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EFFECTS OF A REPEATED READINGS INTERVENTION ON
THE READING FLUENCY AND COMPREHENSION
OF SECONDARY STUDENTS WITH
LEARNING DISABILITIES

Thesis

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In Partial Fulfillment of the Requirements for

The Degree

Educational Specialist in School Psychology in the

Department of Counselor Education and Human Services

by

Catherine Sarah Barr

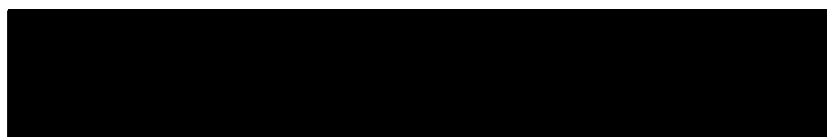
UNIVERSITY OF DAYTON

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Effects of a Repeated Readings Intervention on the
Reading Fluency and Comprehension of
Secondary Students with Learning Disabilities

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ABSTRACT

EFFECTS OF A REPEATED READINGS INTERVENTION ON THE READING FLUENCY AND COMPREHENSION OF SECONDARY STUDENTS WITH LEARNING DISABILITIES

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The effects of a repeated readings intervention on the oral reading fluency and comprehension of three secondary students identified as having a learning disability in reading was investigated. A repeated readings intervention was implemented over a ten week period utilizing a multiple baseline design. Throughout the intervention phase, participants met with the investigator three times a week for approximately 20 minutes. During this time, the participants engaged in repeated readings and error word drills. Progress monitoring data were recorded at the beginning of each session. Results of the study indicate that repeated readings is effective at increasing the oral reading fluency of students with a reading disability in reading when the students are presented with the same passage multiple times. However, the effects of the intervention do not transfer to new reading material. Therefore, repeated readings is not an effective intervention for increasing the overall reading fluency of students with reading disabilities. In addition, the repeated readings intervention had no effects on the participants' comprehension of the presented passages.

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CHAPTER I

Introduction

In recent years, the reading achievement of struggling students has become an issue of great concern in America. However, students experiencing difficulties with reading is not a new phenomenon. The extent of students with reading problems is becoming more apparent to educators and parents due to the results of the high stakes, criterion-referenced assessments that are now administered nationwide across grade levels (Joseph, 2005).

Longitudinal studies have demonstrated that 20% of students are incompetent readers by fourth grade (Mercer, Campbell, Miller, Mercer, & Lane, 2000). More recent estimates suggest nearly 40% of fourth grade students in America perform below the basic level in reading (Begeny & Martens, 2006). These students do not possess the reading skills and knowledge required to complete grade level work successfully. Twenty-six percent of the students reading below basic level in fourth grade continue to read below the basic level in the eighth grade (Begeny & Marten). For the 2.8 million students identified as having a learning disability, 80% have deficits in reading (Therrien, Wickstrom, & Jones, 2006).

Students do not typically begin to have reading difficulties in secondary school. Generally, these students have struggled for many years (Joseph & Schisler, 2006). However, the instructional requirements of secondary students are often unmet by educators as instruction is focused on subject content as opposed to basic reading skills.

Unfortunately, high school students carry these reading difficulties into adulthood, which leads to additional barriers to be faced by such students. The consequences of reading failures include unemployment, poor self-esteem, and difficulty in social development (Richards, 2008). Research has recently suggested that evidence-based instruction in reading is directly associated with positive effects on socially important outcomes, including negative outcomes such as those mentioned above that can be linked to retention and special education placement (Castillo, Porter, Curtis, Batsche, 2005).

Contributing to the lack of specialized instruction in reading are the many demands that are placed on today's teachers at the secondary level. Such demands include preparing students for standardized tests and acting as mentors for at-risk students. Along with these demands, teachers face many obstacles while delivering instruction, such as large teacher to student ratios, limited classroom resources, inadequate training in teaching reading skills, and an increasing number of students in need of intensive and specific reading instruction (Mercer et al., 2000).

To help combat this important issue, interventions which assist secondary students in improving their reading ability need to be identified. The purpose of this study was to investigate the effects of a repeated readings intervention on the reading fluency and comprehension of secondary students with specific learning disabilities in reading. Two research questions were investigated. First, to what extent do repeated readings impact reading fluency (number of correct words read orally per minute) for students with reading disabilities. Second, to what extent do repeated readings impact the percentage of comprehension questions answered correctly by participants with reading disabilities after the first reading of a selected passage.

CHAPTER II

Literature Review

Empirically validated reading interventions are effective methods for improving struggling readers' ability to read. Areas in which reading interventions are likely to focus include reading fluency and comprehension. Fluency has been identified as one of several critical factors necessary for reading comprehension (Begeny & Martens, 2006; Valleley & Shriver, 2003). According to Joseph (2006), a fluent reader possesses the ability to read words and passages quickly, accurately, and with prosody of voice. Reading fluency is typically measured as the number of correct words read orally per minute, whereas comprehension describes the ability of the reader to understand the meaning of the text which is read.

Reading Fluency

In order for a reader to become fluent, he or she must master a variety of skills of which oral reading fluency is comprised and ultimately lead to the student's comprehension of the reading material. The development of fluency is a slow and gradual process. According to Bear (1991) proficiency in fluency and expression occurs at two levels. The *phrasal level* entails reading rate and capability to group the words of a text. Essential to this level is the *alphabetic principle* which reflects the understanding that letters can be arranged to make words. At this level, students also develop the concept of a word and learn to decode words through the development of phonemic awareness by attaching sounds to letters and blending the sounds of letters into words (Armbruster, Lehn, & Osborn 2001).

The second level in the development of fluency is known as the *word level* (Bear, 1991). At the word level, fluency consists of an ability to recognize words and spelling arrangements in a rapid manner in order to read for sense and purpose (Bear, 1991). The word level is characterized by the reader's ability to comprehend the material he or she has read. Factors that contribute to proficiency in comprehending texts include the readers' vocabulary knowledge, prior knowledge of the subject of the text, and the reader's engagement and interest in the subject of the text (Institute for the Development of Educational Achievement, 2004). Accordingly, it is important to note that fluency levels may vary, especially for beginning readers, depending upon the text's level of reading difficulty and whether or not the words of the text are already part of the readers' vocabulary.

Reading Comprehension

Although a reader may have the ability to perform the task of reading words in a text, it is said that a reader is not truly fluent until he or she also simultaneously comprehends the material that was read. The Institute for the Development of Educational Achievement (2004) defines comprehension as "the complex cognitive process involving the intentional interaction between reader and text to convey meaning" (p. 1). Studies have demonstrated positive correlations between rate of reading and reading comprehension (Begeny & Martens, 2006; Joseph & Schisler, 2006; Freeland, Skinner, Jackson, McDaniel, & Smith, 2000). The skill of identifying words rapidly and accurately is essential to good reading comprehension (Mercer, Campbell, Miller, Mercer, and Lane, 2000). In addition, Therrien and colleagues (2006) state, "The ability

to read a text fluently has been shown to predict comprehension better than direct measures of reading comprehension such as questioning, retelling, and cloze” (p. 89).

Because support for a correlational relationship between fluency and comprehension is ample, focusing on building the fluency skills of secondary students with fluency deficits before comprehension may be beneficial for secondary students with fluency deficits (Valleley & Shriver, 2003). For example, comprehension difficulties can sometimes be linked to problems with decoding. Students who are lacking in decoding skills often also experience difficulties with comprehension skills. When concentration must be focused on decoding words, little focus is placed on the meaning of the words read (Armbruster et al., 2001; Mercer et al., 2000). The cognitive resources of the reader are depleted while decoding, leaving few resources to determine the meaning of the words (Therrien, 2004). Consequently, less fluent readers are unable to discern the meaning of a text, which is the main goal of reading. On the other hand, fluent readers need fewer cognitive resources to read and decode words. Therefore, they are able to utilize more cognitive resources to determine the meaning of text.

