continue to construct the text” (Goodman, 1982, p. 301). Because of this theory, story retellings are frequently used as a measure of reading comprehension (Dory, Popplewell, and Byer, 2001; Gillam and Carlile, 1997; Hagtvet, 2001; Moss, 1993).
Notable use of story retellings as a measure of reading compression can be found within the literature on students with hearing and language impairments. For instance, Robertson, Dow, and Hainzinger (2006) examined story retelling as a measure of word and phrase recall in children with and without hearing loss. Ten 3- to 6-year-old children with moderate to profound hearing loss and 11 3- to 5-year-old children with typical hearing each listened to his or her parent read them a story. The children were then asked to retell the story to their parent using the storybook pictures as visual aids. Results indicated the two groups of students exhibited similarly proficient word and phrase recall during their retellings.

Similarly, Gillam and Carlile (1997) utilized retellings to measure story retention for 12 school-age children with specific language impairments and 12 typically achieving school-age children. Participants were asked a general question designed to activate background knowledge and then read a story aloud. Following the reading, participants retold the story; these retellings were analyzed for content and consistency with the original story. Although students with specific language impairment struggled more with the initial reading of the story, their retellings indicated that they retained as much word- and story-level information as students without a language impairment diagnosis.

Johnston (1983) reported, “Retelling is the most straightforward assessment …of the result of text-reader interaction” (p. 54). On the contrary, a study that specifically examined the reliability of story retellings as an indicator of reading comprehension found “modest support” for the measure if it is used in conjunction with a measure of
fluency (Roberts, Good, & Corcoran, 2005). Despite mixed opinions on the use of retellings as a measure, this technique as a strategy for increasing reading comprehension shows promise within educational research.

Although research is limited regarding story retellings, the concept of using this method as an instructional strategy is not new. Research on this topic began with the investigation of retellings as a strategy for improving listening comprehension. Listening comprehension is different than reading comprehension, however, oral retellings employ oral language skills which have a very poignant link to literacy. For example, Thomas and Rinehart (1990) found a positive correlation between children’s use of oral language and a better understanding of print (recognizing words vs. non-words and reading logos without contextual clues). Empirical evidence supports that oral language is predictive of later academic success. For instance, preschool oral language skills have also been linked to achievement in word decoding in the first grade and reading comprehension in the third grade (NICHD, 2005). Further, Isbell, Sobol, Lindauer, and Lowrance (2004) found that having young children retell stories that had been read to them or told to them through a storytelling context led to improved story comprehension and oral language complexity. In essence, listening comprehension can be considered a stepping stone to reading comprehension for pre-readers, so it may follow that a strategy for improving listening comprehension will transfer as a strategy for improving reading comprehension.

Zimiles and Kuhns (1976) conducted a study in which young children aged six to eight were randomly assigned to either a control or retell condition. All students listened to a story and those in the retell condition were asked to tell the investigator about the story they had heard. Students who retold the story performed better than those children.
in the control condition on a test that measured recall. Similarly, Brown and Dunne (1996) performed a study that found that repeated listenings of a story with immediate retellings of the story increased retention of information for high school students with developmental delays.

Morrow (1985) conducted a two-part study comparing the effects of two strategies on listening comprehension. The first strategy required students to retell the story in their own words. The second strategy required them to draw a picture depicting the events in the story they had just read. Results indicated that there was some improvement for the students who retold the story over the students who drew a picture. Based on these results, Morrow (1985) concluded that students require instruction on retell procedures. This conclusion led to Morrow’s (1985) second study. This second study utilized the same procedures as study one, but children in the retell group were provided with frequent practice in retelling components related to the structural framework of a story. Results of this study supported the hypothesis that frequent retelling practice would lead to greater gains in listening comprehension.

Retellings have also been found to help improve listening comprehension for students with visual impairments. Tuncer and Altunay (2006) examined the effectiveness of a summarization-based cumulative retelling strategy on listening comprehension. An adapted multiple-probe design across participants was implemented with 4 Turkish college students with visual impairments. A baseline condition involved participants completing summarization and listing comprehension probes. This was followed by a teaching phase during which participants received extensive training on paragraph summarization and retellings.
Summarization training involved teaching participants to identify paragraph main ideas and key supporting details, disregard irrelevant information, and condense multiple story items or actions using a superordinate term. These summarizations were “written” using a braillewriter. Retelling training involved the reading of the written summaries with encouragement to rely less and less on the summaries and more on recalling the material. Participants also practiced answering comprehension questions. The goal of the teaching sessions was to help participants to be able to summarize the passages by listening just once, retell the material without the material the aid of the summaries, and answer 70% of the comprehension questions correctly (Tuncer & Altunay, 2006, p. 356). When the goals were met by the first participant, the intervention was begun with the second participant, and so on. Generalization probes and a maintenance condition completed the design. Results of this study imply that the combination of summarization and retelling led to listening comprehension gains for all participants and that these gains were sustained over time.

Recognizing that oral retellings were a successful way to improve listening comprehension, Gambrell, Pfeiffer, and Wilson (1985) conducted a study very similar to that of Morrow’s 1983 study to test retelling as a potential strategy for improving reading comprehension. Students were randomly assigned to either a retelling or illustrating group. All students read a passage silently, and, at its conclusion, were asked to either retell all the important ideas in the story or illustrate all of the important ideas in the story depending on group assignment. Results support the use of oral retellings; the retelling group outperformed the illustrating group when answering ten literal and ten inferential comprehension questions.
In a subsequent study by Gambrell, Miller, King, and Thompson (1989) researchers compared the effects of a retelling strategy versus a questioning strategy as post reading activities. Fourth and fifth grade students were given stories to read and those in the retelling group were instructed to orally recall everything they could from what was read. Those students in the questioning group were asked questions pertaining to the story they just read. Results indicated that the retelling strategy was more effective than the questioning strategy for increasing reading comprehension based on a free-recall measure. Additionally, students in the retelling group outperformed students in the questioning groups in the ability to recall text-based propositions and story structure elements (Gambrell et al., 1989).

A later study by Gambrell, Koskinen, and Kapinus (1991) adds further support for the use of oral retellings for reading comprehension and somewhat mirrors Morrow’s (1985) second study. In this instance, proficient and less proficient fourth grade students were given four practice sessions in retelling stories they had read. Researchers found a significant improvement in the recall of story structure elements and in the correct answering of comprehension questions. The opportunity to practice the retellings was cited as a critical component of this study (Gambrell et al., 1991).

To summarize the current findings pertaining to oral retellings, this procedure has been utilized as a tool for measuring both listening and reading comprehension as well a strategy for increasing comprehension. Gains in listening comprehension and story recall
were found in four studies (Isbell et al., 2004; Morrow, 1985; Tuncer & Altunay, 2006; Zimiles & Kuhns, 1976). Oral retellings were found to outperform other instructional strategies in three studies (Gambrell, Pfeiffer, & Wilson, 1985; Gambrell et al., 1989; Gambrell, et al., 1991).

Written Retellings

Written retellings are very similar to oral retellings except that instead of reading a story and describing it aloud, students are asked to write everything they can recall after reading a text passage. The theory behind the use of written retellings stems from the knowledge that reading and writing share many of the same developmental components and are mutually reinforcing (Kutz & Roskelly, 1991). Specifically, both reading acquisition and writing acquisition rely on the same pre-literacy skills that are strongly predictive of later literacy success (Lonigan, 2006). Because the two domains share such similar features and follow a common developmental process, it makes sense, theoretically, that teaching reading and writing together could potentially prove beneficial in making learning more efficient (Fitzgerald & Shanahan, 2000).

This technique, as with oral retellings, has been used as a tool for measuring reading comprehension. A written retelling protocol was developed to monitor recall of key components of passages in a study by Coffman (1997). Freewriting was used by Bintz (2000) as a reading comprehension assessment measure, and Smith and Jackson (1985) used written retellings to assess reading and learning skills. Only one study, however, could be found that examined the effect of a variation of written retellings as an instructional strategy.
Craig (2006) examined the effects of an adapted interactive writing intervention on reading outcomes in the areas phonological awareness, spelling, and comprehension for 87 kindergarten students. The interactive writing instruction used in this study involved a tutor instructing a small group of students in activities such as text preview, text discussion, vocabulary instruction, and writing with scaffolding. Together the tutor and students verbally summarized the story, concentrating on the main story elements. Students then wrote about the story and were provided with corrective feedback on spelling and word usage. After 16 weeks of intervention, comparisons were made between the experimental and control groups based on improvement from pretest to posttest. Relative to a comparison group of students who instead participated in structured phonological awareness and alphabetic training, the performance of students who performed the interactive writing intervention was better on measures of word identification, word reading development, and, most importantly, passage comprehension.

**Graphic Organizers**

Graphic organizers are diagrams or illustrations that help students organize information. As opposed to the linear and rote nature of note-taking and outlining, a graphic organizing technique utilizes a spatial technique. Spatial notes have received stronger empirical support than linear forms (Robinson, Katayama, Odom, Hsieh, & Vanderveen, 2006). This finding is likely due to the fact that spatially organized notes not only promote concentration on important text ideas, but they allow students to make multiple across-content relationships (Robinson et al., 2006). Popular forms of graphic organizers include the KWL procedure and story maps or grammars.
The KWL procedure involves three blank columns labeled on with K, W, and L respectively. The letters stand for “what you already know, what you want to learn, and what you have learned” (Ogle, 1986, as cited in Joseph, 2006). The KWL strategy allows the learner to activate prior knowledge by generating what is known about a topic. After generating what is known, learners write down what they want to know; this activity gives the student a sense of purpose when reading. After reading, students indicate what they have learned. This step helps students to compare their prior knowledge with their newly gained information. KWL was found to enhance reading comprehension for students in studies by Jennings (1991) and McAllister (1994). Additionally, KWL was identified as a strategy to enhance memory based on its ability to help students construct meaning (Banikowski & Mehring, 1999).

A story map is a graphic representation of a story which portrays the relationships of the story elements through a sequential time-line of components and events. For instance, a teacher might present students with a table labeled with headings such as Title, Author, Characters, Setting, and Conflict, and the students are responsible for filling in the corresponding information either as they read the story or at the conclusion of a reading. The effects of story mapping on reading performance were examined by Taylor, Alber, and Walker (2002). Students read a narrative and then created and reviewed their story-maps before answering comprehension questions in order to prime their attention to the important parts of the story. Self-questioning procedures generally involve students’ answering of story related questions throughout the reading of text.
Although capable readers can often generate their own questions for this technique, Taylor et al. (2002) worked with students with learning disabilities and so provided a list of questions, question prompting, and an opportunity to review answers.

Using an alternating treatment design, all students received treatment in the story mapping, self-questioning, and no treatment conditions. Results indicated that both story mapping and self-questioning were effective for increasing reading comprehension for students with learning disabilities, with only minor differences in effect. For instance, the self-questioning condition produced higher scoring performance on inferential questions, but the story mapping technique still led to a high degree of accuracy in answering inferential questions (Taylor et al., 2002, p. 83).

A technique that is essentially congruent with the story mapping technique, is Story Grammar instruction. This procedure explicitly focuses on reading comprehension by teaching students to strategically attend to the main elements of narrative text. Garner and Bochna (2004) conducted a study on the effects of an intervention that used lessons of direction explanation and guided practice to teach inexperienced readers main character, setting, story problem, attempted solution, and solution. As this intervention has had success with older learning disabled readers in the past (e.g., Montague et al., 1990; Weaver & Denison, 1982), Garner and Bochna (2004) examined its effectiveness with much younger students as a potential prevention focused reading strategy. Results indicate that the strategies learned through the story grammar technique were successfully applied during independent reading of narrative text as measured by answering comprehension questions for students in the first grade.
Kim, Vaughn, Wanzek, and Wei (2004) synthesized the research on the use of graphic organizers to improve reading performance for students with learning disabilities. Researchers examined all studies targeting students in grades kindergarten through 12 who had educationally diagnosed learning disabilities where the independent variable was instruction using graphic organizers and one of the dependent variables was reading comprehension performance. Only studies with treatment-comparison or single-group designs were included in the synthesis. Twenty-one studies total were included in the analysis. Types of graphic organizers used in these studies included semantic organizers, cognitive maps, and framed outlines.

Semantic organizers, or maps, are diagrams that graphically represent connections among different concepts or schema. These concepts are written on a page and typically circled. Relationships between concepts are represented by lines drawn from circle to circle. Cognitive mapping is a prewriting technique in which students following a multi-step process in writing down the main ideas or concepts of story or reading passage. Similar to the mapping involved with semantic organizers, cognitive mapping helps students draw connections between events and concepts from the text. This process purportedly facilitates integration and retention of information (Ruddell & Boyle, 1984). Framed outlines consist of graphically represented lesson outlines or overviews that help teachers and students identify main ideas and important facts (Kim et al., 2004). Results of this literature search indicated overall support for the use of graphic organizers; in the majority of the studies, large effect sizes were demonstrated on posttests measuring reading comprehension. Researchers concluded that this effect was likely due to the benefits of information organization on recall and understanding (Kim et al., 2004).
Notetaking

Boyle and Wieshaar (2001) examined the effects of strategic notetaking on recall and comprehension of 26 high school students with learning disabilities or educable mental retardation. Strategic notetaking involves training students to use a structured guide with notetaking prompts such as “What is today’s topic?” and “Quickly describe how the ideas are related?” as they listen to lectures. Dependent variables used to assess the effectiveness of this method of notetaking included an immediate free recall measure, a long-term free recall measure, and comprehension test, and the number of words found in students’ notes.

The study took place over four sessions; the first two involved training the experimental participants in the use of the notetaking guide. During the third session, all participants viewed a video lecture. The experimental participants were instructed to use the notetaking guide to take notes and the control group was instructed to take notes on a blank lined piece of paper using conventional notetaking procedures. The final session was held two days after the third session and involved all participants completing the long-term free recall assessment. Results indicated that strategic notetaking was found to be more effective than conventional notetaking procedures for this population. Participants in the experimental group recorded more notes, produced more words on recall measures, and improved their comprehension of lecture material. Investigators concluded that the structure and format of the strategic notetaking procedure helped students to recognize important information during lectures through metacognitive
process such as summarization and chunking. These techniques then led to encoding and comprehension.

One of the most beneficial components of strategic notetaking and using graphic organizers is that opportunities for writing are provided to students. According to Sorgen (1998), writing and thinking are strongly connected as writing helps to refine thinking. The act of transferring thoughts from one’s brain to a piece of paper helps the learner to organize ideas and begin to see patterns and overarching concepts (Banikowski & Mehring, 1999). Writing also helps with the recall of information as “…the act of writing causes the brain to process that information more in-depth” (Ormrod, 1998, as cited in Banikowski & Mehring, 1999). Due to this strong writing-recall connection, written retellings have a solid theoretical basis as a potentially influential strategy for improving reading comprehension.

In summary, strategies involving a writing component have been found to improve reading comprehension. Results of Craig (2006) indicate the effectiveness of written retellings. Findings from three studies (Banikowski & Mehring, 1999; Jennings, 1991; McAllister, 1994) suggest that the KWL procedure may enhance comprehension and recall of text. Graphic organizers such as story maps, story grammars, and cognitive mapping also have been found to have positive effects on reading comprehension (Garner & Bochna, 2004; Kim et al., 2004; Taylor et al., 2002). Finally, strategic notetaking may lead to greater recall and encoding of information which can then improve overall comprehension.

Instructional Efficiency
In addition to being effective, reading interventions must be efficient in order to be perceived as feasible by teachers (Nelson et al., 2004). Lack of time is a pertinent issue for teachers in regard to intervention implementation, so instructional methods that are efficient will likely have a greater chance of being utilized within the classroom (Gresham, 1989). “Instructional efficiency can be defined as students’ rate of learning novel content and skills when learners interact with methods of instruction…” (Schmidgall & Joseph, 2007, p. 319). In recent years, an increase in the number of studies examining learning rate efficiency can be seen in literacy research. Several of these studies have compared different instructional methods on student learning rates.

For example, Skinner, Belfiore, and Watson (1995) looked at the effects of taped-words interventions on students’ word learning. Two methods were compared: a slow taped-words condition involved words presented at five second intervals and a fast taped-words condition consisted of words being presented in rapid succession, one right after the other. Although the slow taped-words condition led to more words being learned by students, the learning rate of students was greater under the fast taped-word condition. That is, students learned more words per minute of instruction when words were presented rapidly.

Two studies (Skinner, Ford, & Yunken, 1991; Skinner, Belfiore, Mace, Williams-Wilson, & Johns, 1997) examined the effects using different response methods on instructional efficiency. Researchers found that when students were instructed to give verbal responses rather than written responses, the time it took to complete the intervention session was reduced without detrimental effects to student performance. In
fact, enhancing response efficiency allowed for greater rates of active responding and, as
a result, increased learning rates.

Cates and colleagues (2003) examined the effectiveness and efficiency of three
spelling interventions on spelling performance of second grade students. Of particular
importance, instructional time and student learning rate was considered in relation to its
effect on academic treatment decisions. The three instructional methods employed in this
study were an interpsersal training procedure, traditional drill and practice procedure, and
a high-p sequencing procedure. Using an alternating treatments design, student
performance was measured and graphed in two ways, cumulative learning (a
measurement that does not consider the amount of instructional time) and student
learning rate (a measurement that does consider instructional time). These two
measurement procedures were then compared on their ability to detect differential effects
of interventions on spelling mastery. Results indicated that student learning rate
facilitated data-based decision making. Further, students as a group learned a
significantly greater number of words under the traditional drill and practice condition
when the amount of instructional time was considered.

