EFFECTS OF PEER-DELIVERED FLUENCY INSTRUCTION ON THE ORAL READING FLUENCY OF HIGH SCHOOL STUDENTS WITH MILD DISABILITIES

by

Sara Beth Hitt

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Approved by:

_____
Dr. Charles L. Wood

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Dr. David W. Test

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Dr. Christopher P. O'Brien

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Dr. Michael Putman

ABSTRACT

SARA BETH HITT. Effects of peer-delivered fluency instruction on the oral reading fluency of high school students with mild disabilities. (Under the direction of DR. CHARLES L. WOOD)

Recent statistics have shown that high school students with disabilities across the U.S. are struggling to be academically successful (NAEP, 2013; NCES, 2011; Newman et al., 2011). High school students with disabilities frequently fail one or more academic courses, and often fail to score at or above proficiency level on state assessments. Furthermore, adolescents without core reading skills (e.g., phonemic awareness, decoding skills, fluency, comprehension) frequently fail one or more courses and thereby have a greatly reduced probability of graduating with a diploma (Hock et al., 2009).

In 2000, the National Reading Panel reported guided oral repeated reading procedures have a consistent, and positive impact on fluency, as well as word recognition and comprehension (NRP, 2000). Given the many challenges at the high school level to incorporate intensive fluency and comprehension interventions into high school courses, there remains a need for more extensive research on reading interventions, as well as the method of implementation of intensive interventions at the high school level. Peer delivered instruction, or peer tutoring, is one strategy that may offer support for demanding high school routines (Okilwa & Shelby, 2010) and the *Great Leaps Reading Program* (Campbell, 1998) is a program that can serve as an intensive fluency intervention at the high school level.

The purpose of this study was to evaluate the effects of peer delivery of the *Great Leaps Reading Program* (GLRP) on the oral reading fluency and reading comprehension

of high school students with mild disabilities. The study sought to examine the ability of students with reading deficits to serve as peer tutors and deliver instruction in the GLRP with fidelity, and their opinions of the program. Six high school students with mild disabilities participated in the study. A multiple probe design across students was used to demonstrate the effects of peer-delivered Great Leaps on the dependent variables (e.g., fluency and comprehension). Results showed an increase in the mean of words read correctly per minute from baseline to intervention for four of the six students and all participants showed a decrease in the number of errors made per one-minute timed passage from baseline to intervention. Also, a minimal increase in comprehension was demonstrated for five of six students. Finally, results of the social validity measure indicated that all six students liked the GLRP and five of the six students felt that it helped improve their reading.

DEDICATION

I am grateful to be able to dedicate this to my family. First, to my wonderful husband Kris, for his consistent support, patience, and keen sense of when to leave me alone. Throughout the whole process he "just kept swimming." Next, to my wonderful, beautiful daughter Mayne, who, like her father, just rolls with everything. Her happiness and enthusiasm for life are infectious and made the journey bearable. Third, to my parents who have always motivated me to strive to prove myself in all I do. Finally, to my Nana, who throughout my life always thought I was amazing and could do anything.

I would also like to dedicate this to my former students: Quadrie, Kavon, Tylor, Dalton, Joe, Alex, David, Taylor, Casey, Meredith, Dru, and so many more. For years I watched them roll their eyes as they heard again and again, "You have to participate in the change you want to happen…" "You don't get what you don't ask for…" "Nothing will happen if you don't try." I wanted them all to have a future they deserved, to be proud of something, and to be happy. I wanted to see a system that better served them all. One of the hardest things I ever did was leave my job as their teacher, but what kind of teacher would I have been if I did not do exactly what I asked of them: to participate in change, to not be afraid to ask, and to try and make a system that works for all students. My students made me the teacher that I am today.