Failure to apply prosody to one’s voice while reading can also affect comprehension. For example, when readers do not separate sentences into meaningful phrases, they may experience difficulties comprehending text, regardless of decoding skills (Therrien, 2004). According to Hudson, Lane, and Pullen (2005), prosody is not only related to oral reading fluency, but to comprehension, as well. Reading aloud while applying prosody to one’s voice is a good indicator that the reader comprehends the material that is being read (Hudson et al., 2005).

Reading Disabilities

Reading disabilities coupled with the difficulty of the reading material at the secondary level make it especially hard for secondary students with learning disabilities (LD) to read grade level material proficiently. Whereas elementary students read narratives that tell stories and are often entertaining, secondary students are required to read expository texts that focus on content areas. Research has demonstrated that students with high-incidence reading disabilities between the ages of 6 and 15 read more words per minute correctly in narrative text, as compared to expository texts (Saenz & Fuchs, 2002). Additionally, it has been found students with LD read and comprehend expository texts less well than narrative texts (Saenz & Fuchs, 2002).

According to the Saenz and Fuchs (2002), it is possible the difference between the ability to read narrative texts and expository texts is due to a lack of vocabulary knowledge and decoding skills necessary to read the multisyllabic words characteristic of expository text. The authors state, "Vocabulary knowledge has been established as the strongest predictor of successful comprehension of content area reading in secondary students with and without learning disabilities" (Saenz & Fuchs, 2002, p. 32).

Children with reading disabilities who experience phonologically-based reading difficulties struggle not only with reading independently, but also with building their sight-word vocabulary. The ability to recognize words as whole-word units is a skill necessary to become an independent and proficient reader. Sight-word recognition is an essential component of one's oral reading fluency. Not only can an inadequate knowledge base of sight words have a negative impact on a student's rate of reading, his or her comprehension of the reading material will also suffer. For example, if a student

mistakes a word in a text for a completely different word, the meaning of the text will most likely be changed, which in turn, will negatively affect the student's comprehension of the material read (Hudson et al., 2005).

Because students with LD struggle to build their sight-word vocabulary while students without LD in elementary school learn approximately 3,000 words per year, an ever-widening gap in vocabulary development between students with and without LD exists. Therefore, a readers' lack of vocabulary knowledge can add to one's difficulties with expository text as they tend to contain highly technical words often consisting of multiple syllables, which struggling readers find difficult to decode. Therefore, instruction in phonics is especially applicable to students with reading disabilities as such students experience difficulties in recognition of correct spelling-to-speech correspondences (Mercer et al., 2000).

Struggling readers often have few resources remaining to understand the words they read, despite the contextual clues surrounding them, as they spend much of their energy sounding out unknown words (Saenz & Fuchs, 2002). In addition, because of the technical nature of expository texts, student's vocabulary knowledge may not be adequate for understanding the surrounding words of the text. Furthermore, students with reading difficulties will struggle more with identifying the meaning of words within text because of the limited amount of time spent engaged in reading related activities (Saenz & Fuchs, 2002). For these reasons, it is recommended that secondary students with LD be provided with opportunities to develop reading skills involving vocabulary and reading fluency (Saenz & Fuchs, 2002). According to Joseph (2005), once students build their sight word vocabulary, they can more easily identify unknown words through analogy.

Reading Interventions

The key to increasing the reading fluency and comprehension of struggling readers involves the implementation of evidence-based reading interventions. When choosing the appropriate intervention for struggling students, some factors should be taken into consideration. For example, implemented interventions should be empirically validated. There is little use in implementing an intervention that has no evidence of its effectiveness for the targeted problem. In addition, the intervention should be easily implemented in the educational setting. Due to the limited time and resources of teachers, it is important to consider the feasibility of chosen interventions, or they likely will not be implemented as planned (Nelson, Alber, and Gordy, 2004). Interventions that are not implemented as planned are often ineffective and do not fulfill their intended purpose.

Practice opportunities. Students with reading difficulties require the opportunity to practice high frequency words until the words can be recognized automatically (Mercer et al., 2000). Nicholson (1998) asserts that the use of flash cards is an effective method for building a student's sight word vocabulary. Studies analyzing the effects of the use of flash cards have demonstrated positive effects on students reading fluency and comprehension. For example, Tan and Nicholson (1997) conducted a study in which all participants were aware of the meaning of the words in the reading material; however, only the participants who were trained to use flash cards to read words quickly increased their reading rate and comprehension of the material.

Repeated readings involve a student reading a specified text repeatedly with the support necessary to read increasingly challenging texts successfully (McKenna & Stahl, 2003). This reading strategy has been found to be effective at increasing the fluency of

reading words in connected text (Joseph & Schisler, 2006). Typically, rate of reading fluency is measured as the number of correct words per minute (wpm) read aloud in one minute. Measuring wpm allows small changes in learning rates and skill development to be easily detected (Freeland et al., 2000). Empirical evidence indicates that repeated readings are effective for students with and without learning disabilities (Begeny & Martens, 2006). Studies have found that readers without LD read at a pace approximately twice as fast as students with LD. Therefore, repeated readings are an essential component of interventions targeting the fluency rate of students with LD (Mercer et al., 2000). In addition, research indicates that children enjoy this intervention (Valleley & Shriver, 2003).

According to the National Reading Panel (NRP) (2000), conventional wisdom suggests that readers become fluent through extended practice of large quantities of reading material. In fact, several studies have yielded results that strongly correlate reading practice with reading ability. For example, research has demonstrated repeated readings to have a positive effect on one's prosodic reading (Rasinski, 2004). In addition, modeling of prosodic reading and instructing students on applying appropriate expression to their oral reading, pausing at appropriate places in the text, and reading at an appropriate pace are effective methods of enhancing a student's ability to read aloud while applying prosody to his or her voice (Rasinski, 2004).

The NRP (2000) questioned which practice techniques effectively enhance a student's reading fluency. To determine the effects of repeated and guided oral reading procedures, the NRP conducted a meta-analysis of the literature focused on the relationship between repeated readings and fluency. Four sets of articles were categorized

and required to meet certain criteria. As applied to the proposed study, one set of articles was entitled *Single Subject Studies*. Interventions implemented in the studies included repeated readings, feedback regarding oral reading, or reading-while-listening treatments. The studies also monitored student progress utilizing new materials throughout the intervention process. Each study, with the exception of one, resulted in apparent and significant improvements in reading speed, accuracy, or comprehension. The NRP (2000) explained that the study which did not result in student gains had a weak design as stable baseline data were not collected, nor was the integrity of the interventions monitored. Based on the results of the analysis, the NRP (2000) concluded that repeated readings and other related oral reading procedures have clear value for improving reading ability.