Instructional effectiveness and efficiency of three whole word-reading techniques
was examined by Joseph and Nist (2006). A single subject, alternating treatment design
was used to expose students to different word reading interventions involving ratios of
known to unknown words. Conditions included a high probability sequence ratio of 18
known to six unknown words, an interspersal training ratio of three known to six
unknown, and a traditional drill procedure of six unknown words. Researchers found that
the different instructional conditions yielded no differences relative to effectiveness;
however, the traditional drill was the most efficient method of word reading instruction when compared with instruction using ratio sequences.

Extensions of the Cates et al. (2003) and Joseph and Nist (2006) study were performed in 2007 by Schmidgall and Joseph and Joseph and Schisler respectively. Schmidgall and Joseph (2007) compared the effectiveness and efficiency of whole methods against a phonic analysis method (word boxes) on word reading skills of six first grade students. Joseph and Schisler (2007) compared the instructional effectiveness and efficiency among the use of phonic analysis, incremental rehearsal, and traditional drill and practice word reading techniques during repeated reading lessons. As in Joseph and Nist (2006), both of these studies found that all three methods led to gains in word reading performance, but the most time efficient method was the traditional drill procedure.

All of these studies have examined learning rates relative to word reading performance. Another rate measure popular in reading literature is the words correct per minute (WC/M) measure. This is a product of curriculum-based measurement (CBM) procedures which often involve a timed oral reading during which the number of words a student can read correctly in one minute serves as a rate of oral reading (Freeland et al., 2000). A very useful tool for determining reading fluency, the same concept of measuring learning rate can be applied to reading comprehension in the form of a reading comprehension rate.

Reading comprehension rate (RCR) refers to the amount of information a student is able to comprehend per minute of reading time and is an important factor to consider when evaluating reading performance. For instance a student who spends two minutes
reading a passage and is subsequently able to answer ten corresponding comprehension questions correctly is a more efficient reader than a student who spends ten minutes reading the same passage and subsequently answers ten corresponding comprehension questions correctly (Freeland et al., 2000). Despite the fact that both of these students were able to answer the same number of questions correctly, the first student is gaining more information per minute of reading and thus has a greater RCR. RCR is calculated by multiplying the number of correctly answered questions by 60. This product is divided by the number of seconds spent reading the passage. This number is then multiplied by 100. The following formula demonstrates the calculation of RCR:

\[
RCR = \frac{(\text{Percent of Correctly Answered Questions} \times 60)}{\text{Number of Seconds Spent Reading}} \times 100
\]

Freeland et al. (2000) examined RCR in their study analyzing the effects of repeated readings on comprehension (described earlier). Hall, Skinner, Winn, Oliver, and Allin (2005) also used this calculation to determine RCR in a study that examined listening while reading accommodations on reading comprehension for students with emotional disorders. Because silent readings were utilized in these studies, one of the major limitations described by the researchers was the inability to confirm whether students truly read the whole passage or if they just skimmed (Freeland et al., 2000). Due to this and other potential limitations, Neddenriep, Hall, Skinner, Hawkins, and Winn (2007) investigated the validity of RCR as a comprehension measure.

Though preliminary, this investigation on RCR validity suggests that the RCR measure correlates positively with the Woodcock Johnson-III Test of Achievement (WJ-
Further, results indicate that, for elementary aged students, RCR was more strongly correlated with the WJ-III ACH Broad Reading Cluster when students read passages aloud versus silently. Correlations between these measures for 10th grade students did not differ regarding oral or silent reading. These findings suggest that “…requiring elementary students in particular to read out loud when assessing RCR may be a more valid measure of reading skills than having them read silently” (Neddenriep et al., 2007, p. 384).

Summary

In summary, it appears evident that early intervention for students who struggle with reading, particularly reading comprehension, is a significant factor in the educational success of students. Instructional approaches that utilize a combination of strategies in an integrated fashion have been found to improve the reading comprehension performance of struggling readers. Instead of waiting to teach comprehension until reading fluency is achieved, systematic reading comprehension strategy instruction in early grades appears necessary to prevent reading problems, especially for children with reading delays or difficulties. Story retellings are gaining support within literacy literature as a strategy for improving reading comprehension performance (Brown & Dunne, 1996; Craig, 2006; Gambrell et al., 1985; Gambrell et al., 1989; Gambrel et al., 1991; Isbell et al., 2004; Morrow, 1985; Tuncer & Altunay, 2006; Zimiles & Kuhns, 1976). Instructional efficiency, or rate of learning, is a component being examined within an increasing number of studies. Learning rate is an important factor when determining instructional methods which are both effective and readily applicable within the classroom. The
purpose of the following study is to determine the effectiveness and efficiency of three
different instructional approaches (passage review plus repeated readings and phrase drill
error correction; oral retelling plus repeated readings and phrase drill error correction;
and written retelling plus repeated readings and phrase drill error correction) on reading
comprehension performance.
CHAPTER 3
METHODOLOGY

This chapter describes the methods of the study. The following sections are discussed: participants, participant selection, setting, experimenter, materials, and definition and measurement of the dependent variables. Procedures including practice session, experimental conditions, random sampling, experimental design, experimental procedures, interscorer agreement, treatment integrity, and social validity are also discussed.

Participants

Participants were five general education third grade students from a rural elementary school in Central Ohio. All participants were given pseudo-names for privacy and confidentiality purposes; they will be referred to as Marissa, Wayne, Trevor, Jamal, and Vincent. Table 3.1 displays the age, gender, and race of each participant. The mean age of participants is approximately 9 years, 7 months and the age range is 9 years, 1 month to 10 years, 0 months.
Participant Age Gender Race
---
Marissa 10 years, 0 months Female Caucasian
Wayne 9 years, 8 months Male African American
Trevor 9 years, 1 month Male Caucasian
Jamal 10 years, 0 month Male African American
Vincent 9 years, 3 months Male Hispanic

Table 3.1
Age, gender, and race of each participant.

The participants’ school district consists of two elementary schools, one intermediate school, one middle school, one high school, and one alternative school. Total student enrollment in this district was approximately 2,800. Socioeconomic status of the families in this district generally ranges from low to middle class with 40% of the student population falling into the economically disadvantaged category. Approximately 12% of the population is identified with educational disabilities, 8% is gifted, and fewer than 1% have limited English proficiency. Reported racial background of students in the district is as follows: African-American – 10.36%, Asian/Pacific Islander – .7%, Hispanic – 2.1%, Caucasian – 83.2%.

Participant Selection

Students were recruited by first obtaining approval to conduct the study from school administrators and the university’s Institutional Review Board. Because the purpose of this study was to examine instructional effectiveness on students’ reading comprehension performance, it was important to identify students who were able to read fluently but who were struggling in the area of reading comprehension. Therefore,
teachers identified and referred students who were demonstrating difficulty with reading comprehension tasks but also exhibited adequate reading fluency. Parents of the referred students then received a letter describing the nature of the study, issues of confidentiality, and how results will be reported (see Appendix A), as well as a consent form (see Appendix B) for permitting their child to participate in the study.

Twenty-two students were referred by their teachers for participation, and fourteen students returned signed consent forms. Students who returned signed consent forms were screened with the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) (Good & Kaminski, 2002) assessment tool to determine oral reading fluency performance. The Diagnostic Achievement Battery, third edition (DAB-3) (Newcomer, 2001) was utilized to determine reading comprehension performance.

The DIBELS are a set of standardized, individually administered measures of early literacy development. They are designed to be short (one minute) fluency measures used to regularly monitor the development of pre-reading and early reading skills. For the purposes of this study, the DIBELS Oral Reading Fluency Measure was used to assess oral reading fluency performance and to determine instructional oral reading levels of the participants. The DAB-3 is a nationally normed, individually administered multiple-subject comprehensive test consisting of 14 subtests that assess listening, speaking, reading, writing, and mathematics skills. The DAB-3 may be used to assess various facets of reading performance through the administration of the following subtests: Alphabet/Word Knowledge, Phonemic Analysis, and Reading Comprehension. Because
this study did not examine lower level reading skills such as alphabet/word knowledge and phonemic analysis, for the purposes of screening for participation in this study, only the reading comprehension subtest was administered.

The screening criteria for Third Grade DIBELS Oral Reading Fluency was based on DIBELS third grade benchmark goals. Because screening took place in January, the middle of the year benchmark was compared against the students’ scores. Students who fell within the “Some Risk” or “Low Risk” categories, that is, those students who read more than 67 words correctly per minute, met the reading fluency criteria for participation in this study. For the reading comprehension portion of the screening procedures, the students were administered the reading comprehension subtest from the DAB-3. Students whose standard scores indicated performance at or below the 25th percentile (standard score of 8 or below) met the reading comprehension screening criteria for participation in this study. Five students who met both the reading fluency and reading comprehension criteria were provided with a detailed, age-appropriate description and explanation of the research study and were given the chance to assent or decline to participate. All 5 participants agreed to participate in the study. Table 3.2 displays the screening assessment results for each of the five participants.
<table>
<thead>
<tr>
<th>Participant</th>
<th>DIBELS SCORE</th>
<th>DAB-3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Standard Score</td>
<td>Percentile</td>
</tr>
<tr>
<td>Marissa</td>
<td>86 Words/Minute</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Wayne</td>
<td>78 Words/Minute</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Trevor</td>
<td>95 Words/Minute</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Jamal</td>
<td>123 Words/Minute</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Vincent</td>
<td>85 Words/Minute</td>
<td>8</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 3.2
*DIBELS Oral Reading Fluency Scores and DAB-3 Standard Scores and Percentiles for all participants.*

Setting

The instructional interventions were conducted in a small office within the third grade wing at the participants’ elementary school. The intervention took place at a circular table that comfortably sat the experimenter and the participant. Lighting in the room was adequate for the implementation of the instructional approaches used. The room provided a quiet working environment free from external distractions.

Experimenter

The experimenter was a doctoral candidate in the School Psychology program at The Ohio State University. The researcher possessed sufficient training in the administration of the dependent measures and the experimental intervention conditions of this study. The researcher administered, scored, and interpreted the results of all assessments during the screening and treatment phases of the study.

Independent Observers

Four Masters level school psychology students at The Ohio State University alternately conducted interscorer agreement and treatment integrity checks across approximately 15% of the sessions within this study. Each of the independent observers
received comprehensive training by the experimenter. Specifically, this training involved a detailed explanation of the purpose of the study, intervention conditions, procedural methods, and dependent measures. The experimenter demonstrated the procedures involved within each intervention condition and trained the independent observers to use an integrity checklist to record the experimenter’s implementation of correct procedures. Independent observers were supplied with the following materials in order to accurately perform the necessary interscorer agreement and treatment integrity checks: reading passages, multiple choice comprehension questions, and a procedural checklist.

Materials

Materials used in the study were lined paper, pencils, two stopwatches, and a data collection form (see Appendix F). Reading passages and comprehension questions came from *Timed Readings: Fifty 400-Word Passages with Questions for Building Reading Speed, Book 1, Third Edition* (Spargo, 1989).

Definition and Measurement of the Dependent Variables

The dependent variable was defined as the number of comprehension questions answered correctly. There was a total of 10 comprehension questions for each passage that the students were instructed to read aloud. The questions were answered after the students read the passage. The questions were comprised of 5 literal and 5 inferential questions.

Literal questions pertain to details that are readily found within a reading passage. For instance, after reading a passage about a pie eating contest held at a New England county fair, one of the literal questions presented to participants was: “A pie eating contest is an event at a __________.” Participants had to pick from the following three
response choices: (a) gas station, (b) county fair, or (c) shopping center. In order to choose a correct response, participants had to recall the setting of the story, a detail that was mentioned in the first paragraph of the passage.

Inferential questions require students to use their knowledge of text facts and details to make connections and generalizations. An example of an inferential question for the same pie eating contest passage is, “It is important to like the pie you are eating because __________. ” The participants had to choose from the following three responses: (a) it will look better on your face, (b) it will be easier to eat, or (c) you will have to take it home with you. The correct response to this question is not directly found within the passage; the participants had to combine what they had learned from reading the passage (e.g., that the goal of a pie eating contest is to finish eating your pie before the other contestants) with the more general understanding that it is easier to eat something quickly if you enjoy what you are eating.

*Instructional effectiveness.* With regard to the measurement of the dependent variable, both effectiveness and efficiency instruction were assessed. Instructional effectiveness was defined as the extent to which a specific intervention resulted in accurate responding to comprehension questions. In other words, the comprehension acquisition as a function of a specific intervention determined the extent of intervention effectiveness. The number of cumulative comprehension questions answered correctly was calculated. Calculating cumulative data is extremely beneficial when making comparisons among independent variables.

Calculating the cumulative number of comprehension questions answered correctly involved adding each reading passage’s number of correctly answered questions.
to the previous reading passage’s number of correctly answered questions for each of the participants. For example, if a participant read the first reading passage and answered a total of 5 comprehension questions correctly and then read the second reading passage and answered 7 questions correctly, the score of 7 would be added to the score of 5, which amounts to a cumulative number of questions answered correctly of 12. In order to glean deeper knowledge of the effectiveness of each instructional method, the cumulative number of literal questions answered correctly per passage and the cumulative number of inferential questions answered correctly per passage served as the second and third measures of instructional effectiveness.

Participants were only presented with multiple-choice style questions. All questions had exactly three answer choices. Participants were not asked open ended, matching, true/false, short answer, nor essay questions. Furthermore, none of the questions presented to participants were multi-part questions; for instance each question was unique in its content and did not lead to a second question nor depend on a correct answer from a previous question.

*Instructional efficiency.* Instructional efficiency was defined as the rate of accurate responding, relative to time. In this study, rate refers to the number of comprehension questions answered correctly per minute of instruction. The experimenter began timing the instruction as soon the participant began the initial reading of the passage and stopped timing as soon as the participant finished the intervention activity. Efficiency was measured by obtaining an oral reading comprehension rate per total instructional time. Oral reading comprehension rate per total instructional time was calculated by multiplying the number of correctly answered comprehension questions by
60 (seconds) and dividing this product by the total number of seconds it took to read the passage, re-read the passage, and retell or review the passage. This quotient was then by multiplied by 100.

The rate at which students answered comprehension questions was also cumulated. For each condition, the number of comprehension questions answered correctly was added across passages to gain a measure of cumulative comprehension rate which could then be compared with the instructional effectiveness data. For example, if a student read passage one and answered at a rate of 2 comprehension questions correctly per minute of total instructional time, and during the second passage reading answered at a rate of 3 comprehension questions answered correctly per minute of total instructional time, a cumulative comprehension rate of 5 questions correct per minute would be recorded for the two passages. This rate measure was calculated for total number of comprehension questions answered correctly only, not individually for literal and inferential questions answered correctly.

Procedures

Practice session. Participants took part in a one-on-one training session with the researcher to help facilitate familiarity with each of the three instructional conditions involved in the study. Following a script (see Appendix C), the researcher first modeled the procedures for each instructional method using abbreviated reading passages (see Appendix D) from Timed Readings: Fifty 400-Word Passages with Questions for Building Reading Speed, Book 1, Third Edition (Spargo, 1989). The experimenter modeled the procedures by taking on the expected role of the participant. The experimenter read an abbreviated reading passage, purposefully miscuing on a word
within the passage. The experimenter drew the participant’s attention to the miscued word and demonstrated the phrase drill error correction procedure by reading the word correctly and reading the sentence that contained the word that was erred three times. The participant was told that this would be the procedure that would take place if he or she were to make a reading error in any of the reading passages read during the study.

The experimenter then performed a repeated reading of the same abbreviated passage, again purposefully reading a word within the passage incorrectly so that the phrase drill error correction procedure could be modeled once again. The first intervention condition, passage review, was then modeled; the experimenter demonstrated how the passage could be reviewed by re-reading, underlining, or making notes. The experimenter then instructed the participant to ask four multiple choice questions corresponding to the passage just read (see Appendix D). The experimenter answered each of the questions, and, together with the participant, decided if the given answer was correct by locating the answer in the reading passage.

The same procedure was followed with a second abbreviated passage, but this time the second intervention condition was modeled. After the experimenter read the passage out loud to the participant two times and practiced the phrase drill error correction procedure on miscued words in both the initial and repeated reading, the oral retelling procedure was demonstrated. The experimenter modeled this procedure by removing the reading passage and orally retelling everything she could recall from the story. At the end of this oral retelling, the participant read four comprehension questions
to the experimenter. The experimenter answered each, and together with the participant, determined if each response was correct by referring to the passage to verify the correct answers.

Using a third abbreviated reading passage, the initial and repeated readings with phrase drill error correction procedures on miscued words was demonstrated by the experimenter. The experimenter then modeled the instructional procedures of the third intervention condition, which was a written retelling of the passage. The experimenter demonstrated this condition by removing the reading passage and, using a pencil and white lined paper, writing down everything she could about the passage. At the end of this written retelling, the participant read four comprehension questions to the experimenter. The experimenter answered each, and together with the participant, determined if each response was correct by referring back to the passage to verify the correct answers.