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CHAPTER 1: INTRODUCTION

Statement of the Problem

Federal legislation requires educators to support the needs of all students through generalized accountability, an adherence to evidence-based practices (EBPs), and through rigorous standards. Educators are faced with the challenge of providing high quality, evidence-based instruction for all students; however, many middle and high school students are in need of even more intensive individualized supports to be successful (Brozo, 2010). High schools are under pressure to find ways to support these youth, yet their efforts are compounded with rigorous core content, fast-paced, typically lecture-based instruction. Furthermore, the traditional organization of contemporary secondary schools often marginalizes instructional practices performed by both general and special educators (Kennedy & Ihle, 2012).

Today, evidence indicates that over 60% of high school students with disabilities are being served in the general education setting and are enrolled in courses that adhere to the demands of the Common Core State Standards (CCSS). In 2011, the National Center for Educational Statistics (NCES) reported that approximately 95% of students served under the Individual with Disabilities Education Act (IDEA) part B were enrolled in regular schools and 65% of those students spent the majority of their school day (e.g., 80% or more of the day) within the general education classroom (NCES, 2011). Additionally, a special findings report from the National Longitudinal Transition Study-2

showed that students with disabilities enrolled in a typical high school earned 72% of their credits in general education, with one quarter of those students earning all credits in general education. These students earned an average of 22.7 credits, with only 12.7 of those credits being academic credits (NLTS-2, 2011). In other words, many high school students with disabilities receive the majority of their instruction of critical academic content in the general classroom along side their peers without disabilities, yet they receive very few academic credits.

Across the U.S. statistics show that high school students with disabilities are struggling to be academically successful (NAEP, 2013; NCES, 2011; Newman et al., 2011). High school students with disabilities frequently fail one or more academic courses, and often fail to score at or above proficiency level on state assessments. Adolescents without core reading skills (e.g., phonemic awareness, decoding skills, fluency, comprehension) frequently fail one or more courses and therefore have a greatly reduced probability of graduating with a diploma (Hock et al., 2009).

According to the National Longitudinal Transition Study 2 (NLTS-2), during the 2009-2010 school year, 66% of students with disabilities failed one or more academic courses and 89% of students with disabilities who did not complete high school had failed at least one or more courses prior to dropping out. In addition, of the students with disabilities who did complete the necessary requirements to receive their high school diploma, 62% failed one or more courses prior to graduation (NLTS-2, 2011). Finally, in 2009, the dropout rate of 16 through 24-year-olds with disabilities was 15.5%, almost twice as large as the rate of their peers without disabilities, 7.8% (NCES, 2011) and by

12th grade, only 36% of students with disabilities performed at or above grade level on academic assessments compared to 76% of their peers without disabilities (NCES, 2011).

According to the most recent report from the National Assessment of Education Progress (NAEP, 2013) nationally, students with disabilities showed a decline in reading skills from 2009 to 2013. Only 10% of students with disabilities scored at or above the proficient level on the national 12th grade reading assessment as compared to 40% of students without disabilities and 37% of students with disabilities scored at or above the basic level on the reading assessment as compared to 78% of their peers without disabilities (NAEP, 2013). Twelfth grade students performing at the basic level of achievement should be able to make inferences, develop interpretations, make connections between text, draw conclusions and use contextual clues to interpret the meaning of words as they are used in text.

Legislation has established that schools be held accountable for the adequate yearly progress of all students, including students with disabilities (IDEIA, 2004; NCLB, 2001; Simonsen, 2010). Therefore, since secondary students with disabilities are predominantly being served in general education classrooms and instructed in the CCSS curriculum, additional supports and strategies are needed to improve academic achievement for these students.

In 2004, the reauthorization of the Individuals with Disabilities Education Act suggested alternatives to traditional identification methods and introduced responsiveness to intervention, or Response to Intervention (RTI), as a concept for disability identification. The method proposed measuring students' responses to evidence-based instruction as a central component of identification (Fuchs, Fuchs, & Compton, 2012).