A meta-analysis of studies on repeated readings found that interventions that were implemented by a competent adult who supplied corrective feedback on incorrect words and utilized a criterion design as a measure of determining the appropriate time to begin a new reading probe were found to be more than four times more effective, as compared to interventions that did not consist of these instructional techniques (Therrien et al., 2006). Results of the meta-analysis revealed the instructional grade level of students engaged in the repeated readings intervention increased an average of 2.07 grade levels. The control group increased wpm read correctly an average of 2.28 wpm, whereas the treatment group increased an average of 13.0 wpm (Therrien et al., 2006)

Therrien (2004) conducted a meta-analysis of studies measuring the effects of repeated readings on reading fluency and reading comprehension for students both with and without learning disabilities. Results demonstrated that repeated readings improve both reading fluency and comprehension for both populations of students. The meta-

analysis conducted by Therrien (2004) was unique as it separated results of studies included into *transfer* and *non-transfer* measures. *Non-transfer* measures assess a student's ability to fluently read and understand a text after reading it repeatedly. *Transfer* measures refer to a student's ability to fluently read or comprehend a text after reading other material repeatedly. Results of the meta-analysis demonstrate that repeated readings is an effective intervention for improving the fluency and comprehension of text after reading it repeatedly. All non-transfer studies resulted in significant increases in reading fluency ($ES = .83$, $SE = .066$) and moderate effect size ($ES = .67$, $SE = .080$) for comprehension (Therrien, 2004).

For studies involving *transfer* measures, students involved in all studies obtained a moderate mean effect size increase ($ES = .50$, $SE = .058$) for reading fluency and a small, but significant, mean comprehension effect size increase ($ES = .25$, $SE = .067$). However, for studies involving interventions implemented by an adult, as opposed to a peer, the mean fluency effect size increase was large ($ES = 1.37$, $SE = .177$) and the mean comprehension effect size increase was moderate ($ES = .71$, $SE = .265$) (Therrien, 2004). Based on the results of the meta-analysis, it appears repeated readings interventions have the potential to enhance the reading fluency and comprehension abilities of students when encountering new material.

Based on the results of the meta-analysis, Therrien (2004) provides recommendations of techniques to include in repeated readings interventions. First, investigators should provide students with cues to concentrate on both speed and comprehension while reading passages aloud during intervention sessions. Passages should also be read three to four times, as fluency and comprehension gains for passages

read more than four times were minimal. The provision of corrective feedback by an adult is an important component of repeated reading interventions as increases in fluency and comprehension were significant in interventions that provided students with corrective feedback. Studies that implemented a criterion design resulted in a mean effect size four times larger than those that utilized a fixed number of readings to determine when to move on to a new reading passage (Therrien, 2004).

Repeated reading and grade level. According to Valleley and Shriver (2003), repeated readings have been shown to increase reading fluency and reading comprehension skills in children with reading disabilities in middle school populations. Increases in words read correctly per minute have been demonstrated for slow, but accurate readers who participate in a repeated readings intervention. However, the increases in reading rates seemed to be affected by the number of words that overlapped among reading passages (Valleley & Shriver, 2003).

Valleley and Shriver (2003) examined the effects of repeated readings with high school students experiencing difficulties with reading. The participants consisted of four males, ages 10 to 18 years who were placed in a residential treatment facility due to academic and behavior problems. Each participant was identified as having a learning disability in reading. Students engaged in repeated readings three times per week for ten weeks. Each session lasted twenty minutes. Consistent with the policies of the treatment facility, the participants earned points for participation that could be used for privileges such as snacks and recreational activities. One participant was removed from the study due to school and home noncompliance issues.

On average, all three participants read more correct wpm from pre- to post-testing for reading probes of a ninth grade reading level. The participants also generalized their reading skills to content-related material as fluency rates increased by 6 to 17 wpm, on average; whereas, the control group experienced only minimal gains on one content area passage and actually decreased wpm read correctly for two other content areas (Valleley & Shriver, 2003).

The results of the research on the effects of repeated readings on comprehension skills have been mixed. Freeland, Skinner, Jackson, McDaniel, and Smith (2000) implemented a repeated readings intervention for secondary students to measure gains in comprehension skills. The authors found two of the three participants who read passages repeatedly answered more questions correctly as compared to passages read aloud only once. Alber-Morgan, Ramp, Anderson, and Martin (2007) measured the effects of repeated readings, error correction, and performance feedback on the comprehension of middle school students with behavior problems. These authors found it difficult to determine if gains in comprehension were the results of the implemented intervention due to the patterns and trends in the data (Alber-Morgan et al., 2007).

Gains in comprehension skills as a result of the repeated readings intervention were not apparent in the study conducted by Valleley and Shriver (2003). Two participants continued to answer comprehension questions with an accuracy rate similar to baseline, while one participant experienced a slight decrease when transitioning from fourth grade to fifth grade reading material. The authors posit reasons for this result, such as the limited time frame for which the intervention was implemented. Valleley and

Shriver (2003) suggest future research on the effectiveness of repeated readings for secondary students with reading disabilities due to the small population size of the study.

A need for further research investigating the effects of repeated readings on oral reading fluency and comprehension has been established. It is especially important to investigate interventions for students with reading disabilities to counteract the negative consequences associated with illiteracy. The purpose of this study was to investigate the effects of a repeated readings intervention on the reading fluency and comprehension of secondary students with specific learning disabilities in reading.

CHAPTER III

Method

Setting

The present study was conducted in a rural public high school comprised of approximately 400 students. The high school serves students in Grades 9 through 12. The majority of the students (97.6%) attending the high school are white. Nearly one-fifth (19.6%) of the students are economically disadvantaged. Seven percent of the student population has been identified as having an educational disability.

Participants

Three high school students identified as having a specific learning disability in reading participated in the study. The students were randomly selected from students with specific learning disabilities in reading at the high school level. Although not a requirement of the study, all students were enrolled in the school's Accelerated Reading (AR) program. The AR teacher estimated the students' instructional reading levels to be between fourth and fifth grade based on curriculum-based measurements administered at the beginning of the school year.

To increase motivation to participate in the study and make adequate progress, small incentives were offered to and chosen by the participants. The incentives included items such as candy bars, small restaurant gift certificates, and soft drinks.

Student 1 was a 16 year old male in the 10th grade. He was educated in a self-contained special education classroom for his core academic classes. Student 2 was a 15 year old male in the 9th grade. He attended classes in a self-contained special education classroom for Language Arts, Social Studies, and Science. He was educated in the

general education setting for Math. Participant 3 was a 16 year old male in the 10th grade. He was enrolled in general education courses across all curriculum areas. Accommodations and modifications to the curriculum were followed as dictated by each participant's Individualized Education Plan (IEP).

Before the implementation of the intervention, informed consent was obtained from the parents of the participants and the participants themselves (See Appendix A). All confidentiality procedures were followed to ensure that the participants were not subjected to any harm during the intervention period.

Measures

Oral Reading Fluency (ORF) progress monitoring passages from the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) were utilized in the present study. Such tests of oral reading fluency are designed to identify students in need of further intensive assessment and to monitor progress of reading skills (Good, Gruba, and Kaminski, 2005). ORF is measured as the number of correct words read orally by the student per minute. Test-retest reliabilities of ORF range from .92 to .97 (Tindal, Martson, & Deno, 1983). Criterion-related validity of ORF has been found to range from .52 to .91 (Good & Jefferson, 1998). The passages were downloaded by the investigator from the official DIBELS website (<https://dibels.uoregon.edu/measures/index.php>).

Each participant read passages from their individual instructional level. The instructional level for each student was provided by the Accelerated Reading teacher. Student 1 read fifth grade progress monitoring passages, Student 2 read fourth grade progress monitoring passages, and Student 3 read sixth grade progress monitoring passages.

Procedure

Design. A single-subject, multiple baseline design across participants was utilized for the present study. The intervention was initiated at staggered times for each participant. The purpose of this design is to provide evidence of and increase confidence in the intervention's effectiveness or ineffectiveness on the participants' oral reading fluency. Should the intervention prove to be effective, increases in oral reading fluency and comprehension scores would be noted for each student only after the initiation of the intervention phase.