The participants then practiced each procedure using three more abbreviated reading passages from the same source (see Appendix D), one for each intervention condition. The same procedures were followed except that the participant took on the role that was initially demonstrated by the experimenter.

The participant was given a fourth abbreviated reading passage and was instructed to read it out loud to the experimenter. After the participant answered each question, the experimenter provided feedback as to whether each question was answered correctly or incorrectly. In the event of an incorrect response, the experimenter and participant referred back to the passage to verify the correct answer.
Using a fifth abbreviated reading passage, the experimenter instructed the participant to read it out loud. The experimenter stopped the participant’s reading if a miscue was made and the phrase drill error correction procedure was performed. When the participant completed the initial reading, he or she performed a repeated reading of the same passage; again, if miscues occurred, the phrase drill error correction procedure was performed with each word read incorrectly.

At the end of the repeated reading, the participant was instructed that he/she had three minutes to orally tell the experimenter everything he/she could about the passage before answering questions about what was read. If the student finished telling the experimenter about the passage before the time was up, the experimenter asked one time “Is there anything else you can tell me about the passage before you answer questions?” At this point, the experimenter asked a series of four comprehension questions related to the reading passage. After the participant answered each question, the experimenter provided feedback as to whether each question was answered correctly or incorrectly. In the event of an incorrect response, the experimenter and participant referred back to the passage to verify the correct answer.

At this time the sixth, and last, abbreviated reading passage was presented to the participant who was instructed to read it out loud. The experimenter stopped the participant’s reading if a miscue was made and the phrase drill error correction procedure was performed. When the participant completed the initial reading, he or she performed a repeated reading of the same passage; again, if miscues occurred, the phrase drill error correction procedure was performed with each word that was read incorrectly.
At the end of the repeated reading, the participant was supplied with a blank piece of white, lined paper and a pencil and told that he/she had three minutes to write down everything he/she could about the passage before answering questions about what was read. If the student finished writing about the passage before the time was up, the experimenter asked one time “Is there anything else you can write about the passage before you answer questions?” At this point, the experimenter asked a series of four comprehension questions related to the reading passage. After the participant answered each question, the experimenter provided feedback as to whether each question was answered correctly or incorrectly. In the event of an incorrect response, the experimenter and participant referred back to the passage to verify the correct answer.

Throughout these practice sessions the experimenter provided guidance, feedback, and praise. The entire practice session lasted approximately 20 minutes. Participants were also provided with the time and opportunity to ask questions pertaining to the study. The passages used during the practice session were not used within the actual study.

*Random assignment and counterbalancing.* A total of 45 passages were used within this study. In order to control for varying passage difficulty, intervention conditions were randomly assigned to passages. The experimenter completed this random assignment by writing down the intervention conditions on three separate pieces of paper. These pieces were folded and placed in a small bucket. The experimenter pulled out the first piece of paper at random and the intervention condition written on that piece was assigned to passage one. The second piece was pulled out and the intervention condition written on it was assigned to the second passage. The third piece was selected and the intervention condition written on it was assigned to the third passage. The small pieces of
paper were retuned to the bucket and this process was repeated for the rest of the reading passages incrementally in the following groups of three: 4-6, 7-9, 10-12, 13-15, 16-18, 19-21, 22-24, 25-27, 28-30, 31-33, 34-36, 37-39, 40-42, 43-45.

The order of passages was then counterbalanced to control for sequence effects. Sequence effects refer to the potential for the effects of one treatment to be influenced by or carry over to another treatment. Counterbalancing ensures that the treatments are not presented in the same order during every session. The experimenter performed the counterbalancing in a similar way as the random assignment of conditions. Each group of three passages was counterbalanced individually. The same three pieces of paper containing the intervention conditions were put into the bucket. The experimenter randomly pulled out the first piece and read the condition written on it; the passage with which this condition had already been matched during the random assignment within the first group of three became the first passage that the students would read in the study. For instance, the first group of three passages included passages 1, 2, and 3. Through the random assignment of conditions, passage 1 was assigned to the passage review condition, passage 2 was assigned to the oral retelling condition, and passage 3 was assigned to the written retelling condition. The first piece of paper drawn from the hat during the counterbalancing procedure of the first group of three passages had the passage review condition written on it. Therefore, passage 1 was the first passage that students read in the study. The second piece of paper drawn from the bucket indicated the written retelling procedure, therefore passage 3 was read second. The third piece of paper drawn from the bucket indicated the oral retelling procedure, therefore passage 2 was read third. The pieces of paper were then returned to the bucket and this process was
repeated for the rest of the reading passages incrementally in the following groups of
three: 4-6, 7-9, 10-12, 13-15, 16-18, 19-21, 22-24, 25-27, 28-30, 31-33, 34-36, 37-39, 40-
42, 43-45.

Experimental design. This study utilized a single subject, alternating treatment
design. Single subject designs permit one to view change in behavior over time and
allows one to determine if these changes are a function of the intervention; student
performance isn’t necessarily compared to others, but to oneself under different
conditions. A single subject design was specifically implemented in this study in order to
collect frequent data on student reading comprehension performance over a period of 15
sessions. Repeated measurement, such as this, is a distinguishing feature of single-subject
research and allows for the detection of performance patterns over time (McCormick,
1995).

An alternating treatment design was utilized to compare the effects of each
instructional condition on student comprehension and comprehension rate. Alternating
treatment designs are frequently used to determine the relative effects of two or more
instructional approaches on student performance in the realm of reading research. When
the effectiveness of several instructional strategies for an individual student or a small
group of students with limited variability, alternating treatment designs offer an
alternative to comparing a treatment group to a control group. An alternating treatment
design is an experimentally sound method of measuring student performance on a target
behavior (Neuman, 1995, p. 64). This design requires the rapid alternation of two or
more conditions presented in a counterbalanced order allowing the researcher to compare
the effects of two or more interventions. By plotting students’ progress on a graph, the
effects of the treatments can be easily detected through a visual analysis (Neuman, 1995). A chief limitation of alternating treatment designs is the risk of multiple-treatment interference, which refers to the potential that the effects from one treatment may be influenced by or carry over to another treatment (Neuman, 1995, p. 81). Although counterbalancing the treatment conditions helps to control for this confounding effect, the possible presence of interference may contaminate separate treatments and make interpretation of results less clear.

**Experimental Conditions and Procedures.**

Every intervention session involved one-on-one instruction in which the participants received three different instructional conditions, each with a different reading passage and corresponding comprehension questions. These conditions were repeated reading with passage review and phrase drill error correction, repeated reading with oral retell and phrase drill error correction, and repeated reading with written retell and phrase drill error correction. Due to the fact that each type of instruction required between 10 and 20 minutes, participants could not be exposed to all conditions on the same day. In an effort to be as consistent as possible, the researcher made the decision to split sessions into two parts; participants were exposed to two conditions on one day and were exposed to the third condition on the following day. Thus, one session was comprised of two days of intervention. Therefore, each participant completed 15 sessions via 30 individual meetings with the researcher. A total of 45 different passages were read by each participant.

Conditions were randomly paired with passages and presented in a counterbalanced order across sessions to control for sequence effects. The experimenter
used a stopwatch to measure the number of seconds it took to complete each condition. Time began as soon as the first word in the reading passage was read by the participant and ended after the student completed either the passage review, oral retell, or written retell depending on the instructional condition.

Repeated reading with passage review and phrase drill error correction. The participant was presented with a grade appropriate reading passage and was instructed with the following oral directions: “Please read this passage out loud to me. You have as much time as you need to finish so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary. Begin.” As soon as the participant began reading, the experimenter started a stopwatch.

The experimenter stopped the participant’s reading if a miscue was made, the miscue was recorded, and the phrase drill error correction procedure was performed. This was done through the following steps: The experimenter modeled the correct reading of the miscued word and read the entire sentence in which the miscued word was located. Then the participant read the sentence containing the miscued word three times before continuing with the passage reading. This procedure was completed with every misread or omitted word. The experimenter did not stop timing the session during error correction procedures.

When the participant completed the initial reading, the experimenter then gave the following oral directions: “Please read this same passage out loud to me again. You have as much time as you need to finish and I will be asking questions about what you have read, so please do your best reading. If you come to a word you don’t know, just try your
best, and I will help you when necessary. Begin.” Again, if miscues occurred, the phrase drill error correction procedure was performed with each word read incorrectly or omitted.

At the end of the repeated reading, the participant was given the following oral instructions by the experimenter: “You now have three minutes to review the reading passage before I ask you some questions about what you have read. I will tell you when three minutes has passed. If you do not want to use all three minutes, please tell me when you are ready to answer your questions. Begin reviewing.” As soon as these directions were given, the experimenter started a second timer in order to monitor the participant’s review time. Once three minutes elapsed the experimenter said “Stop” and removed the reading passage at that time. If the participant indicated that he/she was done reviewing the passage before the time was up, the experimenter asked one time “Is there anything else you would like to look over before I ask the questions?” When the three minutes was up or if the participant indicated that he/she was completely finished reviewing the passage, the experimenter stopped the first stopwatch and recorded the session time.

Following the review, the participant was given a sheet of paper with 10 multiple choice comprehension questions related to the story that was just read. Five of these questions were literal, and five were inferential. The participant was instructed with the following directions read orally by the experimenter: “Now I will ask you ten multiple choice questions about what you have read. Please listen carefully to each question and wait until I have read all possible answer choices before you answer. After I have read all of the answer choices you will have one minute to say or point to your answer.”
The experimenter then read each question and all of the answer choices. Participant responses to each question were recorded. If the participant pointed to his/her answer choice, the experimenter verbally verified the choice indicated by asking, “Which response did you point to?” The participant was allowed one minute to respond to each question; therefore, the experimenter timed the participant’s responses to each question. Timing began as soon as the experimenter finished reading the question, and timing ended as soon as the participant had completed giving his/her response.

Repeated reading with oral retell and phrase drill error correction. The participant was presented with a grade appropriate reading passage and instructed with the following directions read orally by the experimenter: “Please read this passage out loud to me. You have as much time as you need to finish so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary. Begin.” The experimenter began the stop watch as soon as the participant began reading. The experimenter stopped the participant’s reading if a miscue was made, the miscue was recorded, and the phrase drill error correction procedure was performed. This was done through the following steps: The experimenter modeled the correct reading of the miscued word and experimenter read the entire sentence in which the miscued word was located. Then the participant read the sentence containing the miscued word three times before continuing with the passage reading. This procedure was completed with every misread or omitted word.

The participant was then instructed to perform a repeated reading of the same passage and was given the following set of oral directions by the experimenter: “Please read this same passage out loud to me again. You have as much time as you need to
finish, and I will be asking questions about what you have read, so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary.” In the event of a miscue during the repeated reading, the miscue was recorded on paper and the phrase drill error correction took place as a method of immediate corrective feedback.

At the conclusion of the repeated reading, the reading passage was taken away and the participant was then instructed with the following directions given orally by the experimenter: “Now please tell me all about what you have just read. You have three minutes to tell me everything you remember. I will tell you when time is up. Begin.” The experimenter started at a second stopwatch at this time to monitor the three-minute oral retelling time. If the participant was still telling the story at the end of three minutes, the experimenter told him/her to stop. If the participant indicated that he/she was finished orally retelling the passage before the time was up, the experimenter asked one time “What else can you tell me about what you read?” When the three minutes elapsed or if the participant indicated that he/she was completely finished orally retelling the passage, the experimenter viewed the stopwatch and recorded the session time.

Following the oral retelling, the participant was given a sheet of paper with 10 multiple choice comprehension questions related to the story that was just read. Five of these questions were literal, and five were inferential. The participant was instructed with the following directions that were read orally by the experimenter: “Now I will ask you ten multiple choice questions about what you have read. Please listen carefully to each
question and wait until I have read all possible answer choices before you answer. After I have read all of the answer choices you will have one minute to say or point to your answer.”

The experimenter then read each question and all of the response choices. Participant responses to each question were recorded. If the participant pointed to his/her answer choice, the experimenter verbally verified the choice indicated by asking, “Which response did you point to?” The participant was allowed one minute to respond to each question; therefore, the experimenter timed the participant’s responses to each question. Timing began as soon as the experimenter finished reading the question, and timing ended as soon as the participant had completed giving his/her response.

Repeated reading with written retell and phrase drill error correction. The participant was presented with a grade appropriate reading passage and instructed with the following directions given orally by the experimenter: “Please read this passage out loud to me. You have as much time as you need to finish so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary. Begin.” The experimenter stopped the participant’s reading if a miscue was made, the miscue was recorded, and the phrase drill error correction procedure was performed. This was accomplished through the following steps: The experimenter modeled the correct reading of the miscued word and experimenter read the entire sentence in which the miscued word was located. Then the participant read the sentence containing the miscued word three times before continuing with the passage reading. This procedure was completed with every misread or omitted word.
The participant was then instructed to perform a repeated reading of the same passage and was given the following oral directions by the experimenter: “Please read this same passage out loud to me again. You have as much time as you need to finish, and I will be asking questions about what you have read, so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary.” In the event that a student erred during the repeated reading, the miscue was recorded on paper and the phrase drill error correction took place as a method of immediate corrective feedback.

At the conclusion of the repeated reading, the passage was taken away. The participant was then provided with white lined paper and a pencil and given the following oral directions by the experimenter: “Now please write all about what you have just read. You have three minutes to write down everything you remember. I will tell you when the time is up. Begin.” The experimenter used a timer and allowed the participant 3 minutes to retell the passage in writing. After 3 minutes elapsed, the experimenter instructed the participant to stop and removed the white lined paper and the pencil. If the participant indicated that he/she was done writing about the passage before the time was up, the experimenter asked one time “What else can you write about what you read?” After 3 minutes elapsed or if the participant indicated that he/she was finished writing, the experimenter viewed the stopwatch and recorded the session time.

Following the oral retelling, the participant was given a sheet of paper with 10 multiple choice comprehension questions and multiple choice response options related to the story that was just read. Five of these questions were literal, and five were inferential. The participant was instructed with the following directions read orally by the
experimenter: “Now I will ask you ten multiple choice questions about what you have read. Please listen carefully to each question and wait until I have read all possible answer choices before you answer. After I have read all of the answer choices you will have one minute to say or point to your answer.”

The experimenter then read each question and all of the multiple choice items. The participant’s responses to each question were recorded. If the participant pointed to his/her answer choice, the experimenter verbally verified the choice indicated by asking, “Which response did you point to?” Participants were allowed one minute to respond to each question; therefore, the experimenter timed the participant’s responses to each question. Timing began as soon as the experimenter finished reading the question, and timing ended as soon as the participant had completed giving his/her response.

Interscorer Agreement. Reliability of correctly identified miscued words was checked by having four Masters level school psychology students trained in the three conditions independently score approximately 15% of the sessions across students. Each reading was compared in order to determine if the experimenter and the aide agreed on student miscues. Agreement was scored for each time in which both observers recorded that a word was read incorrectly. Disagreement was scored for each time in which only one of the observers recorded that the word was read incorrectly.

Occurrence and nonoccurrence agreement were calculated because interscorer agreement can often be inflated by extremes or have high variability. The Occurrence Agreement Formula is as follows: \( \frac{A\occ}{(A\occ + D\occ)} \times 100 \). Agreement was scored for each time in which both observers recorded that a word was miscued. Disagreement
was scored for each time in which only one of the observers recorded that the word was miscued. The Nonoccurrence Agreement Formula is as follows: $A_{nonocc} / (A_{nonocc} + D_{nonocc}) \times 100$. Agreement was scored for each time both observers recorded that a word was miscued. Disagreement was scored for each time in which only one of the observers recorded that a word was miscued.

Because student responses for the reading comprehension questions were multiple choice, the answer sheet containing all of the correct multiple choice responses for the comprehension questions used in the study served as an interscorer agreement check. For each question, the experimenter marked down student responses on their record sheets. Later, the experimenter checked the answer sheet for the correct response in order to determine if every response to a comprehension question was correct or incorrect.

For instance, the first comprehension question corresponding to the first reading passage read “When you load film into your camera, __________.” Participants were required to choose one of the following responses: (a) the room should not be well-lit, (b) count how many pictures you have, or (c) make sure the window is open. Whichever multiple choice item a student chose as his/her answer, the experimenter marked it on the student’s record sheet. After the session, the experimenter consulted the comprehension answer sheet to determine if this response was correct. In the case of this example, the answer sheet indicates that “(a) the room should not be well-lit” is the correct response. Therefore, if a participant chose answer (a) the participant received full credit for that answer. If the participant chose either (b) or (c), the experimenter marked the response as incorrect on the student’s record sheet.
Each participant’s response to each comprehension question was double-checked against the answer sheet and with the independent observers before the results were entered into a data entry program. Each response that the experimenter had marked on each student’s record sheet was compared with the answer sheet and checked with the independent observer to determine agreement on correct answers. Agreement was scored for each time in which the experimenter had correctly scored a participant’s response as correct or incorrect based on the answer sheet. Disagreement was scored for each time in which the experimenter scored a participant’s answer incorrectly based on the answer sheet. The Occurrence Agreement Formula is as follows: \( \frac{A \text{ occ}}{A \text{ occ} + D \text{ occ}} \times 100 \).