The RTI model is typically defined as a multi-tiered model, with a continuum of interventions for students who struggle academically, with each tier providing a more intensive level of instruction (NJCLD, 2005). Despite varying models and methods of effective multi-tiered instruction, most models share similar fundamental characteristics: (a) universal screening to identify students at risk for learning difficulties early, (b) valid and reliable progress monitoring to determine response to instruction, and (c) research-based interventions (Vaughn et al., 2008).

RTI was initially proposed as preventative measure to placement in special education, and a substantial amount of the research has been on screening, assessment, and early intervention in elementary grades (Coyne, Kame'enui, Simmons, & Harn, 2004; Gersten et al., 2008; Gilbert et al., 2013; Lembke, McMaster, & Stecker, 2010; Pressley et al., 2001; Scruggs & Mastropieri, 2002; Torgesen et al., 1999). RTI has been implemented in two ways at the secondary level: as a school-wide problem-solving process to address and prevent behavior problems, and as a means to address and prevent reading and math difficulties (Vaughn & Fletcher, 2012). In the problem-solving model, universal screening is used to identify students with behavior problems and then the behaviors are addressed through research-based practices. In the multi-tiered approach to preventing reading and math difficulties, universal screening is designed to identify students in need of reading and math interventions and then interventions are increased in intensity and students' progress is monitored (Vaughn & Fletcher, 2012).

Research on RTI has been extensive and ongoing at the elementary level (Brozo, 2010; Vaughn & Fletcher, 2012); however, given (a) the difficulties with scheduling, compliance issues, and graduation requirements; (b) the premise that RTI is an

identification and preventative measure and, (c) the considerable lack of research on academic interventions at the secondary level, few researchers have focused on RTI and secondary students (Fuchs et al., 2012).

Within an RTI framework in the secondary setting, educators and researchers have to acknowledge differences between the elementary and secondary levels when considering implementation and research of RTI (Brozo, 2010; Burns, & Yesseldyke, 2005; Fuchs et al, 2010; Fuchs, Fuchs, & Compton, 2012; Sansoti, Goss, & Noltemeyer, 2011; Sansosti, Telzrow, & Noltemeyer, 2010; Vaughn, 2010). For example, it is not necessary to allocate time and resources to screening and prevention in the primary tier in high school. At this point, students have already been identified. Educators and researchers need to now look to existing data and teacher nomination as ways of investigating the effects of RTI at the high school level (Fuchs et al., 2010).

Multi-tiered systems continue to increase in popularity as a means to support all students; however, before moving forward with RTI at the high school level, there is a significant need for more information on effective research-based practices that can be delivered across those tiers at the high school level (Scruggs, Mastropieri, Berkeley, & Graetz, 2011). A tiered model of instruction such as RTI cannot stand alone in supporting students with disabilities at the secondary level. Teachers must provide students with interventions and instructional practices established from research-validated principles (Swanson & Deshler, 2003; Vaughn & Fletcher, 2012).

Today, given the increase in accountability established by federal initiatives, a high school student with a reading disability can face challenges in order to master content and earn a diploma. These challenges require a well-developed set of literacy

skills to achieve even the minimum score on standardized assessments and students with reading disabilities consistently score poorly on these assessments (NCES, 2011). Adolescent readers in high school require an understanding and control of complex literacy strategies in order to navigate the secondary curriculum, but these readers must first possess adequate decoding and fluency skills (Brozo, 2010). These students must be able to consistently and independently read with comprehension in order to acquire a high school diploma.

There are a number of challenges in providing effective and appropriate instruction for students with reading disabilities in the secondary setting. Educators and administrators face the difficult task of delivering evidence-based literacy interventions while still adhering to the rigorous content of secondary courses. Furthermore, the literature shows there is a significant lack of literacy research and documented successful interventions at the secondary level (Brozo, 2010; Hock et al., 2009; Scruggs et. al., 2011; Swanson, 1999; Swanson & Deshler, 2003). Statistics show students with disabilities on a course to leave high school without the literacy skills necessary to succeed in the global economy (NLTS-2, 2011; NCES, 2011).