The intervention process took place over a 10 week period. The intervention was conducted three days per week for approximately 20 minutes per session. The investigator and the participants met individually in an unutilized classroom during the students' Accelerated Reading class. Utilizing a treatment integrity checklist (See Appendix C), the integrity with which the intervention was implemented was monitored by the investigator during each intervention session.

The instructional reading level was provided by the Accelerated Reading teacher and utilized to choose reading selections of the appropriate level for each student. Then, baseline data were collected. Students 1, 2, and 3 read one instructional level passage per week for two weeks. Each passage was read only once. The number of words per minute read correctly was recorded and charted by the investigator. After two weeks, Student 1 began the repeated readings intervention. During the first two weeks of Student 1's intervention, the investigator continued collecting baseline data for Students 2 and 3 once per week. After two weeks of intervention with Student 1, Student 2 entered the intervention phase and followed the same procedures as Student 1. During this time,

Student 3 continued baseline collection once per week for two additional weeks. Once Student 1 had been in the intervention phase for four weeks and Student 2 had been in the intervention phase for two weeks, Student 3 entered the intervention phase. The intervention continued for all students for four more weeks (See *Table 1*).

Table 1. Schedule of Intervention Initiation

	Baseline	Intervention
Week 1	Students 1, 2, 3	-
Week 2	Students 1, 2, 3	-
Week 3	Students 2 & 3	Student 1
Week 4	Students 2 & 3	Student 1
Week 5	Student 3	Students 1 & 2
Week 6	Student 3	Students 1 & 2
Week 7	-	Students 1, 2, 3
Week 8	-	Students 1, 2, 3
Week 9	-	Students 1, 2, 3
Week 10	-	Students 1, 2, 3

Variables. The investigator examined the impact of an independent variable, repeated readings, on two dependent variables. The first dependent variable was Oral Reading Fluency (ORF), or the number of correct words read aloud in one minute. The number of words read correctly per minute was recorded at the beginning of each intervention session. The first presentation of the weekly reading passage was referred to as the “cold read.” The second reading of the weekly passage was referred to as the “warm read.” The third reading of the weekly passage was referred to as the “hot read.” The investigator examined the effects of the repeated readings intervention on the number of correct words read orally per minute after the “cold read” and after the “hot read.”

The second dependent variable was the percentage of comprehension questions answered correctly by the student after the initial reading of the selected passage. The comprehension questions required literal responses based on the information in the

passage. Therefore, the acceptable answers to the questions were clear and unambiguous. The percentage of comprehension questions answered correctly was recorded on the treatment integrity checklist after the “cold” read at the beginning of each week.

Repeated readings intervention. The following repeated readings intervention was adapted from the guided repeated oral reading intervention described by Conderman and Strobel (2006). The main components of the intervention are repeated readings and error word drills. The intervention was implemented by the primary investigator. Treatment integrity was also monitored by the primary investigator utilizing a treatment integrity checklist. The checklist was completed during each intervention session.

During Session 1, the participant was presented with an instructional level passage and asked to read the passage aloud for 1 minute (See Appendix B for script). Passages were approximately 1 page in length. The investigator timed the reading with a stop watch. During the one minute reading, the investigator marked any incorrect words read by the participant. Words were marked as incorrect when the investigator provided the word or when the word was mispronounced or omitted. A word was counted as correct if it was pronounced correctly by the participant within 3 seconds and with no prompting from the investigator. Words self-corrected within 3 seconds were scored as accurate. The number of words read correctly in 1 minute was recorded by the investigator.

Next, the student was asked a series of factual recall questions, based on the *Who*, *What*, *When*, *Where*, and *Why* of the passage. The questions were developed by the investigator based on the facts of the passage. The number of questions asked was dependent upon the amount of material read by the student within 1 minute. The

percentage of correct answers was recorded on the treatment integrity checklist (See Appendix C) and on the progress monitoring chart. To monitor student progress, the rate of reading was recorded at the beginning of each session and the comprehension score was collected after the student read a passage for the first time.

Any mispronounced or unknown words encountered during the initial reading were recorded on an Error Log (See Appendix D). The error words were then discussed with the student. The investigator instructed the student on how to pronounce and sound out the word, as well as the meaning of the words. The words were then printed on index cards that were practiced in a drill fashion at the end of the session. An error word was no longer practiced once the student identified it without hesitation over three consecutive sessions.

Next, the investigator modeled fluent reading for the student by reading each paragraph of the passage aloud. Particular attention was paid to applying prosody to one's voice and reading at an appropriate pace. At the end of each paragraph, the student was asked to read the paragraph aloud, similar to the investigator. Immediate and corrective feedback regarding the student's oral reading was provided by the investigator at the end of each paragraph.

After the investigator modeled fluent reading of the paragraphs, the participant was asked to read the entire passage aloud. This reading was not timed. Corrective feedback and specific praise for the student's performance were provided by the investigator. Once the entire passage had been read aloud by the participant, he practiced reading the error words from the index cards for approximately five minutes. Sessions 2

and 3 for each week progressed in the manner as just described, with the exception of answering comprehension questions.

CHAPTER IV

Results

Increases in oral reading fluency were indicated during the intervention phase for all participants when they were presented with familiar text. However, repeated readings had little to no effects upon the participants overall oral reading fluency, as the positive effects did not transfer to new material. The repeated readings intervention had no effects upon the participants' rate of comprehension.

Treatment Integrity

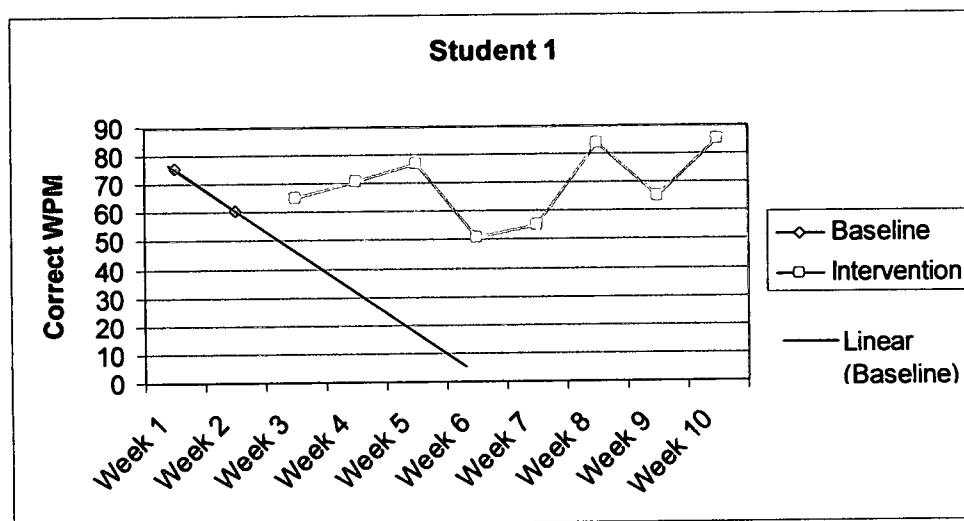
To ensure the intervention was implemented as planned, the investigator followed the treatment integrity checklist (See Appendix C) during each intervention session. Occasionally, the study participants were absent from school on the day of a scheduled intervention session. However, this did not affect the number of sessions per week, as each student met with the investigator for an intervention session upon his return to school the following day. Because the investigator followed the treatment integrity checklist when delivering the intervention, intervention integrity was 100% for each student. Due to the high level of integrity, the results of this study are reflective of the true effects of the planned repeated readings intervention on the participants' oral reading fluency and rate of comprehension.