In addition, occurrence agreement and nonoccurrence agreement were assessed. Occurrence and nonoccurrence agreement were calculated because interscorer agreement can often be inflated by extremes or have high variability. The Occurrence Agreement Formula is as follows: \( \frac{A \text{ occ}}{A \text{ occ} + D \text{ occ}} \times 100 \). Agreement was scored for each time in which the experimenter scored a participant’s response as correct when it was correct based on the answer sheet. Disagreement was scored for each time in which the experimenter scored as participant’s response as correct when it was actually incorrect based on the answer sheet. The Nonoccurrence Agreement Formula is as follows: \( \frac{A \text{ nonocc}}{A \text{ nonocc} + D \text{ nonocc}} \times 100 \). Agreement was scored for each time the experimenter scored a participant’s response as incorrect when it was indeed incorrect based on the answer sheet. Disagreement was scored for each time the experimenter scored a participant’s response as incorrect when it was actually correct based on the answer sheet.
Treatment integrity. Treatment integrity data were collected on each implementation of the three experimental conditions across approximately 15% of the sessions. Treatment integrity data were collected by the same female Masters level school psychology graduate students who collected the inter-agreement observer data. A treatment integrity checklist was used to assist in the process. The checklist consisted of the procedures used to implement each instructional condition. The observer checked “yes” if the researcher correctly implemented the step, “no” if the researcher did not correctly implement the step, or “NA” if the step was not applicable in a particular case (see Appendix E). For instance, the first step in the procedure for implementing any of the interventions was “Experimenter places reading passage on desk in front of student.” If the experimenter completed this procedural step, the interobserver checked “yes.” These data were collected in order to determine if the researcher was implementing the procedures correctly.

Social validity. In order to assess social validity, researchers frequently use techniques such as interviews, questionnaires, or rating scales. In addition to the participants, individuals within the educational community such as parents, teachers, other staff members, and students may also be considered when examining social validity. The current study included interviews with the students (see Appendix G) as well as teacher questionnaires (see Appendix H) in an effort to assess the social validity of the three instructional methods.

Teachers of the students participating in the study were provided with a thorough, written description of each intervention condition along with a questionnaire including several statements. Teachers used a Likert-type scale to respond to each question and
were given prompts to comment on their choices using an open-ended response format. Each participant also completed a social validity questionnaire using a Likert-type scale to respond. Students were provided with the questionnaire and the experimenter read each statement and answer choices as the participant followed along silently. The participants indicated their response choices on their questionnaire.
CHAPTER 4

RESULTS

This chapter presents the corresponding results of the research questions. The chapter begins with interobserver agreement and treatment integrity results. The research questions were examined using descriptive statistics and visual inspection of graphed data. Descriptive statistics and visual inspection of graphed data are the most common forms of evaluating single subject research data.

Interobserver Agreement

Four school psychology students trained in the three experimental conditions independently scored approximately 15% of the student readings. Recall from the description of methods in chapter 3, that observer occurrence agreement and observer occurrence disagreements were calculated to minimize inflation of scores as extreme or having high variability. Occurrence agreement was calculated using the following formula:

\[
\text{Agreement occurrence} \ \frac{\text{Agreement occurrence}}{\text{Agreement occurrence} + \text{Disagreement occurrence}} \times 100
\]
Agreement and disagreement were scored for words read correctly and for comprehension questions answered correctly. Agreement was scored for each time in which both the observer and the experimenter recorded that a word was read correctly or incorrectly during an initial reading and a repeated reading of the passage for each student. Disagreement was scored for each time in which only one, the observer or the experimenter, recorded that a word was read correctly or incorrectly. Agreement was also scored for each time in which both the observer and the experimenter recorded that a comprehension question was answered correctly or incorrectly for each student. Disagreement was scored for each time in which only one, the observer or the experimenter, recorded that a question was answered correctly or incorrectly. Results revealed that occurrence agreement between the experimenter and independent observer was 100% for both words read correctly and comprehension questions answered correctly.

Treatment Integrity

Treatment integrity data were collected on each of the researcher’s implementations of the three conditions across approximately 15% of the sessions. Treatment integrity data were collected by the same four female Masters level school psychology students. A treatment integrity checklist was used to assist in the process. The checklist consisted of the procedures used to implement each instructional condition. The observer checked “yes” if the researcher correctly implemented the step, “no” if the researcher did not correctly implement the step, or “NA” if the step was not applicable (see Appendix E). These data were collected in order to determine if the researcher was implementing the procedures correctly. Treatment integrity was 100% across all observed
sessions. Specifically, the examiner timed each session, read all instructions thoroughly and accurately, recorded all student miscues, provided corrective feedback in the form of a phrase drill procedure for all miscues, provided prompting when appropriate, and timed student responses to comprehension questions. The results suggest that the procedures were implemented with high accuracy and reliability.

**Research Question Number One**

Based on the number of cumulative comprehension questions answered correctly, which is a more effective method for improving overall reading comprehension for individual students as well as for students as a group, repeated reading + passage review + phrase drill error correction (PR), repeated reading + oral retelling + phrase drill (OR), or repeated reading + written retelling + phrase drill error correction (WR)?

Table 4.1 includes the final cumulative number of comprehension questions answered correctly for all five students across the passage review, oral retelling, and written retelling procedures. Table 4.1 also includes the total number of comprehension questions answered for all students for the three instructional conditions. The data suggested that the students as a group answered a cumulative total of 1,162 comprehension questions correctly with some variability in the number of comprehension questions answered correctly across the three conditions. Specifically, it appeared as though students answered a greater number of questions correctly under the oral and written retelling conditions as compared to the passage review condition. There was a minimal amount of variability on the cumulative number of comprehension questions answered correctly between the oral retelling and written retelling conditions.
Table 4.1
*Cumulative Number of Comprehension Questions Answered Correctly*

<table>
<thead>
<tr>
<th></th>
<th>Passage Review</th>
<th>Oral Retelling</th>
<th>Written Retelling</th>
<th>Student Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marissa</td>
<td>121</td>
<td>130</td>
<td>124</td>
<td>375</td>
</tr>
<tr>
<td>Wayne</td>
<td>95</td>
<td>107</td>
<td>115</td>
<td>317</td>
</tr>
<tr>
<td>Trevor</td>
<td>110</td>
<td>120</td>
<td>114</td>
<td>344</td>
</tr>
<tr>
<td>Jamal</td>
<td>97</td>
<td>99</td>
<td>107</td>
<td>303</td>
</tr>
<tr>
<td>Vincent</td>
<td>99</td>
<td>112</td>
<td>112</td>
<td>323</td>
</tr>
<tr>
<td>Group Total</td>
<td>522</td>
<td>568</td>
<td>572</td>
<td>1662</td>
</tr>
</tbody>
</table>

The cumulative and non-cumulative number of comprehension questions answered correctly across all sessions for Marissa, Wayne, Trevor, Jamal, and Vincent, respectively are presented in Figures 4.1 through 4.10. The figures were constructed in order to allow for a visual representation and inspection of the data on a student-by-student basis. Non-cumulative data were presented on line graphs to aid in the visual inspection of the variability of the data within conditions while cumulative data presented on line graphs allowed for visual comparisons to be made on cumulative performance of the participants among the three instructional conditions.

Figure 4.1 represents the cumulative number of comprehension questions answered correctly for Marissa. Marissa participated in all 15 treatment sessions. The data indicated an increasing trend for all conditions. Marissa answered an equivalent number of comprehension questions correctly across the oral retelling (OR), passage review (PR) and written retelling (WR) conditions with answering, cumulatively, slightly more questions under the oral retell (OR) condition.
Figure 4.1
*Cumulative Number of Comprehension Questions Answered Correctly by Marissa*

Figure 4.2 represents the number of comprehension questions answered correctly for Marissa. The data displayed in Figure 4.2 indicated that within all conditions, the number of comprehension questions answered correctly from session to session varied. For instance, under the oral retelling condition, Marissa answered 10 questions correctly in session one, 7 questions correctly in session two, and 9 questions correctly in session three. As can be seen in Figure 4.2, this variable pattern was evident across all sessions for the three conditions.
Figure 4.3 shows the cumulative number of comprehension questions answered correctly across all sessions by Wayne. Wayne was able to participate in all 15 treatment sessions. There was a stable increasing trend for all three conditions. However, it appears as though Wayne demonstrated a steeper increase in the number comprehension questions answered correctly in the written retelling (WR) procedure as opposed to the oral retelling (OR) procedure as well as a steeper increase under the oral retelling (OR) procedure when compared with the passage review (PR) procedure.
Figure 4.3  
*Cumulative Number of Comprehension Questions Answered Correctly by Wayne*

Figure 4.4 shows the number of comprehension questions answered correctly across all sessions by Wayne. Variability was present within conditions. For instance, under the written retelling (WR) condition, Wayne answered 10 questions correct during the first session and in the following session answered only 4 questions correct. This variable pattern was apparent throughout all sessions for all conditions.
Figure 4.4  
*Number of Comprehension Questions Answered Correctly by Wayne*

Figure 4.5 represents the cumulative number of comprehension questions answered correctly under the three conditions across all sessions by Trevor. Trevor was also able to participate in all 15 treatment sessions. These data indicated consistent increasing trends for all three conditions. Trevor performed similarly under the three conditions with slightly better performance in the oral retelling (OR) and written retelling (WR) conditions.
Figure 4.5
*Cumulative Number of Comprehension Questions Answered Correctly by Trevor*

Figure 4.6 represents the number of words learned under the three conditions across all sessions by Trevor. Within each condition, considerable variability was present. For example, the number of comprehension questions answered correctly under the written retelling (WR) condition ranged from as many as 10 questions correct, as was the case in session one to as few as 5 questions, as was the case in session five. This inconsistent response pattern was apparent within all conditions and across most sessions.
Figure 4.6
Number of Comprehension Questions Answered Correctly by Trevor

Figure 4.7 represents the cumulative number of comprehension questions answered correctly under the three conditions across all sessions by Jamal. Jamal was able to participate in all 15 treatment sessions despite a prolonged absence from school. These data suggested increasing trends for all conditions. A steeper increasing trend for the number of comprehension questions answered correctly in the written retelling (WR) condition was present as compared to that of the oral retelling (OR) and passage preview (PR) conditions, meaning that there was no overlap in cumulative performance between written retell and the other conditions. These data suggested that Jamal answered an equivalent number of comprehension questions correctly under the oral retelling (OR) and the passage review (PR) conditions.
Figure 4.8 represents the number of comprehension questions answered correctly under the three conditions across all sessions by Jamal. Jamal’s data indicated variability within all conditions after approximately the third session. After this point, for instance, Jamal’s performance under the oral retelling (OR) condition, ranged from answering 10 questions correctly in session five to answering only 3 questions correctly in session 15. This pattern of variability across sessions was seen within all three conditions.
Figure 4.9 shows the cumulative number of comprehension questions answered correctly across all sessions by Vincent. Vincent participated in all 15 treatment sessions. The data indicated a pattern similar to the previous figures in that there was a stable increasing trend for all three conditions. However, Vincent demonstrated a higher increase in the number comprehension questions answered correctly in both the written retelling (WR) procedure and oral retelling (OR) procedure as compared with the passage review (PR) procedure. This distinction among performance under these conditions became particularly clear from sessions 7 through 15. These data suggested that Vincent answered an equivalent number of comprehension questions correctly across the written retelling (WR) and oral retelling (OR) conditions.
Figure 4.9  
 Cumulative Number of Comprehension Questions Answered Correctly by Vincent

Figure 4.10 shows the number of comprehension questions answered correctly across all sessions by Vincent. Variability was present under all conditions across sessions. For instance, under the passage review (PR) condition Vincent answered 8 questions correctly during session one, 4 questions correctly under session two, 7 questions correctly under session three, and so on.
The data from the above graphical displays illustrated consistent patterns of comprehension across the three conditions. These treatment data indicated an increasing trend with variability within conditions as displayed in the non-cumulative graphs. The cumulative data graphs presented variability between conditions for some students. Specifically, the figures suggested that two of the five students (Marissa and Trevor) demonstrated similar levels of comprehension under all conditions. Two students (Wayne and Jamal) demonstrated higher levels of comprehension under the written retelling procedure, and one student (Vincent) demonstrated higher levels of comprehension under both oral and written retelling procedures as compared with the passage review procedure. Therefore, the results suggested that all methods were effective for helping students with reading comprehension delays improve their comprehension of text.
The data were collapsed into group data in order to test which treatment condition was most effective in terms of the number of comprehension questions answered correctly among students as a group. Table 4.2 displays the means and standard deviations for the cumulative number of comprehension questions answered correctly within each treatment condition. The means indicated that students, as a group, averaged a slightly higher number of comprehension questions answered correctly under the written retelling treatment condition, followed by the oral retelling and passage review treatment conditions respectively. Figure 4.11 shows the cumulative data and Figure 4.12 shows the non-cumulative data collapsed across individuals for the three procedures.

<table>
<thead>
<tr>
<th>Treatment Condition</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passage Review</td>
<td>56.31</td>
<td>31.05</td>
</tr>
<tr>
<td>Oral Retell</td>
<td>59.68</td>
<td>34.44</td>
</tr>
<tr>
<td>Written Retell</td>
<td>62.40</td>
<td>33.87</td>
</tr>
</tbody>
</table>

Table 4.2
Mean and Standard Deviations Across Treatment Conditions for Cumulative Number of Comprehension Questions Answered Correctly
Figure 4.11
*Cumulative Number of Comprehension Questions Answered Correctly by All Students Across All Conditions*

Figure 4.12
*Number of Comprehension Questions Answered Correctly by All Students Across All Conditions*
Upon analyzing the data, Figure 4.11 indicates a small but noticeable degree of variability across conditions for all participants as a group. Specifically, the data suggested a relatively slightly steeper increase in the number of comprehension questions answered correctly in both the oral retelling (OR) and written retelling (WR) approaches as compared to the passage review (PR) condition. This was especially apparent in the remaining 7 sessions. Students tended to answer more comprehension questions correctly under the retelling conditions over the course of the current study; however, the differences among conditions were minimal for students as a group. For instance, students in the retelling conditions obtained a combined mean of 60.84 in contrast to a mean of 56.31 in the passage preview condition. Figure 4.12 suggested variability within the conditions for participants as a group. In general, the number of questions answered correctly under each instructional condition varied from session to session.

Research Question Number Two

Based on the number of cumulative literal comprehension questions answered correctly, which is a more effective method for improving literal reading comprehension for individual students as well as for students as a group, passage review with repeated readings and phrase drill error correction (PR), oral retelling with repeated readings and phrase drill (OR), or written retelling with repeated reading and phrase drill error correction (WR)?

Table 4.3 includes the final cumulative number of literal comprehension questions answered correctly for all five students across the passage review, oral retelling, and
written retelling procedures. Table 4.3 also includes the total number of literal comprehension questions answered for all students for the three instructional conditions. The data suggested that the students as a group answered correctly a cumulative total of 909 literal comprehension questions with minimal variability in the number of questions answered correctly across the three conditions. Relatively speaking, it appears as though students answered the greatest number of questions correctly under the written retelling condition, followed by the oral retelling condition. The data showed that students answered the least number of literal comprehension questions correctly under the passage review condition.

<table>
<thead>
<tr>
<th></th>
<th>Passage Review</th>
<th>Oral Retelling</th>
<th>Written Retelling</th>
<th>Student Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marissa</td>
<td>66</td>
<td>67</td>
<td>68</td>
<td>201</td>
</tr>
<tr>
<td>Wayne</td>
<td>54</td>
<td>59</td>
<td>63</td>
<td>176</td>
</tr>
<tr>
<td>Trevor</td>
<td>58</td>
<td>63</td>
<td>64</td>
<td>185</td>
</tr>
<tr>
<td>Jamal</td>
<td>54</td>
<td>54</td>
<td>60</td>
<td>168</td>
</tr>
<tr>
<td>Vincent</td>
<td>56</td>
<td>61</td>
<td>62</td>
<td>179</td>
</tr>
<tr>
<td>Group Total</td>
<td>288</td>
<td>304</td>
<td>303</td>
<td>909</td>
</tr>
</tbody>
</table>

Table 4.3
Cumulative Number of Literal Comprehension Questions Answered Correctly

Figures 4.13 through 4.22 provide the non-cumulative and cumulative number of literal comprehension questions answered correctly across all sessions for Marissa, Wayne, Trevor, Jamal, and Vincent respectively. The figures were constructed in order to allow for a visual representation of the data on a student-by-student basis. The data from these figures showed consistent patterns of comprehension across the three conditions.
Figure 4.13 represents the cumulative number of literal comprehension questions answered correctly for Marissa. The data indicated an increasing trend with minimal variability between conditions. Although there was a slight decline in the number of literal questions answered correctly under the passage review (PR) condition at sessions 10 and 11, the decline was minor. Overall, the trend lines for the three conditions were extremely close indicating that a similar number of literal comprehension questions were answered correctly under all three conditions.

Figure 4.13
Cumulative Number of Literal Comprehension Questions Answered Correctly by Marissa
Figure 4.14 represents the number of literal comprehension questions answered correctly for Marissa. For the majority of sessions, the maximum number of literal questions (5) was answered correctly by Marissa. Some variability can be seen, however, within conditions. For instance, under the passage review (PR) condition, 5 questions were answered correctly during session eight, 3 questions were answered correctly during session nine, and 2 questions were answered correctly during session ten. A similar pattern of variability can be seen within the oral retelling (OR) and written retelling (WR) conditions across sessions.