Research has shown high school students who struggle with fluency and comprehension fail to show improvement with these reading skills for several reasons; (a) the lack of direct, intensive intervention at the high school level, (b) teachers at the high school level do not feel responsible for teaching basic reading skills, (c) the difficulty of course content presented to high school students, and (d) the extended time needed to decode complicated text (Brozo, 2010; Hawkins, Hale, Sheeley, & Ling, 2011; Swanson & Deshler, 2003). Fluent readers tend to read in a way that creates meaning from text;

less-fluent readers often struggle to generate meaning and "a reader's ability to construct an interpretation of a text can be hindered by slow, laborious word-recognition skills" (Paige, Rasinski, & Magpuri-Lavell, 2012, p. 67).

A study conducted by Hock et al. (2009) analyzed the reading skills of 345 adolescents. Of the 345 students, 202 were identified as adolescent struggling readers, 143 were identified as proficient, and included in the 345 students were 43 students identified as having a learning disability. The authors analyzed student performance on 11 measures of reading skills that addressed four reading components: vocabulary, word level, fluency, and comprehension. Results indicated 61% of the struggling readers showed significant deficits in all components. Students identified as having a learning disability scored the lowest of all participants, and the struggling readers scored lower than the proficient readers in all areas. Interestingly, fluency was shown to be the greatest deficit across all readers.

Unfortunately, research on fluency interventions for high school students is minimal. Wexler, Vaughn, Edmonds, and Reutebuch (2008) conducted a search of the literature on fluency interventions for secondary students from 1980 to 2005, and found only 19 studies that evaluated the effects of interventions that addressed the fluency and comprehension of secondary students. The authors found that the majority of interventions evaluated in the synthesis that showed positive effects included a repeated reading component in the intervention.

In 2000, the National Reading Panel reported guided oral repeated reading procedures "had a consistent, and positive impact on word recognition, fluency, and comprehension as measured by a variety of test instruments and at a range of grade

levels" (NRP, 2000, p.191). Over the past two decades there has been extensive research on the effect of repeated reading on students' oral reading fluency (Begeny, 2010; Begeny, Krouse, Ross, & Mitchell, 2009; Chard, Ketterlin-Geller, Baker, Doabler, & Apichatabutra, 2009; Huang, Nelson, & Nelson, 2008; Morgan, Sideridis, & Hua, 2012; Nanda & Fredrick, 2007; NRP, 2000; Przychodzin-Havis et al., 2005; Therrien, 2004; Wexler, Vaughn, Edmonds, & Reutebuch, 2008).

One study that showed positive effects of repeated reading interventions for high school students, Roberts, Torgesen, Boardman, and Scammacca (2008) investigated evidence-based practices for reading instruction of older students and noted that students' history of school failure and lack of motivation contributed to their reading difficulty as they grew older. The authors found that interventions that involved repeated readings have been shown to improve fluency and may have instructional value for older struggling readers. Although the research on repeated readings and fluency interventions for high school students is sparse, positive findings on the effects of repeated reading for secondary students have been reported (Hawkins, Hale, Sheeley, & Ling, 2011; Roberts, Torgesen, Boardman, & Scammacca, 2008; Strong, Wehby, Falk, Lane, 2004; Wexler, Vaughn, & Roberts, 2010).

Despite these findings, there still remains a need for more extensive research on repeated reading as a fluency intervention and the method of implementation of intensive interventions at the high school level. The Great Leaps Reading Program (Campbell, 1998) was created to increase the reading fluency skills of at-risk readers of all ages. Authors suggest the GLRP is a program that is cost effective and time efficient and could provide teachers an efficient and intensive fluency intervention that can be easily

incorporated into the rigorous high school schedule. Research on the GLRP has demonstrated positive results with both elementary and middle school students (Lingo, 2014; Mercer, Campbell, Miller, Mercer, & Lane, 2000; Patton, Crosby, Houchins & Jolivette, 2010; Scott & Shearer-Lingo, 2002; Walker, Jolivette, & Lingo, 2005), however no studies have been conducted at the high school level.