Oral Reading Fluency

The effects of the repeated readings intervention on the participants' oral reading fluency were determined through visual inspection and effect size. Figure 1 displays the number of words read correctly per minute by each participant during each "cold read" and the trend line used to determine the effect size *g-index*. As is demonstrated through

visual inspection of Figure 1, the repeated readings intervention had little to no effect upon the participants' oral reading fluency upon the initial presentation of each week's passage. ORF scores remained similar to, if not lower than, scores obtained during baseline data collection. In fact, the cold readings resulted in Oral Reading Fluency scores that were lower than the lowest scores obtained during baseline data collection for Weeks 6 and 7 for Student 1 and Weeks 7, 8, and 9 for Student 3. Student 2's Oral Reading Fluency scores did not fall below those scores obtained during baseline; however, Week 7's initial reading resulted in a score nearly 20 wpm lower than initial reading scores obtained throughout the intervention period.

Figure 1. "Cold Reads" Progress Monitoring Graphs



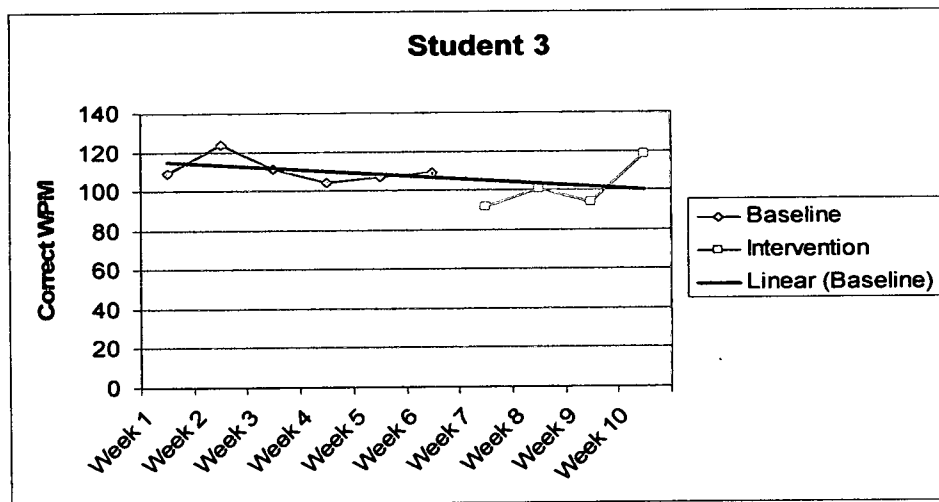
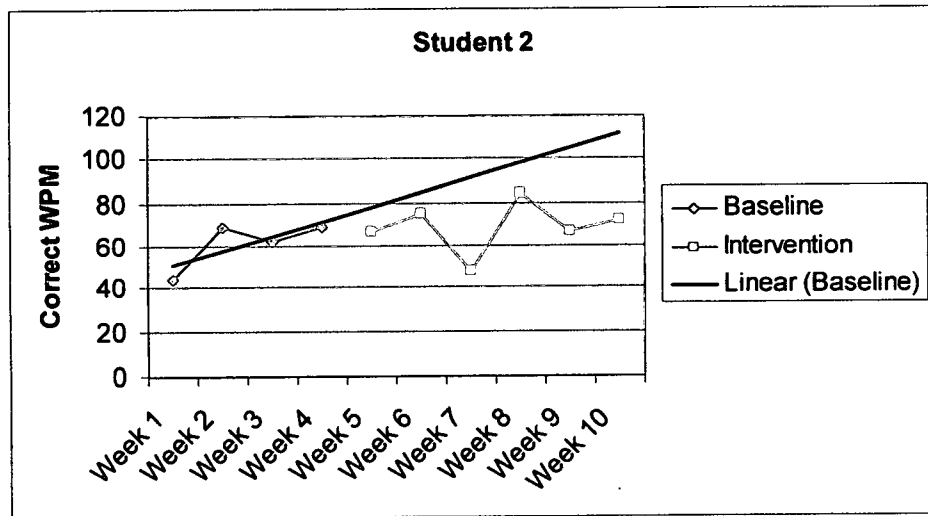
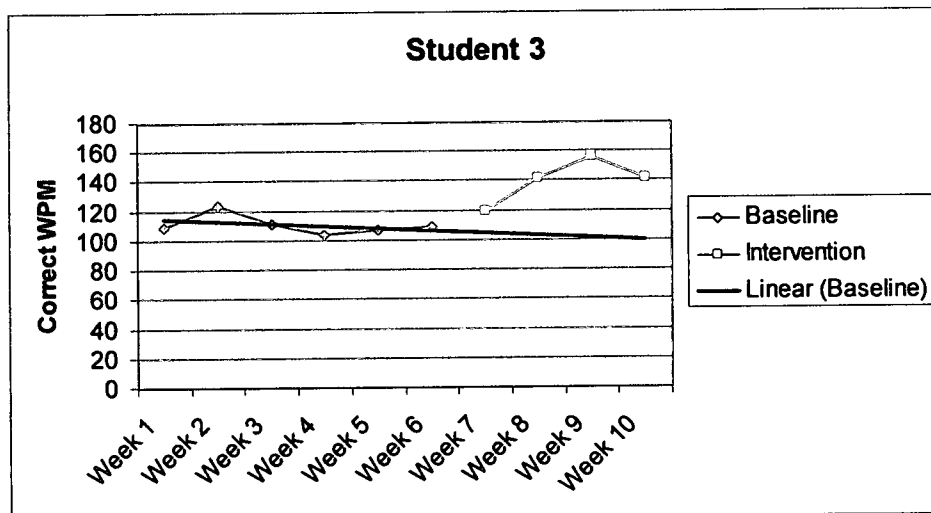
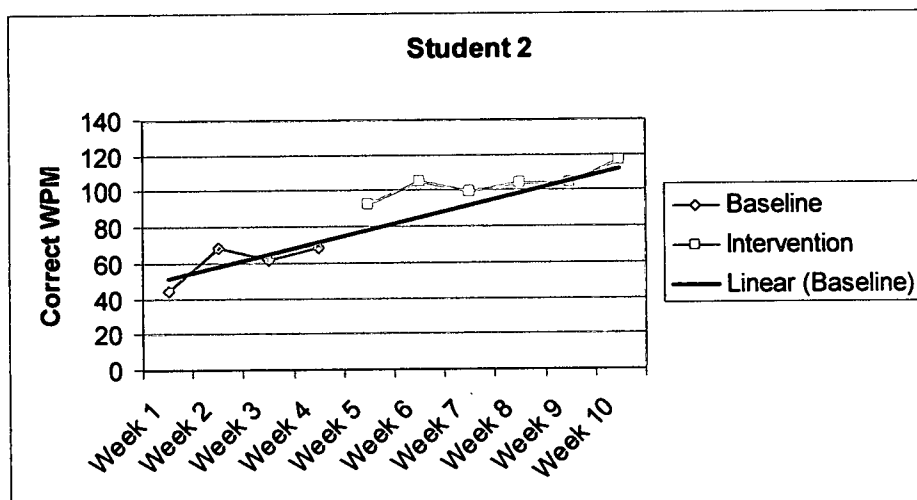
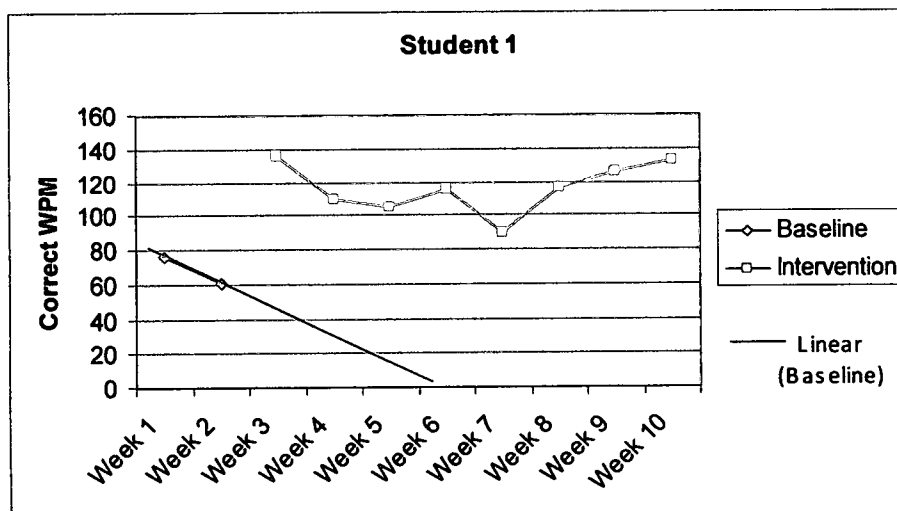