Figure 4.14
*Number of Literal Comprehension Questions Answered Correctly by Marissa*

Figure 4.15 shows the cumulative number of literal comprehension questions answered correctly across all sessions by Wayne. Once again, a stable increasing trend for all three conditions was present. However, the data suggested variability between
conditions for Wayne. For the first four sessions, the written retelling (WR) condition appears to have led to a higher number of literal comprehension questions answered correctly when compared with the other two conditions. However, on session 5, the number of questions answered correctly under the written retelling (WR) condition declined and performance overlapped with performance in the other two conditions. From session 6 to session 15, it became distinctively clear that a higher number of comprehension questions was answered correctly under the written retelling (WR) procedure, followed by the oral retelling (OR) procedure and passage review (PR) procedure respectively.

Figure 4.15
*Cumulative Number of Literal Comprehension Questions Answered Correctly by Wayne*
Figure 4.16 shows the number of literal comprehension questions answered correctly across all sessions by Wayne. These data suggested the presence of variability within groups. For instance, increasing and decreasing trend lines can be seen from session to session for each of the three conditions.

Figure 4.16
*Number of Literal Comprehension Questions Answered Correctly by Wayne*

Figure 4.17 shows the cumulative number of comprehension questions answered correctly across all sessions by Trevor. These data indicated consistent increasing trends for all three conditions. Upon examining Figure 4.17, it appears as though there was some overlap in performance for the first 10 sessions. During session eleven, the written retelling (WR) condition slightly emerged as yielding a greater number of correct
responses on literal comprehension questions followed by the oral retelling (OR) and passage review (PR) conditions respectively.

Figure 4.17  
*Cumulative Number of Literal Comprehension Questions Answered Correctly by Trevor*

Figure 4.18 shows the number of comprehension questions answered correctly across all sessions by Trevor. Trevor’s data portrayed a combination of plateaus, steep increases, and steep decreases suggesting variability within all conditions across sessions.
Figure 4.18
*Number of Literal Comprehension Questions Answered Correctly by Trevor*

Figure 4.19 represents the cumulative number of literal comprehension questions answered correctly under the three conditions across all sessions by Jamal. These data show increasing trends for all conditions. As with his overall comprehension performance, Jamal’s data demonstrated a difference between the number of literal comprehension questions answered correctly in the written retelling (WR) condition as compared with the oral retelling (OR) and passage preview (PR) conditions. Visually, these data suggested that Jamal answered a similar number of literal comprehension questions correctly across the oral retelling (OR) and passage review (PR) conditions.
Figure 4.19
Cumulative Number of Literal Comprehension Questions Answered Correctly by Jamal

Figure 4.20 represents the number literal comprehension questions answered correctly under the three conditions across all sessions by Jamal. A pattern of inconsistent responding to literal comprehension questions can be seen across sessions, suggesting variability within conditions.
Figure 4.21 shows the cumulative number of literal comprehension questions answered correctly across all sessions by Vincent. A stable increasing trend for all three conditions and some variability within conditions was indicated by the data. It appears as though Vincent may have demonstrated a very slight increase in the number of literal comprehension questions answered correctly in both the written retelling (WR) procedure and oral retelling (OR) procedure as compared with the passage review (PR) procedure. These data also suggested that Vincent answered a similar number of literal comprehension questions correctly across the written retelling (WR) and oral retelling (OR) conditions.
Figure 4.21
*Cumulative Number of Literal Comprehension Questions Answered Correctly by Vincent*

Figure 4.22 shows the number of literal comprehension questions answered correctly across all sessions by Vincent. Variability within conditions was present in Vincent’s data; for instance, under the oral retelling (OR) condition, 3 questions were answered correctly in session one, 1 question was answered correctly in session two, and 4 questions were answered correctly in session three. This pattern of inconsistency across sessions was present in all conditions.
The data from the above graphical displays showed consistent patterns of literal comprehension across the three conditions. These treatment data indicated an increasing trend for all conditions. However, there was a noticeable degree of variability between conditions for most of the student participants. Specifically, the figures suggested that two students (Wayne and Jamal) demonstrated higher levels of comprehension under the written retelling condition, two students (Trevor and Vincent) demonstrated similarly high levels of comprehension under both oral and written retelling procedures as compared with the passage review procedure, and one student (Marissa) performed similarly on measures of literal comprehension under all conditions.
Table 4.4

<table>
<thead>
<tr>
<th>Treatment Condition</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passage Review</td>
<td>31.28</td>
<td>17.04</td>
</tr>
<tr>
<td>Oral Retell</td>
<td>31.97</td>
<td>18.42</td>
</tr>
<tr>
<td>Written Retell</td>
<td>34.47</td>
<td>18.99</td>
</tr>
</tbody>
</table>

Mean and Standard Deviations Across Treatment Conditions for Cumulative Number of Literal Comprehension Questions Answered Correctly

The data were collapsed into group data in order to test which treatment condition was most effective in terms of the number of literal comprehension questions answered correctly among students as a group. Table 4.4 displays the means and standard deviations for the cumulative number of comprehension questions answered correctly within each treatment condition. The means were similar on answering literal comprehension questions correctly across conditions. The mean numbers of literal questions answered correctly under the oral retelling and passage review treatment conditions were nearly the same. Figure 4.23 shows the cumulative data and Figure 4.24 shows the non-cumulative data collapsed across individuals for the three procedures.
Figure 4.23
Cumulative Number of Literal Comprehension Questions Answered Correctly by All Students Across All Conditions

Figure 4.24
Number of Literal Comprehension Questions Answered Correctly by All Students Across All Conditions
Upon analyzing the data, the graphical display in Figure 4.23 suggested variability across conditions. Specifically, the data indicated a very slight increase in the number of literal comprehension questions answered correctly in the written retelling (WR) approach as compared to the oral retelling (OR) and passage review (PR) conditions. That is, students tended to answer slightly more literal comprehension questions correctly under the written retelling condition over the course of the current study. A small amount of variability between the oral retelling and passage review procedures was present, indicating that slightly more literal comprehension questions were answered correctly under the oral retelling condition than within the passage review condition. Figure 4.24 suggests some variability within the conditions. In general, the number of literal comprehension questions answered correctly under each instructional condition differed from session to session.

Research Question Number Three

Based on the number of cumulative inferential comprehension questions answered correctly, which is a more effective method for improving inferential reading comprehension, passage review with repeated readings and phrase drill error correction (PR), oral retelling with repeated readings and phrase drill (OR), or written retelling with repeated reading and phrase drill error correction (WR)?

Table 4.5 includes the final cumulative number of inferential comprehension questions answered correctly for all five students across the passage review, oral retelling, and written retelling procedures. Table 4.5 also includes the total number of inferential comprehension questions answered for all students for the three instructional
conditions. The data suggest that the students as a group answered correctly a total of 753 inferential comprehension questions with considerable variability in the number of questions answered correctly across the three conditions. Specifically, it appears as though students answered the greatest number of questions correctly under the written retelling condition, followed by the oral retelling condition. The data showed that students answered the least number of literal comprehension questions correct under the passage review condition.

<table>
<thead>
<tr>
<th></th>
<th>Passage Review</th>
<th>Oral Retelling</th>
<th>Written Retelling</th>
<th>Student Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marissa</td>
<td>55</td>
<td>63</td>
<td>56</td>
<td>174</td>
</tr>
<tr>
<td>Wayne</td>
<td>41</td>
<td>48</td>
<td>52</td>
<td>141</td>
</tr>
<tr>
<td>Trevor</td>
<td>52</td>
<td>57</td>
<td>50</td>
<td>159</td>
</tr>
<tr>
<td>Jamal</td>
<td>43</td>
<td>45</td>
<td>47</td>
<td>135</td>
</tr>
<tr>
<td>Vincent</td>
<td>43</td>
<td>51</td>
<td>50</td>
<td>144</td>
</tr>
<tr>
<td>Group Total</td>
<td>234</td>
<td>264</td>
<td>255</td>
<td>753</td>
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</tbody>
</table>

Table 4.5
Cumulative Number of Inferential Comprehension Questions Answered Correctly

Figures 4.25 through 4.34 provide the cumulative and none-cumulative number of inferential comprehension questions answered correctly across all sessions for Marissa, Wayne, Trevor, Jamal, and Vincent respectively. The figures were constructed in order to allow for a visual representation of the data on a student-by-student basis. The data from these figures showed consistent patterns of comprehension across the three conditions.

Figure 4.25 represents the cumulative number of inferential comprehension questions answered correctly for Marissa. The data indicated an increasing trend across
For the first eight sessions the written retelling (WR) condition led to a higher number of questions answered correctly; however, at session ten the oral retelling (OR) condition emerged as the most effective for improving inferential comprehension.

Overall, it appears that Marissa may have answered a similar number of inferential comprehension questions correctly across the passage review (PR) and written retelling (WR) conditions.

Figure 4.25
*Cumulative Number of Inferential Comprehension Questions Answered Correctly by Marissa*

Figure 4.26 represents the number of inferential comprehension questions answered correctly for Marissa. The data displayed in Figure 4.26 indicated that within all conditions, the number of comprehension questions answered correctly from session
to session varied considerably. For instance, under the oral retelling condition, Marissa answered 5 inferential questions correctly in session one, 3 inferential questions correctly in session two, and 4 questions correctly in session three. As can be seen in Figure 4.26, this variable pattern was apparent across all sessions for all conditions.

Figure 4.26
*Number of Inferential Comprehension Questions Answered Correctly by Marissa*

Figure 4.27 shows the cumulative number of inferential comprehension questions answered correctly across all sessions by Wayne. A consistently increasing trend for all three conditions can be seen. Little variability exists within the passage review (PR) and written retelling (WR) conditions, however some variability can be seen within the oral retelling (OR) condition. At session 7, the oral retelling (OR) condition began to elicit a
noticeable gain in the number of inferential questions answered correctly at which point it became more effective than the written retelling (WR) condition. The data also show visible variability between conditions for Wayne. It appears as though the written retelling (WR) procedure was the most effective for improving inferential comprehension for Wayne when compared with the oral retelling (OR) and passage review (PR) procedures. Further, there appears to be a greater increase in number of inferential comprehension questions answered correctly within the oral retelling (OR) procedure when compared with the passage review (PR) procedure.

Figure 4.27
Cumulative Number of Inferential Comprehension Questions Answered Correctly by Wayne
Figure 4.28 represents the number of inferential comprehension questions answered correctly under the three conditions across all sessions by Wayne. Within each condition, variability was present. For example, the number of inferential comprehension questions answered correctly under the written retelling (WR) condition ranged from as many as 5 questions correct, as was the case in session one, to as few as 1 question correct, as was the case in session nine. This inconsistent response pattern was apparent within all conditions and across most sessions.
Figure 4.29 shows the cumulative number of inferential comprehension questions answered correctly across all sessions by Trevor. Similar to previous figures, a stable increasing trend was present for all three conditions. Upon examining Figure 4.29, Trevor’s performance on answering inferential questions was higher under the oral retelling (OR) condition as compared to the written retelling (WR) and passage review (PR) conditions. These data also suggested that Trevor may have answered correctly a similar number of literal comprehension questions across the written retelling (WR) and passage review (PR) conditions.

Figure 4.29
Cumulative Number of Inferential Comprehension Questions Answered Correctly by Trevor
Figure 4.30 shows the number of inferential comprehension questions answered correctly across all sessions by Trevor. The data suggested the presence of variability within groups. For instance, increasing and decreasing trend lines can be seen from session to session for each of the three conditions.

Figure 4.30
*Number of Inferential Comprehension Questions Answered Correctly by Trevor*

Figure 4.31 represents the cumulative number of inferential comprehension questions answered correctly under the three conditions across all sessions by Jamal. These data show increasing trends for all conditions. Jamal’s data show that the written retelling (WR) condition was the most positively influential on inferential comprehension as compared with the oral retelling (OR) and passage review (PR) conditions. Visually,
these data also suggest that Jamal answered slightly more inferential comprehension questions correctly within the oral retelling (OR) condition than in the passage review (PR) condition.

Figure 4.31
*Cumulative Number of Inferential Comprehension Questions Answered Correctly by Jamal*

Figure 4.32 represents the number of inferential comprehension questions answered correctly by Jamal. The data displayed in Figure 4.32 indicate that within all conditions, the number of comprehension questions answered correctly from session to session varied considerably. A pattern of increasing and decreasing trend lines were present within each condition across sessions.
Figure 4.32
*Number of Inferential Comprehension Questions Answered Correctly by Jamal*

Figure 4.33 represents the cumulative number of inferential comprehension questions answered correctly under the three conditions across all sessions by Vincent. Once again, these data show increasing trends for all conditions. Figure 4.33 shows overlapping among the three conditions through session six; at session 14 the oral retelling (OR) and written retelling (WR) trend lines also overlap. Vincent’s inferential comprehension data suggested that nearly the same number of inferential comprehension questions were answered correctly in the oral retelling (OR) condition as written retelling (WR) condition. The fewest inferential questions were answered correctly under the passage review (PR) condition.
Figure 4.33
*Cumulative Number of Inferential Comprehension Questions Answered Correctly by Vincent*

Figure 4.34 represents the number of inferential questions answered correctly under the three conditions across all sessions by Vincent. Within each condition, considerable variability was present. For example, the number of comprehension questions answered correctly under the written retelling (WR) condition ranged from as many as 5 questions correct to as few as 1 question correct. This inconsistent response pattern within conditions was present across most sessions.
The data from the above graphical displays showed consistent patterns of inferential comprehension across the three conditions. These treatment data indicated an increasing trend with some variability between conditions. Specifically, the figures suggested that two students (Marissa and Trevor) demonstrated higher levels of inferential comprehension under the oral retelling procedure, two students (Wayne and Jamal) demonstrated better levels of inferential comprehension under the written retelling procedure, and one student (Vincent) demonstrated similarly higher levels of inferential comprehension under both the oral retelling and written retelling procedures as compared with the passage review procedure. Some variability was apparent within conditions as evidenced by the standard deviations and within the figures displaying non-cumulative data.
Table 4.6
Mean and Standard Deviations Across Treatment Conditions for Cumulative Number of Inferential Comprehension Questions Answered Correctly

<table>
<thead>
<tr>
<th>Treatment Condition</th>
<th>Mean</th>
<th>Standard Deviation</th>
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<tbody>
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<td>Passage Review</td>
<td>25.0267</td>
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<tr>
<td>Oral Retell</td>
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</tr>
<tr>
<td>Written Retell</td>
<td>27.9333</td>
<td>14.88406</td>
</tr>
</tbody>
</table>

The data were collapsed into group data in order to test which treatment condition was most effective on the number of inferential comprehension questions answered correctly among students as a group. Table 4.6 displays the means and standard deviations for the cumulative number of comprehension questions answered correctly within each treatment condition. The means indicated that students, as a group, averaged the most inferential comprehension questions answered correctly under the written retelling and oral retelling treatment conditions followed by the passage review treatment condition. Figures 4.35 and 4.36 show the cumulative and non-cumulative data collapsed across individuals for the three procedures.
Figure 4.35
*Cumulative Number of Inferential Comprehension Questions Answered Correctly by All Students Across All Conditions*

Figure 4.36
*Number of Inferential Comprehension Questions Answered Correctly by All Students Across All Conditions*
Upon analyzing Figure 4.35, the data indicated some degree of variability across conditions. Specifically, the data suggested a steeper increase in the number of inferential comprehension questions answered correctly in both the oral retelling (OR) and written retelling (WR) approaches as compared to the passage review (PR) condition. That is, students tended to answer slightly more inferential comprehension questions correctly under the retelling conditions over the course of the current study. Also, there appears to be only a minimal amount of variability between the oral retelling and written retelling procedures, suggesting a similar number of inferential comprehension questions answered correctly for these two conditions among students as a group. Figure 4.36 suggests variability was present within conditions, meaning that, in general, the number of inferential questions answered correctly under each condition varied from session to session.

**Research Question Number Four**

Which is a more efficient method, as measured by learning per instructional time, for improving reading comprehension for individual students as well as for students as a group, passage review with repeated readings and phrase drill error correction (PR), oral retelling with repeated readings and phrase drill (OR), or written retelling with repeated reading and phrase drill error correction (WR)?
Table 4.7 provides a summary of the cumulative number of comprehension questions answered correctly, total time engaged in each of the three conditions, and the rate (i.e., number of correct answers per minute of total instruction) of comprehension under all three conditions by each participant, and total across all participants. It should be noted that the data presented in Table 4.7 takes into account the time spent on the entire instructional session.

Marissa and Trevor answered a similar number of comprehension questions correctly under all instructional conditions, Wayne and Jamal answered the most comprehension questions correctly under the written retelling condition, and both the oral retelling and written retelling conditions were the most effective for Vincent. As a group, students answered more comprehension questions correctly under the oral retelling and written retelling conditions as compared to performance under the passage review condition.

For all students, the oral retelling procedure required the least amount of instructional time to administer. For three of the students (Marissa, Wayne, and Vincent), the passage review procedure was the second quickest procedure administered followed by the written retelling procedure, the written retelling was the second quickest procedure followed by the passage review procedure and for two of the students. As a group, students completed oral retelling sessions in the shortest amount of time, followed by the written retelling and passage review conditions respectively.