There are many challenges at the high school level when attempting to incorporate intensive fluency and comprehension interventions into high school courses. Content teachers in high school often assume students have the prerequisite skills to be independent learners. In other words, there is an expectation that all students in high school can independently read text, take notes, organize coursework, and manage their time (Mastropieri, Scruggs, Spencer, & Fontana, 2003). Furthermore, the primary form of instruction is often whole class activities, and these activities are not often differentiated for students with disabilities and offer little time for additional interventions. Peer delivered instruction, or peer tutoring, is one strategy that may offer support for demanding high school routines (Okilwa & Shelby, 2010). There is empirical support for peer tutoring as an evidence-based strategy to improve the learning of students with and without disabilities (Alfassi, 2004; Bowman-Perrott, Davis, Vannest, & Williams, 2013; Mastropieri et al., 2001; Mastropieri et al, 2003; Mastropieri, Scruggs, & Graetz, 2003; Okilwa & Shelby, 2010).

Peer tutoring is defined as " a class of practices and strategies that employ peers as one-on-one teachers to provide individualized instruction, practice, repetition, and clarification of concepts" (Utley & Mortweet, 1997, p.9). There are a variety of designs of peer tutoring (e.g., classwide pairings, reciprocal, cross-age) and the majority of the

research, similar to the research on repeated reading, has been conducted at the elementary level.

A few studies of peer tutoring have shown promising results at the middle and high school levels (Alfassi, 2004; Anderson, Yilmaz, & Wasburn-Moses, 2004; Bowman-Perrott, 2013; Spencer, 2009; Mastropieri, Scruggs, & Graetz, 2003; Mastropieri, Scruggs, Spencer, & Fontana, 2003). Certain developmental stages of middle and high school students' place increased emphasis on association with peers and peer interaction. Therefore, peer tutoring, or peer-mediated instruction, can take advantage of that developmental need and provide an opportunity for increased academic engagement and learning (Okilwa, 2010). Incorporating a peer instruction component with an intensive reading intervention, such as Great Leaps, at the high school level could more efficiently incorporate evidence-based literacy interventions into the rigorous schedule, alleviate the need for content teachers to incorporate basic reading instruction, and provide increased differentiation for students with reading disabilities in the high school setting.

Purpose of the Study and Research Questions

The purpose of this study will be to investigate the effects of peer-delivered instruction of the Great Leaps Reading Program (GLRP) on the oral reading fluency of high school students with mild disabilities. This study will address the following questions:

1. What are the effects of peer-delivered GLRP on the oral reading fluency of high school students with mild disabilities?

2. What are the effects of peer-delivered GLRP on the reading comprehension skills of high school students with mild disabilities?
3. To what extent can students with reading deficits serve as peer tutors and deliver instruction in the GLRP with fidelity?
4. What are students' opinions on using peer-delivered GLRP to increase their reading fluency?

Significance of the Study

The GLRP (Campbell, 1998) is a program designed to increase phonics and oral reading fluency of students through repeated, timed readings and has been shown to increase reading fluency in elementary and middle school students with reading disabilities. However, only a few studies have been conducted using the GLRP (Lingo, 2014; Mercer et al., 2000; Patton et al., 2010; Scott & Shearer-Lingo, 2002; Walker et al., 2005), and none have been conducted with high school students.

This study has the potential to contribute to the literature on high school literacy interventions in several ways. First, this study will address a need for additional research on quality literacy interventions at the high school level. This study can demonstrate a peer-mediated intervention that is simple, cost effective and efficient and can serve as a secondary or tertiary intervention within a multi-tiered model. Second, this study will advance the research for repeated reading and the Great Leaps Reading Program. There is very little research on the use of repeated reading with high school students and currently there are only six studies using the GLRP. There are no published studies with high school students serving as the recipients of the GLRP intervention. Finally, this study will add both to literature on peer-mediated instruction at the secondary level and to the

literature on multi-tiered interventions and the problem-solving model of response to intervention at the high school level.