Figure 2 displays the effects of the repeated readings intervention on the participants' oral reading fluency after each week's "hot read." Upon visual inspection of Figure 2, it is apparent that the repeated readings intervention resulted in increases in the oral reading fluency of each participant when he was presented with familiar text. Although improvement from baseline is evident, visual inspection of Figure 2 indicates that the improvement was not consistent, as the weekly datum points do not display a consistent upward trend.

Figure 2. "Hot Reads" Progress Monitoring Graphs



Effect size was calculated to determine the amount of effect of the repeated readings intervention on the participant's oral reading fluency after both the "cold" and "hot" reads. The method of effect size chosen for the present study is referred to as the *g-index*. This method was chosen to demonstrate the level of effect on the students' oral fluency across baseline and intervention phases based on the trend in data (Hunley & McNamara, in press). Therefore, the success of an intervention is determined based on the amount of change in the desired direction between the baseline and intervention phases (Hunley & McNamara, in press). The *g-index* is calculated by subtracting the proportion of intervention phase data points (PI) that are on the side of the trend line consistent with the desired direction from the proportion of baseline data points (PB) that are on the side of the trend line consistent with the desired direction.

Transference of ORF to new material. For student 1, the *g-index* was calculated utilizing the PI of 1 and the PB of 0, which resulted in a *g-index* of .09. The positive *g-index* indicates that the intervention resulted in positive effects on Student's 1 rate of oral fluency during the intervention phase "cold reads." However, visual inspection of the charts revealed that the intervention phase ORF scores were similar to or lower than baseline data and demonstrated much variability. Therefore, the positive *g-index* is the result of the significant negative trend in scores obtained during baseline data collection and not due to the effects of the intervention on the Student 1's oral reading fluency. The *g-index* for the repeated readings intervention for Student 2 was calculated utilizing the PI of 0 and PB of .25, resulting in a *g-index* of -.01. The *g-index* reflects no effect from baseline to intervention phase. Finally, the *g-index* for Student 3 was calculated utilizing

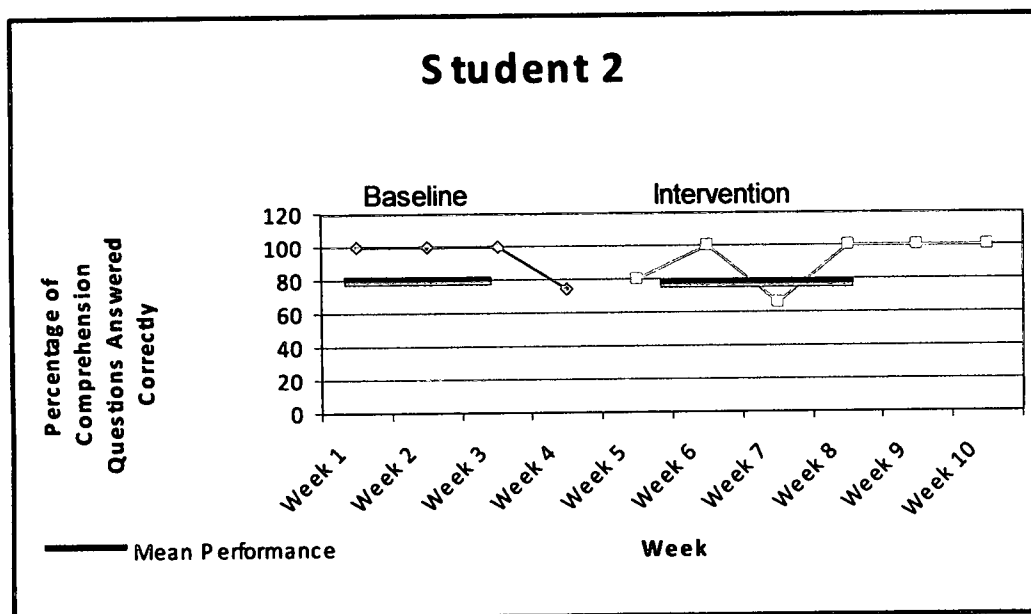
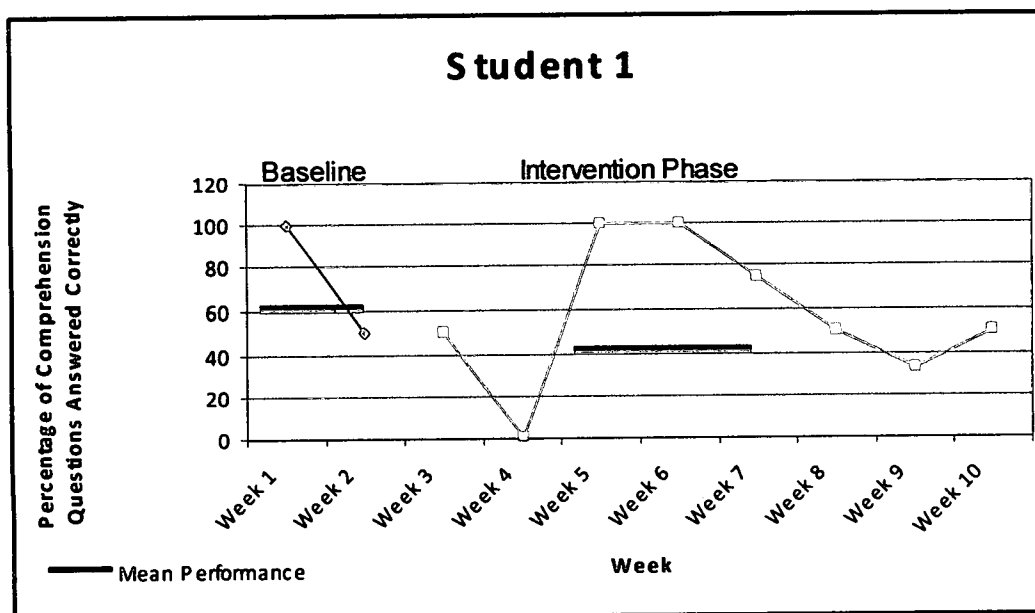
the PI of .25 and the PB of .33. The resulting *g-index* of -.05 also reflects no effect from baseline to the intervention phase.