For all of the individual students, the highest learning rate (number of questions answered correctly per minute of instructional time) occurred under the oral retelling condition. For four of the students (Wayne, Trevor, Jamal, and Vincent), the written
retelling condition was the next most efficient in terms of learning. For Marissa, the written retelling and passage review procedures were nearly the same when considering rate of comprehension. As a group, the oral retelling procedure elicited the greatest number of comprehension questions answered per minute of instructional time followed by the written retelling and passage review conditions respectively.

<table>
<thead>
<tr>
<th></th>
<th>Passage Review</th>
<th>Oral Retelling</th>
<th>Written Retelling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quest. Correct</td>
<td>Time^a</td>
<td>Rate^b</td>
</tr>
<tr>
<td>Marissa</td>
<td>121</td>
<td>237.43</td>
<td>0.51</td>
</tr>
<tr>
<td>Wayne</td>
<td>95</td>
<td>197.08</td>
<td>0.48</td>
</tr>
<tr>
<td>Trevor</td>
<td>110</td>
<td>195.97</td>
<td>0.56</td>
</tr>
<tr>
<td>Jamal</td>
<td>97</td>
<td>166.65</td>
<td>0.58</td>
</tr>
<tr>
<td>Vincent</td>
<td>99</td>
<td>214.08</td>
<td>0.46</td>
</tr>
<tr>
<td>Group</td>
<td>522</td>
<td>1011.21</td>
<td>0.52</td>
</tr>
</tbody>
</table>

a = number of minutes  
b = number of questions correct/time

Table 4.7  
Total Number of Comprehension Questions Answered Correctly, Total Number of Minutes Spent in Each Condition, Learning Rates by Student and Group Totals by Condition

Data analysis can also be seen in Figures 4.37 through 4.46 which allow for a visual analysis of the cumulative and non-cumulative data for Marissa, Wayne, Trevor, Jamal, and Vincent, respectively. In figure 4.37, Marissa’s learning rate was highest under the oral retelling (OR) procedure followed by the written retelling (WR) and passage review (PR) procedures. All three conditions appear to have contributed to increasing trends in comprehension performance. Although there was some overlap
among the rates of comprehension under all conditions for the first several sessions, the oral retelling (OR) condition emerged as eliciting the highest rate of comprehension during session five. However, the oral retell condition showed a steeper increasing trend and higher levels of progress. There appears to be only a small degree of variability between the written retelling and passage review conditions for Marissa. These data were similar to what was discovered when analyzing the number of cumulative comprehension questions answered correctly in Figure 4.1. Thus, for Marissa, it appears that the oral retelling procedure may be both more effective and more efficient for increasing reading comprehension as compared with the other conditions for improving reading comprehension.

Figure 4.37
Cumulative Learning Rates Across All Sessions and Conditions by Marissa
Figure 4.38 displays the non-cumulative learning rates for all conditions across all sessions. Variability within conditions was visible for all conditions throughout the duration of the study’s sessions. This means that the number of comprehension questions answered correctly per minute of instructional time was inconsistent under all conditions from session to session.

![Figure 4.38](cumulative_learning_rates_across_all_sessions_and_conditions_by_marissa.png)

**Figure 4.38**
*Cumulative Learning Rates Across All Sessions and Conditions by Marissa*

Figure 4.39 displays the cumulative learning rate data for Wayne. These data demonstrate increasing trends for all three conditions. The data also suggest that a higher number of comprehension questions were answered correctly per minute of instructional time under the oral retelling (OR) procedure as compared to the written retelling (WR) or passage review (PR) conditions. There was very little variability between the oral
retelling (OR) and written retelling (WR) conditions for Wayne; there was a substantial difference when comparing the effects of the retelling procedures to the effects of the passage review condition. Therefore, there was an indication that the retelling procedures result in more efficient learning rates for Wayne when compared to the passage review procedure.

Figure 4.39
Cumulative Learning Rates Across All Sessions and Conditions by Wayne
Figure 4.40 displays the non-cumulative learning rates for all conditions across all sessions for Wayne. The number of comprehension questions answered correctly per minute of instructional time varied within all conditions from session to session. For instance, under the oral retelling (OR) condition, the number of comprehension questions answered correctly per minute of instructional time varied from .56 in session one, to .33 in session two, to .44 in session three, and so on.
Figure 4.41 displays the cumulative learning rate data for Trevor. These data showed increasing trends for all three conditions. Similar to Marissa’s and Wayne’s data, Trevor’s data also suggested that the oral retelling (OR) procedure was most efficient for answering comprehension questions followed by the written retelling (WR) and passage review (PR) conditions, respectively. When time is taken into account, rates of comprehension were greater under the oral retelling (OR) condition than the written retelling (WR) or passage review (PR) conditions for Trevor.

Figure 4.41
*Cumulative Learning Rates Across All Sessions and Conditions by Trevor*
Figure 4.42 represents the number of comprehension questions answered correctly per minute of instructional time under the three conditions across all sessions by Trevor. Within each condition, considerable variability was present. Increasing and decreasing trend lines were present under all conditions across most sessions.
In figure 4.43, Jamal’s learning rate was highest under both retelling conditions as contrasted with his rates under the passage preview condition. All three of the instructional conditions appear to have stable increasing trends, however, Jamal comprehended the passage at a considerably slower rate under the passage review (PR) condition in contrast to his rate of performance under the retelling conditions.

Figure 4.43
*Cumulative Learning Rates Across All Sessions and Conditions by Jamal*

Figure 4.44 displays the non-cumulative learning rates for all conditions across all sessions for Jamal. The number of comprehension questions answered correctly per minute of instructional time was inconsistent under all conditions from session to session. These data indicated variability within all conditions.
Figure 4.44
*Learning Rates Across All Sessions and Conditions by Jamal*

Vincent’s cumulative learning rate is presented in Figure 4.45. The data showed an increasing trend across all three instructional conditions and suggested that all conditions resulted in cumulative progress in answering comprehension questions. During the first four sessions, there was considerable overlap among the three conditions. However, during session five, the oral retelling (OR) condition emerged as the procedure which resulted in the most efficient learning for Vincent.
Figure 4.45  
*Cumulative Learning Rates Across All Sessions and Conditions by Vincent*

Figure 4.46 shows the non-cumulative learning rates for the three conditions across all sessions for Vincent. Despite within condition variability, Vincent’s data portrayed an overall increasing trend for all conditions. In general, the number of comprehension questions answered correctly per minute of instructional time increased for each of the conditions as sessions progressed.
The above graphs suggest that three students (Marissa, Trevor, and Vincent) most clearly demonstrated more efficient learning rates under the oral retelling (OR) condition as opposed to the written retelling (WR) and passage review (PR) conditions. Both the oral retelling (OR) and written retelling (WR) conditions were most efficient for two students (Wayne and Jamal). None of the students displayed the greatest efficiency for the acquisition of words under the passage review condition. Therefore, the results suggest that oral retelling, in particular, was most efficient for improving comprehension among the individual participants in this study.
The data were collapsed into group data in order to test which treatment condition was most efficient on cumulative learning rate. Table 4.8 displays the group means and standard deviations for the cumulative learning rate across the three treatment conditions. The means indicated that students, as a group, answered more comprehension questions correctly per minute of instructional time under the oral retelling condition, followed by the written retelling and passage review treatment conditions, respectively. Figures 4.47 and 4.48 show the cumulative and non-cumulative learning rates collapsed across all five participants across all three instructional conditions.
Figure 4.47
Cumulative Learning Rates Across All Students Across All Three Conditions

Figure 4.48
Learning Rates Across All Students Across All Three Conditions
Upon examining Figure 4.47 a noticeable degree of variability was present across conditions. The data implied that when instructional time was factored into the analysis, the oral retelling (OR) procedure led to higher gains in comprehension followed by the written retelling (WR) procedure and passage review (PR) procedure respectively. Students tended to answer more comprehension questions correctly per minute of instructional time under the oral retelling (OR) condition over the course of the study. The non-cumulative data displayed in Figure 4.48 showed variability within conditions across all sessions.

**Research Question Number Five**

Are the three instructional approaches a socially valid way to assess and teach comprehension skills to students with reading comprehension difficulties?

The five students in this study completed a social validity interview following the completion of the final intervention session (see Appendix G). The interview consisted of seven short questions with Likert-Type Scale response choices. Students received the interview questionnaire and read the questions to themselves as the experimenter asked them out loud. Students then circled their answer choice. Questions such as “Did you enjoy doing these reading exercises” and “Did doing these reading exercises help you to read better” were asked in order to determine the social validity of the three instructional approaches.

The results indicated that three of the five students enjoyed participating in the reading exercises “very much,” one student enjoyed the experience “a little bit”, and one student disliked the experience. All students reported that they believed the reading
interventions helped them to read better. The students were also given the opportunity to choose which intervention they liked the best and which intervention they would choose to do again. Two of the students reported that the passage review was their favorite intervention, two chose oral retelling, and one student chose the written retelling option. All students chose their reported favorite intervention as the one they would prefer doing in the future, except for one student. This student chose the passage review procedure as his favorite, but he reported that in the future he would choose to participate in the written retelling activity.

Three classroom teachers participated in filling out a social validity questionnaire following the completion of the final intervention session (see Appendix H). The questionnaire consisted of seven questions, six of which provided Likert-Type Scale responses to circle, and one which required a short answer response. Responses to questions such as, “Did you notice any difference in the student’s overall reading performance while he or she was participating in this study?” and “Do you feel as through the three instructional methods appear to be valid and appropriate approaches for helping students to improve their reading comprehension?” were assessed in order to evaluate the social validity of three instructional approaches. All three teachers indicated that improvement was seen in their overall reading performance, with specific gains in reading fluency and in reading comprehension. All teachers also reported that they felt that these instructional methods were valid and appropriate for classroom use. One teacher also commented on the increased confidence levels and class participation efforts of two of the students in the study as a result of their improved reading skills.
CHAPTER 5
DISCUSSION

This chapter discusses the results of the study, which looked at the effectiveness and efficiency of three instructional techniques on reading comprehension performance. Comparisons to previous research studies, implications for practitioners, limitations, and directions for future research are also discussed.

The main purpose of this study was to examine the instructional effectiveness and efficiency of three reading interventions on students’ cumulative number of comprehension questions answered accurately. Specifically, using an alternating treatment design, this study explored whether retelling procedures when paired with repeated readings and phrase drill error correction are more effective and efficient than a more traditional passage review strategy paired with repeated readings and phrase drill error correction. This study expanded on prior research in several ways: (1) Retell was examined as a learning strategy for comprehending text rather than as an assessment tool; (2) rate of comprehending text was used as an outcome measure in addition to measures of comprehension accuracy; (3) the three instructional methods were not only examined regarding instructional effectiveness but were also compared to determine if one was more efficient than other others; and (4) a writing component was introduced in the form of written retellings as a third instructional condition. Social validity of the three instructional methods is also discussed.
Instructional Effectiveness

Results showed that all five students maintained their overall reading comprehension, literal comprehension, and inferential comprehension performance under all three instructional conditions throughout the study. Because baseline data were not collected and an alternating treatment design was used, conclusions cannot be drawn as to whether reading comprehension improved as a result of these interventions. However, findings from the current study are fairly consistent with prior research. Zabrucky and Commander (1993) and Millis and King (2001) found that self-directed passage reviewing furthered reading comprehension for students, and studies conducted by Gambrell and colleagues in 1985, 1989, and 1991, respectively, support the use of oral retellings as a strategy for improving reading comprehension performance. Results of the current study which indicate the effectiveness of utilizing written retellings for improving reading comprehension are consistent with the findings of Craig (2006). These findings contribute to the sparse evidence within literacy research examining the written retelling procedure as an instructional strategy.

The results from the current study found some differences among the three conditions in terms of instructional effectiveness. The most subtle of differences among conditions was found when examining literal comprehension. As a group, the highest number of literal comprehension questions was answered correctly under the oral and written retelling conditions; only one more question was answered correctly under the oral retelling condition than the written retelling condition. There is an approximate difference of 16 fewer literal questions answered correctly under the passage review condition when compared with the retelling conditions.
The same trend, with slightly greater variability among conditions, was seen for the number of inferential comprehension questions answered correctly under each condition. The total number of literal questions answered correctly by students as a group is higher under the oral and written retelling conditions than the passage review condition. As a group, students answered a total of 21 more inferential questions correctly under the written retelling and 34 more inferential questions correctly under the oral retelling conditions when compared with the total number of inferential questions answered correctly under the passage review procedure.

Similar to the literal and inferential effectiveness results, students, as a group, answered more total comprehension questions correctly under the oral and written retelling condition than the passage review condition. As a group, students answered a total of 48 more questions correctly under the oral retelling condition and a total of 50 more questions correctly under the written retelling condition when compared with the total number of comprehension questions answered correctly under the passage review procedure.

Instructional efficiency results reveal that the greatest amount of time was required to deliver the passage review instruction to students. The written retelling procedure required the second greatest amount of time. The fewest number of minutes were required to deliver the oral retelling condition. Therefore, it is likely appropriate to rule out quantity of time spent receiving instruction under any particular condition as a primary cause of greater effectiveness for the retelling procedures. Instead, a potential explanation for greater comprehension performance under the retelling conditions may involve the quality of interaction with the story that takes place after the repeated reading.
When students are asked to retell a story, whether in oral or written form, they are forced to actively recall what was read and describe what they remember from the story as accurately as possible. Although students are encouraged to retell the story using as many of the same words from the story as they can, some degree of paraphrasing is to be expected as students interpret story details and events and relay them in their own words. This act of summarization during a retelling may increase awareness of text structure and ideas as well as how these ideas are related to form a story (Rinehart, Stahl, & Erickson, 1986). Further, a link between story summarizing and metacognition may exist suggesting that the act of paraphrasing a story, either orally or through writing, lends students a personal awareness and control over the reading process (Rinehart, Stahl, & Erickson, 1986). Conversely, when students review or “study” a passage, they may not be truly interacting with the text in a meaningful way.

For instance, one of the students in this study, Wayne, developed a habit of giving the passage only a cursory glance before indicating that he was done reviewing. Even the use of underlining or highlighting does not guarantee quality text interaction. Marissa, for example, employed a strategy of putting brackets around certain sentences. When the researcher asked her about this strategy at the end of the study, Marissa stated that she frequently made these marks at random; this admission suggests that Marissa was not reviewing the text in a way meaningful way that might aid in story comprehension. Jamal used an underlining strategy when reviewing the passages. However, when he attempted to underline sentences he often drew the line through the words instead of under the words; this occurrence preoccupied his attention, and he would almost always apologize for it and explain how he thought this error was due to the fact that he has “weak hands.”
With so much focus on the physical act of underlining the sentences, Jamal was likely overlooking critical story elements and content. Trent simply re-read the entire passage silently to himself during the review, and Vincent typically gave the passage a cursory glance before indicating that he was ready to answer the comprehension questions.

Although students were met with similar success across conditions in terms of reading comprehension performance, the analysis of the results of this study suggests that students who struggle with reading may benefit further from the more structured retelling strategies over the passage review technique. These results support those found by Zubrucky and Commander (1993) and Millis and King (2001) indicating that while passage reviewing does improve comprehension performance, weaker readers fail to discriminate between critical text details and less important elements and, therefore, make smaller gains in comprehension than stronger readers. Thus, when given the choice among the three procedures used in the current study, educators wishing to maximize students’ story understanding may benefit from choosing either the oral or written retelling procedure as an instructional technique.

**Instructional Efficiency**

When the three instructional conditions were investigated from the standpoint of instructional efficiency, or the rate of comprehension in relation to time, the oral retelling procedure was found to have a distinct advantage over the written retelling and passage review procedures. In fact, all five students were found to have higher learning rates in the oral retelling condition as compared to the written retelling and passage preview conditions, meaning that students comprehended the most material in the shortest amount of time when engaged in the oral retelling procedure. For all but one participant (Marissa)
the written retelling procedure was the second most efficient condition. For four of the five participants, the passage review condition was least efficient in terms of comprehension per instructional time.

Instructional efficiency was calculated by dividing the number of comprehension questions answered correctly under a specific condition by the amount of time engaged in that condition. Specifically, the greater the number of comprehension questions answered correctly per minute of instruction, the greater the instructional efficiency. Across students, efficiency was relatively consistent with effectiveness, meaning that, for most students, the instructional procedure which led to the highest number of comprehension questions answered correctly was also the procedure under which the most comprehension questions were answered correctly per minute of instructional time.

For Marissa, all three instructional conditions were similarly effective based on the cumulative number of overall comprehension questions and literal comprehension answered correctly. The oral retelling condition led to the greatest inferential comprehension performance and was also the condition under which the most comprehension questions were answered correctly per minute of instructional time. Therefore, for Marissa, it appears that the oral retelling procedure may be as effective and more efficient when compared with the written retelling and passage review conditions.