Delimitations

This study seeks to evaluate the effects of peer-delivered instruction of the GLRP on the oral reading fluency of high school students with mild disabilities. There are several possible delimitations of this study. First, the use of single case design can limit generalization to other populations not targeted in this study. A second potential limitation is the use of the researcher as implementer of the intervention. Further research will be needed to examine the practicality and sustainability of teacher implementation of the intervention within the natural school environment. Finally, participant inclusion criteria addresses only a small number of participants with similar ability levels, therefore additional research will be needed to establish GLRP as evidence-based intervention.

Definition of Terms

The following definition of terms will be used throughout the study. The terms defined are relevant to the literature and methodology and will be essential in the understanding of the implementation and analysis of the study.

Common core state standards. A set of educational standards describing what students should know and be able to do in each subject in each grade (Common Core State Standard Initiative, 2010).

Cooperative learning. Cooperative learning is an educational approach where students work together in small groups, participating in academic activities and social learning experiences to maximize their own and each other's learning (Kagan, 1992).

Evidence-based practices. Evidence-based practices, as defined by Cook and

Cook are “practices that are supported by multiple, high-quality studies that utilize research designs from which causality can be inferred and that demonstrate meaningful effects on student outcomes” (Cook & Cook, 2013, p.73).

Fluency. Fluency is the learned process of automaticity and accuracy of word recognition allowing readers to devote more attention to making meaning of the text (LaBerge & Samuels, 1974; Paige, Rasinski, & Magpuri-Lavell, 2012).

Great Leaps Reading Program. The GLRP is a published reading program that is cost effective and time efficient, and designed to improve the reading fluency of struggling readers of all ages and ability levels (Campbell, 1998).

High incidence disabilities. Students with high-incidence disabilities are the most prevalent among children and youth with disabilities and are most frequently served in the general education classroom. The group typically includes students with emotional and/or behavioral disorders (E/BD), learning disabilities (LD), and mild intellectual disability (MID). However, students with other disabilities (e.g., high-functioning autism, attention-deficit hyperactivity disorder, speech and language impairment) are now being identified at higher rates and occupy an aggregate “other” category within high-incidence disabilities (Gage, Lierheimer, Goran, 2012).

Maze assessment. Maze is a curriculum-based measure of comprehension in which passages are created so every seventh word is removed and replaced with three words. Two of the three words are distractors while the third word is the word that makes sense in the sentence. Students circle the word that makes the most sense in each sentence (Hale & Henning, 2011).

Multi-tiered Systems of Support (MTSS). Multi-Tiered System of Supports

(MTSS) is a school-wide layered continuum of supports, combining RTI and PBIS, in which data-based problem-solving and decision making are practiced across all levels through the use of evidence-based academic and behavioral supports for all students.

Peer-mediated instruction. Peer-mediated instruction is an alternative classroom arrangement in which students serve as instructors to classmates or other students (Maheady, Harper, & Sacca, 1988). Numerous methods have been defined and researched; (a) cooperative learning (Johnson & Johnson, 1986; Kagan, 1992; McMaster & Fuchs, 2002), (b) peer mediated instruction and interventions (PMII) (Greenwood, Terry, Delquadri, Elliott, Arreaga-Mayer, 1995; Utley, Mortweet, & Greenwood, 1997), (c) reciprocal teaching (Palinscar & Brown, 1984; Rosenshine & Meister, 1994), (d) Peer-Assisted Learning Strategies (Bemboom & McMaster, 2013; Calhoun, Otaiba, Cihak, King, & Avalos, 2007; Fuchs, Fuchs, & Kazdan, 1999; Fuchs et al., 2001; McMaster, Fuchs, & Fuchs, 2006), and (e) class-wide peer tutoring (CWPT; Delquadri, Greenwood, Whorton, Carta, & Hall, 1986; Greenwood & Delquadri, 1995; Veercamp, Kamps, & Cooper, 2007).