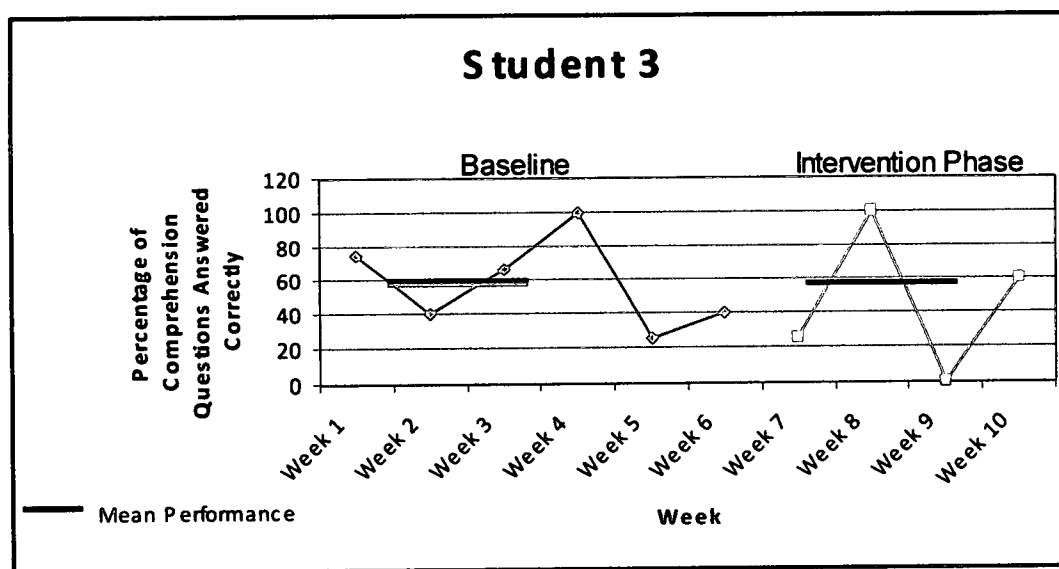
Practice Effects. For student 1, the *g-index* was calculated utilizing the PI of 1 and the PB of 0, which resulted in a *g-index* of .09. The positive *g-index* reflects the intervention's positive effect on the rate of oral fluency during the intervention phase for Student 1. The *g-index* for the repeated readings intervention for Student 2 was calculated utilizing the PI of 1 and PB of .25, resulting in a *g-index* of .03. The *g-index* reflects a positive effect from baseline to intervention phase. Finally, the *g-index* for Student 3 was calculated utilizing the PI of 1 and the PB of .33. The resulting *g-index* of .04 reflects improvement from baseline to the intervention phase.

Comprehension

The effects of the repeated readings intervention on the participants' rate of comprehension were analyzed through visual inspection of progress monitoring graphs and calculation of effect size. Visual inspection reflects the lack of trend and high variability of comprehension scores among both phases (See Figure 3). During baseline data collection, Student 1 earned a score of 100% and 50%. Student 2 earned scores of 100%, 100%, 100%, and 75% during baseline data collection. Baseline data collection for Student 3 resulted in the following scores: 75%, 40%, 66%, 100%, 25%, and 40%. After the implementation of the intervention, the participants' scores continued to demonstrate high variability in scores.

Figure 3. Progress Monitoring Graphs for Comprehension





The method of effect size utilized for comprehension is referred to as the *d-index*. The *d-index* calculates the average difference in scores across baseline and intervention phases. A large difference in performance between phases is reflective of a greater effect (Hunley & McNamara, in press). Figure 3 displays the percentage of comprehension questions answered correctly at the beginning of each week. Level lines representing the mean performance during baseline and intervention phases are also included. Visual inspection of Figure 3 demonstrates the lack of impact of the repeated readings intervention on the rate of comprehension during the intervention phase for all three participants. The calculation of the mean of the intervention data minus the mean of the baseline data divided by the standard deviation of all data resulted in effect sizes of -.18 for Student 1, -.07 for Student 2, and -.02 for Student 3. Therefore, the repeated readings intervention had no effect on the participants' rate of comprehension.

CHAPTER V

Discussion

The present study investigated the effects of a repeated readings intervention coupled with error word drills on the oral reading fluency and comprehension of three secondary students with learning disabilities in reading. The results of the study indicate that the investigated intervention is an effective method for increasing the oral reading fluency of secondary students with reading disabilities upon the presentation of familiar text. Although the participants' ORF scores progressively increased from the initial "cold" read at the beginning of the week to the "hot" read at the end of the week, the effects of the implemented intervention did not transfer to new reading material. For each participant, the ORF scores obtained at the beginning of each week of the intervention were comparable to the ORF scores obtained during baseline data collection. Therefore, based on the results of the present study, the effects of the repeated readings intervention on ORF scores do not transfer to new material. Based on these results, further investigation into interventions that assist students' transference of reading skills to new material is needed.

Perhaps the participants' rate of oral reading fluency did not generalize to new material due to the vocabulary included in the weekly passages. Although the passages were comprised of text of the same reading level each week, the passage subjects varied from week to week. Therefore, the vocabulary introduced each week included many words that were not a part of the participants' limited sight word vocabulary. It is possible that the increase in ORF scores that occurred throughout each week would have

transferred to new passages at the beginning of each week if the passages contained the newly learned sight words from the previous weeks.

Unfortunately, the effect of the intervention upon the participants' reading comprehension is inconclusive. Baseline data demonstrate that the participants were able to comprehend the material read with 100% accuracy on at least one occasion. Student 2 answered comprehension questions with 100% accuracy for 3 of the 4 baseline data points. The intervention phase resulted in data reflecting no true trend line. For example, after answering comprehension questions with 100% accuracy during Weeks 5 and 6, Student 1's rate of comprehension actually began to decrease throughout the remainder of the intervention. Student 2's comprehension rate during the intervention phase was consistent with that of the baseline data. Student 3's comprehension reflects an alternating pattern during both the baseline and intervention phase.

The investigator analyzed the participant's weekly performance to determine whether the number of errors made by the participants' during the one minute reading contributed to their rate of comprehension. No relationship between these factors was found upon inspection of the weekly comprehension scores and the number of corresponding errors. For example, Student 3 earned a comprehension score of 100% with 5 errors during Week 4. The following week, he made 4 errors and earned a comprehension score of only 25%. Similar results were found for the remaining participants.

It is possible that the participants were able to answer comprehension questions with 100% accuracy during the baseline phase due to the narrative nature of the utilized reading passages. As discussed earlier, reading instruction in the primary grade levels

utilizes narrative texts; whereas secondary grade levels rely on expository text, which is comprised of advanced vocabulary and is technical in nature. Comprehension of such material requires the use of advanced reading skills which many individuals with reading disabilities do not possess. Perhaps the baseline and intervention phase comprehension data would look quite different had expository text been utilized. This should be taken into consideration for future research investigating the effects of repeated readings on the comprehension of students with reading disabilities.

Limitations

When considering the results of the present study, the limitations of the study must be taken into consideration. The first limitation is the small sample size. To establish the true effects of reading readings on the Oral Reading Fluency and Comprehension of students with reading disabilities, the intervention must be implemented for many more students of varying ages, gender, and cultural backgrounds.

Another limitation of the study involves the length of time the intervention was implemented. Although ten weeks of intervention may appear to be an adequate amount of time to determine the effectiveness of an intervention, the fact remains that students at the secondary level are performing at a significantly lower level than that of their same-aged peers in the classroom. Therefore, logic would dictate that the length of time and intensity of instruction needed to assist the students in developing their reading skills will be significantly greater than that of the present study.

Extraneous variables which were beyond the control of the investigator may have impacted the effectiveness of the repeated readings intervention on the ORF scores of the participants. First, Student 1 and Student 2 were employed in the evenings. Both students

commented on their diminished energy level due to their late hours on several occasions. On these days, the effort and motivation put forth by the students was noticeably less than usual.