In the case of Wayne, the written retelling procedure was most effective technique. This procedure led to the highest gains based on the cumulative numbers of overall comprehension questions, literal comprehension questions, and inferential comprehension questions answered correctly. In terms of efficiency, similarly higher rates of comprehension were found under the oral retelling and written retelling
conditions as compared with the passage review condition. Despite the fact that both forms of retelling were efficient for Wayne, the fact that his comprehension performance was greatest under the written retelling condition suggests that, of the three conditions, the written retelling procedure may be the best choice for helping Wayne improve his comprehension performance.

All three conditions were similarly effective in leading to overall comprehension gains. Both the oral and written retelling procedures were similarly effective in leading literal comprehension, and the oral retelling procedure was most effective for improving Trevor’s inferential comprehension. The highest rate of comprehension occurred under the oral retelling condition for Trevor. Across the four dependent variables, the one condition that consistently led to high performance of comprehension for Trevor was the oral retelling condition. Thus, in Trevor’s case, the oral retelling may be the best choice of conditions for helping him to improve comprehension performance.

In the case of Jamal, the written retelling procedure led to the greatest cumulative numbers of overall, literal, and inferential comprehension questions answered correctly. The most efficient rates of comprehension occurred under both the oral and written retelling conditions when compared with performance under the passage review condition. Therefore, for Jamal, the written retelling procedure was as efficient as the oral retelling condition along with being the most effective of the three conditions. These results suggest that the written retelling procedure would be the most desirable of the three conditions for aiding Jamal in the comprehension of text.

For Vincent, overall comprehension, literal comprehension, and inferential comprehension performance was highest under both the oral retelling and written
retelling conditions when compared with the passage review condition. Despite the fact that no one procedure stood out as the most effective for Vincent, the greatest number of comprehension questions per minute of instructional time was achieved under the oral retelling condition. These results indicate that the oral retelling procedure was more effective than the passage review procedure and as effective as the written retelling procedure while also producing the greatest comprehension gains within the shortest amount of instructional time. Therefore, for Vincent, the oral retelling procedure appears to be the optimal choice of the three instructional conditions used in this study.

For the students as a group, the oral and written retelling procedures led to similarly greater gains in overall and inferential comprehension over the passage review procedure. For literal comprehension, the greatest number of questions was answered correctly under the written retelling condition. By examining the amount of time needed to make such gains, it was evident that the oral retelling procedure was the most time efficient of the three interventions for students as a group. Although the written retelling procedure was equally effective as the oral retelling procedure for improving overall and inferential comprehension and slightly more effective for improving literal comprehension, more time was required under the written retelling condition to meet the same gains in comprehension as were made under the oral retelling condition. On average, students spent roughly 11 fewer seconds retelling the passage orally than performing the written retelling in a given session.

These results may be explained by the fact that it typically takes longer to write down thoughts and ideas than to speak them. When performing a written retelling, participants in this study were hesitant to write words from the story that they did not
know how to spell. Further, most participants did not enjoy the act of writing about the story and were willing to spend only a very short time on this task. In general, participants seemed more willing to elaborate on the story elements when speaking to the experimenter.

These findings are important because efficiency is an important consideration in the selection of instructional methods within the classroom (Nelson et al., 2004). When working with low-achieving students, teachers generally prefer more simplistic and less time consuming classroom adaptations and instructional methods (Bender, Vail, & Scott, 1995). According to a survey implemented by Bender et al. (1995) teachers considered the use of reinforcement and inclusion of students with disabilities in whole class activities as desirable adaptations but were more reluctant to make more major instructional modifications such as using adapted curricula, adapted grading criteria, and alternative long-range plans. Instructional techniques that are both effective and less time consuming may be better received by teachers and, therefore, may be more likely to be implemented within classrooms.

Comparison to Previous Research Studies

The current study is unique in that it assessed comprehension gained through a procedure involving repeated readings paired with error correction and story retellings. Previous studies have examined these instructional strategies in isolation and they have been found to be effective for improving reading comprehension. Several investigations found support for repeated readings with error correction as a procedure for improving reading comprehension (Alber-Morgan et al., 2007; Freeland et al. 2000; Staubitz et al., 2004; Strong et al., 2004; Therrien et al., 2006). Repeated readings and error correction
were a part of each of the three instructional conditions used in the current study; the fact that all three instructional conditions led to increased reading comprehension performance lends further support to the effectiveness of repeated readings paired with error correction.

Similarly, growing support exists for the effectiveness of retelling strategies on reading comprehension performance (Craig, 2006; Gambrell et al., 1989; Gambrell et al., 1991). The current study found that retellings, both oral and written, appear to be more effective than a passage review strategy. These results support secondary findings within studies by Zabrucky and Commander (1993) and Millis and King (2001) which indicated that struggling readers do not typically benefit from passage review procedures as much as strong readers due to their inability to discriminate between key story elements and less significant passage details.

The effectiveness found specifically for written retellings is consistent with findings that the act of writing can aid in remembering and encoding information. For instance, writing notes has been linked with helping students to recognize important information during lectures and to encode and comprehend information (Boyle and Wieshaar, 2001). Similarly, the KWL strategy has a strong writing component and has been found to help students construct meaning and enhance memory and comprehension (Banikowski & Mehring, 1999; Jennings, 1991; McAllister, 1994). However, the finding that, overall, written retellings did not produce higher reading comprehension gains than the oral retellings suggests that writing may not offer additional benefits when assessing immediate comprehension.
The efficiency results from the current study support previous findings that oral responding can be just as effective as written responding while requiring less interventional time under one-on-one instruction. Studies by Skinner et al. (1995) and Skinner et al. (1997) found that when students were instructed to give verbal responses rather than written responses, the time it took to complete the intervention session was reduced without detrimental effects to student performance.

Limitations

Several limitations are associated with the current study. First, only 5 students participated in the study. Such a small sample size greatly reduces the external validity of the study and, therefore, it can not be determined whether other individuals would demonstrate similar comprehension rates under the various instructional conditions. A second limitation is that students from only one grade level participated in the study and there was only one female participant. In order to enhance generalization, one may want to choose a more age and gender diverse population with which to conduct a replication of this study. Further, students were selected for participation; therefore, random sampling was not a part of the research study. Due to the lack of random sampling, the study cannot be generalized beyond the sample population. In addition, the method of selecting students (i.e., must be having difficulty with reading comprehension as reported by the DAB-3 reading comprehension assessment) also impacts the generality of findings to other populations. It may be reasonable, however, to generalize to other third grade populations that are similar to the population being studied. For instance, similar findings may be found for students of the same age and demographic population who have adequate reading fluency skills but who struggle with reading comprehension.
Another limitation is the fact that the only academic area investigated was reading comprehension. Therefore, the extent to which the findings would generalize across other areas of reading (e.g., fluency) or curricula is unclear. Fifth, it would have been beneficial to record the number of words each student retold during oral retellings. Doing so would have allowed for a comparison against the number of words written during the written retellings. The current study also did not employ explicit instruction on retelling procedures or provide opportunities to practice. Results of Katims and Harris (1997) suggest that students exposed to paraphrasing instruction made greater gains in reading comprehension than students who did not receive instruction. Similarly, Gambrell et al. (1991) determined that opportunities to practice retellings were a critical component in a study examining the effect of oral retellings on reading comprehension. Researchers may wish to explore the implementation of these components in order to determine if they increase comprehension and comprehension rates.

The use of an alternating treatment designs is also a limitation because this design introduces multiple-treatment interference. In other words, the effects from one treatment may be influenced by or carry over to another treatment (Neuman, 1995, p. 81). Potential effects include those such as carryover, practice, primacy, and recency effects (McCurdy, Skinner, Grantham, Watson, & Hindman, 2001). The counterbalancing implemented in the current study did help to control for these effects; however, there is still the potential for interference which may have contaminated separate treatments. Because a control condition involving repeated readings without either phrase drill error correction, retelling, or reviewing was not included within the alternating treatment design, it is unclear whether repeated readings alone had the most positive effect on reading
comprehension. Time constraints acted as a limitation; students were unable to complete an entire session in a day; instead, sessions had to be split over two days. Further, students participated in only 15 sessions during this study and the number of treatment integrity checks was minimal and did not allow for maximum monitoring of adherence to the treatment procedures. Finally, maintenance and generalization were not measured in this study. Maintenance is essential for determining the overall effectiveness of an intervention and generalization is key for applying interventions to the classroom setting.

Directions for Future Research

The current study involved a limited participant group relative to number of students, age/grade, and gender. Future studies may wish to work with more students of different ages and with a greater balance between males and females in order to enhance generalization. Generalization beyond the sample population can also be improved through random sampling.

Because only reading comprehension was investigated in the current study, it is inconclusive as to whether the three instructional procedures would lead to gains in other areas of reading. Future researchers may want to examine the extent to which findings would generalize across other areas of reading performance such as word reading and reading fluency. The current study also only examined reading comprehension of expository text. Researchers may wish to investigate whether similar findings would result when using narrative text. Future research may also want to examine whether findings would generalize to younger and older students, children with other learning disabilities, and English language learner (ELL) populations.
Because extensive training and ample opportunities to practice the retelling procedures were not provided, it may be beneficial for researchers to replicate the current study with the addition of training on how to retell passages in both oral and written form. It would also be interesting to investigate whether the procedures implemented within the current study would lead to similar comprehension gains when used in a peer tutoring paradigm.

Future studies may benefit from using an experimental design which poses fewer confounding effects than an alternating treatment design. This will help to better determine the overall effectiveness of each of the treatment conditions in addition to the extent to which the treatment conditions vary in effectiveness and efficiency. Further, it would be interesting to examine whether similar results would be found when students receive all three instructional methods in the same day or only one per day. Researchers may also want to increase the number of sessions in order to determine if similar results would be found. Future studies should also include more treatment integrity checks in order to adequately monitor adherence to treatment procedures. Further, researchers may wish to measure maintenance of gained comprehension and generalization of effectiveness to the classroom setting.

Social Validity

The current study included interviews with the students (See Appendix G) as well as interviews with the teachers (See Appendix H) in order to assess the social validity of the three instructional techniques. Social validity examines the overall significance of an intervention to the subjects involved. The student interview consisted of seven short questions. All questions were verbally read to the students. Questions such as, “Did you
enjoy doing these reading exercises,” “Did doing these reading exercises help you to read better,” and “Did doing these reading exercises help you to pay attention to what you read” were asked in order to examine the social validity of the three instructional approaches.

The results indicated that all of the students believed that the reading exercises helped them to read better and to learn words. Three students responded that they believed the reading exercises helped them to pay better attention to what they read, one student thought the exercises helped him to pay attention a little bit, and one student did not feel that the exercises helped in regard to attending to what was read. When asked about which instructional method they liked best, preferences varied among students. The general perception of the students was that the written retelling took too long; often, the students would write only a few words or short sentences before indicating they were through. One student was extremely quiet and shy and did not like to communicate more than necessary with the examiner; perhaps because of this, he disliked the oral retell procedure and, instead, preferred the passage review technique.

The three classroom teachers participated in filling out a social validity questionnaire following the completing of the final intervention session. The questionnaire consisted of seven Likert-Type questions; some questions included follow-up short answer questions. Responses to questions such as “Did you notice any difference in the student’s overall reading performance while he/she was participating in the study,” and “Do you feel as though the three instructional methods appear to be valid approaches, or appropriate approaches, for helping students to improve their reading comprehension” were assessed in order to evaluate the social validity of the three instruction approaches.
All three teachers indicated that they felt their student(s) improved in reading performance. Teachers indicated that areas of improvement included reading fluency, reading comprehension, and overall confidence in reading orally. In addition, the teachers felt that the instructional procedures appeared to be valid approaches for improving reading comprehension for students who struggle with this skill.

**Implications for Practice**

The findings from the current study have several significant implications for researchers, educators, and school psychology practitioners. The results indicate that all three instructional techniques are similar in their effectiveness regarding reading comprehension. Therefore, students may benefit greatly from the incorporation of these instructional approaches within literacy and language arts curriculum. Because individual student performance varied under the three conditions, offering instruction in these different approaches may aid teachers in meeting a broader range of student needs and learning patterns. Teachers may wish to perform brief experimental analyses to determine what type of instruction is most effective for each student.

Because time constraints within the school setting are a key factor when choosing practical interventions for use in the classroom, findings relative to efficiency from the current study are significant. The oral retelling procedure was found to be the most efficient technique examined in this study. Results also indicate that oral retelling somewhat more effective than the passage review technique, and equally as effective as the written retelling procedure. Therefore, teachers may want to consider both the instructional effectiveness and efficiency offered by the oral retelling procedure when working with students individually. These findings also hold implications for school
psychologists who consult with teachers concerning reading interventions to supplement classroom instruction. If time constraints pose an issue, as is the case for most teachers, instructional methods that generate maximum learning in minimal instructional time will be better received and will likely have a greater chance of being utilized within the classroom (Gresham, 1989).

The majority of referrals for special education evaluation fall within the domain of reading (Joseph, 2006). However, the growing movement toward school-based problem solving and response to intervention (RTI) models have led to more emphasis being placed on the implementation of pre-referral interventions before testing for special education eligibility is considered. RTI is a set of methods for providing scientifically-based instruction and assessment to all students (Fuchs & Vaughn, 2006). RTI involves three tiers of intervention. Tier 1 provides support for all students in general education and typically involves universal screening of academic skills and behavior and the use of curriculum based assessment in order to continuously monitor progress and identify which students are at risk for academic or behavioral problems. Tier 2 provides more intensive, longer instructional sessions with more frequent progress monitoring for those students whose progress falls behind that of their peers (Brown-Chidsey, 2005). Tier 3 involves the most intense intervention implementation and is tailored to meet the student’s specific learning needs. If a student’s failure to respond to these additional resources continues, then the possibility of a learning disability is considered (Compton, Fuchs, Fuchs, & Bryant, 2006).

Careful consideration must be given to the implementation of effective and empirically supported instructional techniques and interventions within an RTI model.
The instructional techniques implemented in the current study could be incorporated into a RTI model under all three tiers. The finding that oral retelling may be the most efficient of the three techniques is most applicable for tier 3 services because interventions were implemented with individual students. However, the passage review and written retelling techniques could easily be implemented with small groups of students under tier 2 services and with an entire class of students simultaneously under tier 1 services. The ability to administer the passage review and written retelling procedures to multiple students at the same time would likely make these interventions very efficient for classroom use. The oral retelling procedure could also be implemented in small or large group settings through peer-delivery; students could work in pairs and retell the story to each other.

Summary

The results of this study suggest that all three instructional techniques may have positive effects in regard to supporting reading comprehension for third grade students. Specifically, the study found that oral and written retellings when paired with repeated readings and phrase drill error correction were slightly more effective than a passage review technique paired with repeated readings and phrase drill error correction. A possible explanation for these findings is that the act of retelling text, either orally or through writing, may foster a deep connection with story elements whereas during a passage review, students may not be truly interacting with the text in a meaningful way.

In regard to efficiency, the oral retelling technique paired with repeated readings and phrase drill error correction, led to the greatest gains in comprehension per minute of instructional time. This finding supports previous findings that oral responding can be
just as effective as written responding while requiring less interventional time under one-on-one instruction. These results are significant because it suggests that, although research has suggested that writing carries the benefit of helping students to encode and remember information, written retellings may not offer additional gains when examining immediate comprehension for third grade students. Efficiency, in general, is a very important component when applying instructional interventions to classroom settings because educators are under stringent time and curriculum restraints. Instructional techniques that are both effective and less time consuming may be better received by teachers and, therefore, may be more likely to be implemented within classrooms. The teachers of the students in this study felt all three instructional interventions to be socially valid approaches for improving reading comprehension for students who struggle with this skill. Improvement was reported in students’ reading fluency, comprehension, and overall confidence in reading.
APPENDIX A

LETTER REQUESTING PARENTAL/GUARDIAN PERMISSION
Dear Parent(s)/Guardian(s),

As a professor at the Ohio State University, I have worked collaboratively on projects within the XXXXXXX School District for the past five years to help children improve their academic achievement. I would like to invite your child’s participation on a study I am conducting to discover if story retellings is an effective and efficient method for improving reading comprehension performance. Upon your voluntary written consent, your child will have the opportunity to participate in a study designed to compare the effectiveness of three different teaching methods on your child’s reading comprehension performance while engage in repeated reading exercises. Your child will receive all three of the following instructional methods: (1) repeated reading with phrase drill error correction, (2) repeated reading with phrase drill error correction paired with an oral retelling of the passage, or (3) repeated reading with phrase drill error correction paired with a written retelling of the passage.

All children who participate in this study will be administered the Dynamic Indicators of Basic Early Literacy Skills which is a screening measure to assess current levels of reading passage performance and the Diagnostic Achievement Battery, third edition (DAB-3) to determine reading comprehension performance. In all sessions, children will read and re-read a passage before answering five literal and five inferential comprehension questions. In some sessions, children will orally retell the story they just read in their own words prior to answering comprehensions questions. In some sessions, children will perform a written retelling of the story they just read in their own words prior to answer comprehension questions.

The primary goal of this study is to help children read words in a passage and gain meaning (comprehension) from the passage. The study will take place at XXXXXXX Elementary School. Granted permission, your child will participate in approximately two sessions per week for approximately 15 to 20 minutes of their school day. Children participating in this study will not be removed from their classrooms during critical instructional time or during specials such as music class, physical education, etc. All identifying information will be kept confidential. Students will be given code numbers so that names will not be used on any data recording sheets or forms. Participation in this study is completely voluntary, and you have the right to remove your child from participating at any time without penalty.