Another variable to consider when analyzing the results occurred during Week 7 of the study. Upon visual inspection of the results, it became apparent that an extraneous variable may have affected the results, as each student's initial ORF score for the week was the lowest score obtained throughout the 10 week intervention. During Week 7 of the intervention, each participant was administered a section of the Ohio Graduation Test during the morning hours. Each participant commented on the negative impact the test had upon their ability to put forth their best effort and concentration during the intervention session. Therefore, the administration of the test most likely negatively impacted the results of the present study during Week 7 of the intervention.

Implications for Future Research

Students with reading disabilities will not only struggle with academics, but with their functioning in daily activities, as well. The ability to read is a necessary skill in order for one to carry out many of the simple daily tasks that are a part of everyday life, such as reading traffic signs while driving, ordering from a menu, or determining the correct dosage of medications. Therefore, it is imperative that educational institutions continue intensive reading instruction to those students who are not reading at an age-appropriate level. The present study provides a glimpse of the positive effect that repeated readings can have upon the oral reading fluency of students with reading disabilities when presented with familiar text. However, struggling readers are not only in need of effective interventions that enhance their reading skills when presented with

familiar text. They are in even greater need of interventions which allow them to enhance and to generalize their reading skills to new material. To determine the full extent of the effects of the investigated intervention, further research involving a larger sample and increased intervention intensity is needed. Such research is imperative for not only the academic success of struggling students, but also for their success after school, when modifications and accommodations are no longer afforded.

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APPENDIX A

Informed Consent Form

Informed Consent to Participate as a Research Subject

Project Title: Effects of Repeated Readings Intervention for High School Students Experiencing Reading Difficulties

Investigator: Catherine Barr, School Psychology Student

Purpose of Research: This study will focus on what happens when a high school student, who has difficulties with reading, practices reading a story repeatedly. In particular, the study will look at the number of correct words read out loud in one minute and the number of questions answered correctly about the story after reading it for the first time. If practicing reading stories repeatedly is helpful, the number of correct words read out loud and the number of questions answered correctly about the story by the participant will increase during the study.

Procedure: You will be asked to read passages aloud to the investigator in a one-on-one setting three times per week for approximately 10 weeks. Each session will last approximately 20 minutes. You will be reading several passages repeatedly. After you read a passage for the first time, you will be asked to answer some questions about the passage. The investigator will review words which were mispronounced during the reading and copy them onto index cards to be used as flash cards. You will practice reading the words on the index cards at the end of each session.

Alternative Procedures: There are no alternative procedures for this project.

Anticipated Risks and/or Discomfort: Participants who do not like to read may become bored during the project. Frustration may be experienced if the student encounters many unknown words in a passage. Students who do not enjoy reading aloud to an adult may experience some anxiety during the process.

Benefits to the Participants: Individuals who participate in this research may experience gains in their reading ability, which can indirectly improve your self-confidence and grades. Incentives such as candy bars and/or small restaurant gift certificates will be awarded to cooperative participants.

Confidentiality: No records of your participation in this research will be disclosed to others. Your first and last names will not be recorded on any forms required for the

project. All data will be stored in a locked filing cabinet located in the school psychology student's office and will be destroyed within six months.

Contact Person for Questions or Problems: If a research related injury occurs, or if you have questions about the research, contact Catherine Barr at Wheelersburg High School, Phone: 740-574-2527. Also, you may contact Dr. Sawyer Hunley with the Department of Counselor Education and Human Services at the University of Dayton, Phone: 937-229-3624. Questions about the rights of the subject should be addressed to Jon Nieberding, Chair of the Committee for the Protection of Human Subjects, Kettering Labs Room 542, Phone: 937-229-4053.

Consent to Participate: I have voluntarily decided to participate in this research project. The investigator named above has adequately answered all questions that I have about this research, the procedures involved, and my participation. I understand that the investigator named above, will be available to answer any questions about experimental procedures throughout this research. I also understand that I may refuse to participate or voluntarily terminate my participation in this research at any time without penalty or loss of benefits to which I am entitled. The investigator may also terminate my participation in this research if she feels this to be in my best interest.

Signature of Participant

Date

Signature of Parent/Guardian

Date

Signature of Investigator

Date

APPENDIX B

Repeated Readings Script

Please read this passage out loud. If you don't know a word, I will provide it for you, then you can continue reading. While you are reading, pay attention to your speed and what the passage is saying to you. When I say "Stop," I will ask you some questions about what you read. (Last sentence for initial session of the week only).

APPENDIX C

Treatment Integrity Checklist

REPEATED READINGS INTEGRITY CHECKLIST	
Title of Reading Passage:	
FIRST READING	Date:
1. Read Repeated Readings Script to Student.	
2. Count number of words read correctly in one minute. Record here:	
3. Ask student comprehension questions.	
<div style="border: 1px solid black; padding: 2px; margin: 2px;"> <i>This first recorded reading rate will serve as progress monitoring scores.</i> </div>	
4. Record answers on Comprehension Check Form.	
5. Record error words on Error Word Log.	
6. Discuss semantics/meaning of error words with student.	
7. Copy error words onto separate index cards.	
8. Model fluent reading paragraph by paragraph for student.	
9. Ask student to read paragraph after modeled by investigator.	
10. Investigator will provide specific praise for words/sent. read fluently at the end of each paragraph.	
11. Provide specific feedback on how to improve phrasing, flow, and expression	
12. Student will be asked to read the entire passage aloud.	
13. Provide specific praise for words/sentences read fluently.	
14. Provide specific feedback on how to improve phrasing, flow, and expression	
15. Student will practice reading error words on index cards for five minutes.	
16. When session has ended, record number of wpm read correctly on progress monitoring chart.	
17. Score student responses for comprehension questions.	
18. Record % of questions answered correctly here:	
19. Record % of questions answered correctly on progress monitoring chart.	
<i>Treatment Integrity of Session 1</i>	
SECOND READING	Date:
1. Read Repeated Readings Script to Student.	

2. Count number of words read correctly in one minute. Record here:	
3. Record error words on Error Word Log.	
4. Discuss semantics/meaning of error words with student.	
5. Copy error words onto separate index cards.	
6. Copy error words onto separate index cards.	
7. Model fluent reading paragraph by paragraph for student.	
8. Ask student to read paragraph after modeled by investigator.	
9. Investigator will provide specific praise for words/sent. Read fluently at the end of each paragraph.	
10. Provide specific feedback on how to improve phrasing, flow, and expression	
11. Student will be asked to read the entire passage aloud.	
12. Provide specific praise for words/sentences read fluently.	
13. Provide specific feedback on how to improve phrasing, flow, and expression	
14. Student will practice reading error words on index cards for five minutes.	
15. Remove any words which student pronounces automatically after 3 consecutive sessions.	
16. When session has ended, record number of wpm read correctly on progress monitoring chart.	

Treatment Integrity of Session 2

THIRD READING	Date:	
1. Read Repeated Readings Script to Student.		
2. Count number of words read correctly in one minute. Record here:		
3. Record error words on Error Word Log.		
4. Discuss semantics/meaning of error words with student.		
5. Copy error words onto separate index cards.		
6. Model fluent reading paragraph by paragraph for student.		
7. Ask student to read paragraph after modeled by investigator.		
8. Investigator will provide specific praise for words/sent. read fluently at the end of each paragraph.		
9. Provide specific feedback on how to improve phrasing, flow, and expression		
10. Student will be asked to read the entire passage aloud.		
11. Provide specific praise for words/sentences read fluently.		
13. Provide specific feedback on how to improve phrasing, flow, and expression		
14. Student will practice reading error words on index cards for five minutes.		

15. When session has ended, record number of wpm read correctly on progress monitoring chart.	
<i>Treatment Integrity of Session 3</i>	

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Appendix D

Error Log

Reading Probe: _____

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