The principal investigator in this study is Dr. Laurice Joseph, Associate Professor of School Psychology at The Ohio State University. The interventions will be conducted by a doctoral candidate in the School Psychology program at The Ohio State University. If you agree to have your child participate, we hope that you will find this experience valuable for your child in regard to helping him/her improve his/her reading performance.
If you have any questions, please feel free to contact Dr. Laurice Joseph at XXX-XXX-XXXX.

Sincerely,

Laurice Joseph, Ph.D.
Associate Professor of School Psychology
School of Physical Activity and Educational Services.
APPENDIX B

CONSENT FOR PARTICIPATION IN SOCIAL AND BEHAVIORAL RESEARCH
CONSENT FOR PARTICIPATION IN RESEARCH

I consent to or my child's participation in research entitled: **Comparing the effectiveness and efficiency of oral and written reading passage retellings as strategies for improving reading comprehension performance.**

Laurice Joseph, Principal Investigator, or her authorized representative, Rebecca Schisler, has explained the purpose of the study, the procedures to be followed, and the expected duration of my child’s participation. Possible benefits of the study have been described, as have alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Furthermore, I understand that my child is free to withdraw consent at any time and to discontinue participation in the study without prejudice to my child.

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: ____________________________ Signed: ____________________________

Signed: ____________________________

(Principal Investigator or his/her authorized representative) (Person authorized to consent for participant, if required)

Witness: ____________________________

_______________________________
APPENDIX C

PRACTICE SESSION SCRIPT
Today I am going to explain to you what we’re going to be doing for the next few months. I’m sure you have taken tests before where you have to read a story and then answer questions about what you read. I am doing a research study to try and see what types of reading activities help students remember and understand what they have read. Over the next few months I will meet with you individually to do different reading activities. Each time we meet, you will read a different short reading passage that is about a page long. After each reading passage we will do one of three different practice activities. One of them is reviewing what you’ve read, another is called “oral retell,” and the last one is called “written retell.” Today I want to teach you how to do these types of activities. So, first, I will demonstrate for you. In front of you is a short paragraph to read. I’m going to read this out loud to you, and I want you to follow along. If I make a reading mistake, please raise your hand as soon as you realize I’ve made a mistake.

Now that I’m done reading, I’m going to read it again to make sure I really know what I have read.

Now I’m going to demonstrate reviewing the passage. When I review the passage I might re-read some of the parts that were tricky. Or I might underline some of the parts that I really think I should remember.

When I’m all done reviewing I’ll say, “I’m done.”

Now that I’m all done, I’m ready to answer my comprehension questions. You pretend that you’re the teacher and read me the questions and I will follow along on my paper.

Now, let’s practice the second type of reading activity called “oral retell” with this second paragraph. Once again, raise your hand if I make a mistake.

Now that I’ve read this twice, I am going to tell you everything I remember about what I’ve read because this might help me to recall what was important about the paragraph. I’m going to keep telling about the story until I can’t remember anything else or time is up.
Now it’s time to answer questions about this reading. You pretend that you’re the teacher and read me the questions and I will follow along on my paper.

[answer questions]

Now I will demonstrate the last type of reading activity, called “written retell” with this third story paragraph.

[read and re-read paragraph]

I am now going to write down on this piece of paper everything that I remember about the story. I’ll keep going until I can’t remember anything else or time is up.

[write about story]

Now it’s time for questions. You pretend that you’re the teacher and read me the questions and I will follow along on my paper.

Now that I’ve demonstrated how to do each of the activities, do you have any questions?

Let’s do some for practice.
APPENDIX D

DEMONSTRATION PASSAGES WITH QUESTIONS
AND PRACTICE PASSAGES WITH QUESTIONS
Demonstration Passages

Passage #1

There are more than 100 million cars in the United States. A normal car gets less than 15 miles from each gallon of gas. It travels about 10,000 miles each year. In that time, it uses about 650 gallons of gas. In all, autos use up some 70 billion gallons of gas a year. That comes out to be four-and-a-half million barrels a day.

Passage #2

You can help your body grow strong by caring about what you eat. A good place to start is with the four basic food groups. The dairy group has foods like milk, cheese, and yogurt. The other three groups are the meat and fish group, the fruit and vegetable group, and the bread and cereal group. Each meal should have at least one food from all four basic groups. The right combination of these foods will give you needed energy during the day.

Passage #3

Beethoven was born in Germany in 1770. He was a very musical child. The boy learned to play the violin and the piano. But he was not happy at home. His mother died when he was in his teens. After that his father was often bad-tempered. Beethoven became a tutor in a rich family. He was glad to get a job.
Demonstration Questions

Passage #1

1. There are more than 100 million cars in
   a. Canada
   b. Europe
   c. the United States
2. An average car travels 10,000 mile each
   a. week
   b. month
   c. year

Passage #2

1. Each meal should include food from the
   a. Two basic food groups
   b. Four basic food groups
   c. Four basic snack groups
2. Food directly supplies our bodies with
   a. Energy
   b. Blood
   c. Oxygen

Passage #3

1. Beethoven was born in
   a. France
   b. Germany
   c. England
2. The boy got a job as a
   a. Violinist
   b. Singer
   c. Tutor
Practice Passages

Passage #1

It is important to be aware of what you drink. Too much soda is not good for your body. The calcium from milk is needed for strong bones and teeth. Vitamins in milk and juice will add nutrition to your diet.

Passage #2

To help ourselves and others, it is important to know something about drugs. A drug is a chemical substance. It can bring about a physical, emotional, or mental change in people. Alcohol and tobacco are drugs. The caffeine found in coffee, tea, cocoa, and some soft drinks is a drug.

Passage #3

When Beethoven was in his twenties, he began to go deaf. The deafness changed his behavior. He became withdrawn and moody. His friends found him hard to be around. But he kept composing even when he lost all his hearing. The music he heard was in his head.
Practice Passage Questions

Passage #1

1. Milk is more healthful than soda because it
   a. Is fresh
   b. Provides calcium
   c. Tastes better
2. Milk and juices are better to drink than soda because they
   a. Have important vitamins
   b. Taste better
   c. Don’t need ice

Passage #2

1. A drug is a
   a. Chemical
   b. Mineral
   c. Vegetable
2. The drug found in coffee and tea is called
   a. Alcohol
   b. Caffeine
   c. Marijuana

Passage #3

1. When Beethoven was in his twenties, he began to go
   a. Deaf
   b. Blind
   c. Crazy
2. Beethoven’s deafness made him
   a. Stop writing music
   b. Difficult to socialize with
   c. Talk very loudly
APPENDIX E

INTERVENTION SCRIPTS/TREATMENT INTEGRITY CHECKLISTS
### Intervention Script and Interobserver Checklist

**Condition #1:** Repeated Reading w/ Phrase Drill Error Correction, Passage Review, and Comprehension Questions.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Experimenter places reading passage on desk in front of student and begins stopwatch.</td>
<td>□  □  □</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Experimenter says: “Please read this passage out loud to me. You have as much time as you need to finish so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary. Begin.”</td>
<td>□  □  □</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Experimenter follows along as the student reads the passage marking any miscues.</td>
<td>□  □  □</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 4. When a miscue is made during the initial reading:  
  4a. The experimenter always stops the student’s reading and indicates which word(s) in the sentence was miscue. | □  □  □ |
|  
  4b. The experimenter always models the correct way to read the sentence in which the miscue took place. | □  □  □ |
|  
  4c. The experimenter always instructs the student to read the sentence (in which the miscue took place) three times. | □  □  □ |
<p>| 5. When the student finishes the initial reading of the passage, the experimenter says: “Please read this same passage out loud to me again. You have as much time as you need to finish and I will be asking questions about what you have read, so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary. Begin.” | □  □  □ |
| 6. Experimenter follows along as the student reads the passage marking any miscues. | □  □  □ |</p>
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. When a miscue is made during the repeated reading:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a. The experimenter always stops the student’s reading and indicates which word(s) in the sentence was miscued.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4b. The experimenter always models the correct way to read the sentence in which the miscue took place.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4c. The experimenter always instructs the student to read the sentence (in which the miscue took place) three times.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. When the student is finished the repeated reading, the experimenter will say, “You now have 3 minutes to review the reading passage before I ask you some questions about what you have read. I will tell you when three minutes has passed. If you do not want to use all three minutes, please tell me when you are ready to answer your questions. Begin reviewing.”</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. The experimenter starts a second stopwatch to time the review.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10. If, before the 3 minutes is up, the student indicates that he/she is finished reviewing the passage, the experimenter prompts by asking, “Is there anything else in the passage that you would like to look over before I ask the questions?”</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>11. At the end of the review, the experimenter stops both stopwatches and records the total session time and the amount of time taken for the passage review.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>12. The experimenter provides the student with a list of comprehension questions and corresponding multiple choice answers and says: “Now I will ask you ten multiple choice questions about what you have read. Please listen carefully to each question and wait until I have read all possible answer choices before you answer. After I have read all of the answer choices you will have one minute to say or point to your answer.”</td>
<td>☐</td>
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<tr>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
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13. If the student points to his/her answer choice, the experimenter verbally verifies the choice indicated.

14. The experimenter asks all comprehension questions and records student response and response time to each question.
**Intervention Script and Interobserver Checklist**

**Condition #2:** Repeated Reading w/ Phrase Drill Error Correction, Oral Passage Review, and Comprehension Questions.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

1. Experimenter places reading passage on desk in front of student and begins stopwatch.

2. Experimenter says: “Please read this passage out loud to me. You have as much time as you need to finish so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary. Begin.”

3. Experimenter follows along as the student reads the passage marking down any miscues.

4. When a miscue is made during the initial reading:
   4a. The experimenter always stops the student’s reading and indicates which word(s) in the sentence was miscue.
   4b. The experimenter always models the correct way to read the sentence in which the miscue took place.
   4c. The experimenter always instructs the student to read the sentence (in which the miscue took place) three times.

5. When the student finishes the initial reading of the passage, the experimenter says: “Please read this same passage out loud to me again. You have as much time as you need to finish and I will be asking questions about what you have read, so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary. Begin.”

6. Experimenter follows along as the student reads the passage marking down any miscues.
7. When a miscue is made during the repeated reading:
   4a. The experimenter always stops the student’s reading and indicates which word(s) in the sentence was miscue.
   □ □ □
   4b. The experimenter always models the correct way to read the sentence in which the miscue took place.
   □ □ □
   4c. The experimenter always instructs the student to read the sentence (in which the miscue took place) three times.
   □ □ □

8. When the student is finished the repeated reading, the experimenter will remove the reading passage and say, “Now please tell me all about what you have just read. You have 3 minutes to tell me everything you remember. This. I will tell you when time is up. Begin.”
   □ □ □

9. The experimenter starts a second stopwatch to time oral retell.
   □ □ □

10. If, before the 3 minutes is up, the student pauses for 5 seconds or indicates that he/she cannot recall any more details from the passage, the experimenter prompts by asking, “What else can you tell me about the passage?”
    □ □ □

11. At the end of the oral retell, the experimenter stops both stopwatches and records the total session time and the amount of time taken for the oral retell.
    □ □ □

12. The experimenter provides the student with a list of comprehension questions and corresponding multiple choice answers and says: “Now I will ask you ten multiple choice questions about what you have read. Please listen carefully to each question and wait until I have read all possible answer choices before you answer. After I have read all of the answer choices you will have one minute to say or point to your answer.”
    □ □ □
13. If the student points to his/her answer choice, the experimenter verbally verifies the choice indicated. □ □ □

14. The experimenter asks all comprehension questions and records student response and response time to each question. □ □ □
Intervention Script and Interobserver Checklist

Condition #3: Repeated Reading w/ Phrase Drill Error Correction, Written Passage Review, and Comprehension Questions.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
</table>

1. Experimenter places reading passage on desk in front of student and begins stopwatch.

2. Experimenter says: “Please read this passage out loud to me. You have as much time as you need to finish so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary. Begin.”

3. Experimenter follows along as the student reads the passage marking down any miscues.

4. When a miscue is made during the initial reading:
   4a. The experimenter always stops the student’s reading and indicates which word(s) in the sentence was miscue.
   4b. The experimenter always models the correct way to read the sentence in which the miscue took place.
   4c. The experimenter always instructs the student to read the sentence (in which the miscue took place) three times.

5. When the student finishes the initial reading of the passage, the experimenter says: “Please read this same passage out loud to me again. You have as much time as you need to finish and I will be asking questions about what you have read, so please do your best reading. If you come to a word you don’t know, just try your best, and I will help you when necessary. Begin.”

6. Experimenter follows along as the student reads the passage marking down any miscues.
7. When a miscue is made during the repeated reading:
   4a. The experimenter always stops the student’s reading and indicates which word(s) in the sentence was miscue.
   4b. The experimenter always models the correct way to read the sentence in which the miscue took place.
   4c. The experimenter always instructs the student to read the sentence (in which the miscue took place) three times.

8. When the student is finished the repeated reading, the experimenter will remove the reading passage, provide a sheet of white, lined paper and say, “Now please write all about what you have just read. You have 3 minutes to write down everything you remember. I will tell you when time is up. Begin.”

9. The experimenter starts a second stopwatch to time written retell.

10. If, before the 3 minutes is up, the student pauses for 5 seconds or indicates that he/she cannot recall any more details from the passage, the experimenter prompts by asking, “What else can you write about the passage?”

11. At the end of the written retell, the experimenter stops both stopwatches and records the total session time and the amount of time taken for the written retell.

12. The experimenter provides the student with a list of comprehension questions and corresponding multiple choice answers and says: “Now I will ask you ten multiple choice questions about what you have read. Please listen carefully to each question and wait until I have read all possible answer choices before you answer. After I have read all of the answer choices you will have one minute to say or point to your answer.”
13. If the student points to his/her answer choice, the experimenter verbally verifies the choice indicated.

14. The experimenter asks all comprehension questions and records student response and response time to each question.
APPENDIX F

DATA COLLECTION FORM
Data Collection Form

Student # ________  Session # _________   Date ________

Condition ____________   Order ______________

Student Miscues During Initial Reading of Passage:

_________________  __________________              ___________________
_________________  __________________              ___________________
_________________  __________________              ___________________
_________________  __________________              ___________________

Student Miscues During Repeated Reading of Passage:

_________________  __________________              ___________________
_________________  __________________              ___________________
_________________  __________________              ___________________
_________________  __________________              ___________________

(Circle One)
Time Taken for: Review/ Oral Retell/ Written Retell: ____________ seconds

Total Session Time: ____________ seconds

Total # of Comprehension Questions Answered Correctly: __________

# of Literal Comprehension Questions Answered Correctly: ___________

# of Inferential Comprehension Questions Answered Correctly: __________

Response Time (in seconds) for each Question:

1. _____  6. _____
2. _____  7. _____
3. _____  8. _____
4. _____  9. _____
5. _____  10. _____
APPENDIX G

STUDENT QUESTIONS TO ASSESS SOCIAL VALIDITY
Student Questionnaire

1. Did you enjoy doing these reading exercises?
   Yes, a lot!  Yes  A little bit  Not really  Not at all

2. Did doing these reading exercises help you to read better?
   Yes, a lot!  Yes  A little bit  Not really  Not at all

3. Did doing these reading exercises help you to learn words?
   Yes, a lot!  Yes  A little bit  Not really  Not at all

4. Did doing these reading exercises help you to pay attention to what you read?
   Yes, a lot!  Yes  A little bit  Not really  Not at all

5. Do you think that doing these reading exercises would help other students to read better?
   Yes, a lot!  Yes  A little bit  Not really  Not at all

6. Which of the three reading exercises did you think was the most helpful?
   Passage Review  Oral Retell  Written Retell

7. Which of the three reading exercises would you choose to do again?
   Passage Review  Oral Retell  Written Retell
APPENDIX H

TEACHER QUESTIONS TO ASSESS SOCIAL VALIDITY
Teacher Questionnaire

Directions: Please circle the response that best represents your opinion. On item #1, please use the provided lines to answer the follow-up question.

1. Did you notice any difference in your student’s overall reading performance while he/she was participating in this study?

   Yes, a lot!  Yes  A little bit  Not really  Not at all

1a. In what area(s), if any, did you notice the most improvement? (e.g. reading fluency, reading comprehension, etc.)
__________________________________________________________________
__________________________________________________________________

2. After examining the description of each intervention (attached), which of the three instructional methods used do you think students would find most enjoyable?

   Passage Review  Oral Retell  Written Retell

3. Of the three instructional methods used, which do you think would be most effective in enhancing student word reading performance?

   Passage Review  Oral Retell  Written Retell

4. Of the three instructional methods used, which do you think would be most efficient in enhancing student word reading performance?

   Passage Review  Oral Retell  Written Retell

5. Do you feel as though the three instructional methods appear to be valid approaches, or appropriate approaches, for helping students to improve their reading comprehension?

   Yes, a lot!  Yes  A little bit  Not really  Not at all

6. Which methods would you consider using in the classroom as part of your instruction to teach reading comprehension?

   All Three  Passage Review  Oral Retell  Written Retell  None


Atwell, N (1987). In the Middle: *Writing, reading, and Learning with Adolescents*. Heinemann Educational Books. Portsmouth, NH.