Repeated reading. Repeated reading is a common form of fluency intervention in which a student reads the same connected text multiple times and accuracy and rate of words read are measured (Hudson, 2011).

Response to Intervention (RTI). Often described as an alternative approach to the traditional discrepancy model for identifying students with LD, Response to Intervention is defined as multi-tiered model with a continuum of services and interventions for students who struggle academically, with each tier providing a more intensive level of instruction (NJCLD, 2005). It has been identified as an option for identifying children

with learning disabilities and as a “means of providing early intervention to all children at risk for school failure”(Fuchs & Fuchs, 2006, p. 93).

Specific learning disability. Specific learning disability can be defined as “a disorder in one or more of the basic psychological processes involved in understanding or using language that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculation” (Heward, 2013, p. 160).

CHAPTER 2: REVIEW OF THE LITERATURE

This chapter will offer a comprehensive overview of select topics through review of current and seminal research to provide a rationale for the purpose of this study. The chapter will review relevant literature on the following topics: characteristics of mild disabilities, multi-tiered instructional models for secondary students, peer-mediated interventions in reading, repeated reading interventions, and select published repeated reading programs.

Characteristics of Mild Disabilities

Currently over 60% of students with disabilities are receiving the majority of their education in the general classroom (NCES, 2011). Students predominantly being served in the general setting have traditionally been described as students with mild disabilities, and this term historically included emotional behavioral disorder, learning disability, and mild intellectual disability (Henley, Ramsey, & Algozzine, 2008). Today, however, there are students with disabilities who fall into an "other" category (e.g., high-functioning autism, attention deficit hyperactivity disorder, speech /language impairments) who are also receiving the majority of their education in the general classroom. These students are being identified at higher rates, and the categories of autism and other health impaired (OHI) continue to grow (Gage, Lierheimer, & Goran, 2012). Students with mild disabilities along with addition of OHI and others, now commonly fall under the term high-incidence disabilities.

Characteristics of students with mild disabilities will vary from student to student, but can be generalized to an extent under three categories: psychological, educational, and social characteristics (Henley et al., 2008). Psychological characteristics include: (a) difficulty in detecting the cause of the disability and the disability often going undetected until the early grades, (b) physical appearance does not differ from that of their same age peers, and (c) development of a poor self concept once in school. Certain educational characteristics that are common among students with mild disabilities include (a) an increasing lack of interest in schoolwork and low achievement, (b) poor listening skills along with limited verbal and/or writing skills, (c) overlooked talents or abilities by teachers, and (d) higher dropout rates as compared to peers without disabilities (Henley et al., 2008). Instructionally these students typically prefer concrete rather than abstract lessons, respond better to active learning, and often require modifications in classroom instruction. Finally, common social characteristics among students with mild disabilities include (a) behavior problems and sometimes difficulty interacting with others, (b) an ability to function better outside of the educational environment, (c) being frequently stereotyped by others, and (d) often struggling to find and maintain employment after school (Henley et al., 2008).

The above characteristics can be used to describe the majority of students with both mild and high-incidence disabilities receiving services and instruction in the general education setting, yet the largest category served under Individuals with Disabilities Act (IDEA) Part B, in U.S. schools today is specific learning disability. According to the National Center for Educational Statistics, during the 2011-12 school year, approximately

37% of students served under IDEA were in the category of specific learning disability (NAEP, 2013).

Specific learning disability (SLD). Over the years several definitions of learning disabilities have been suggested and debate has surrounded the construct of how the term is operationalized (Fletcher, Stuebing, Morris, & Lyon, 2013; Heward, 2013). While no single definition has been universally accepted, the federal definition from IDEA and the definition proposed by the National Joint Committee on Learning Disabilities (NJCLD) serve as the most widely received (Heward, 2013).

IDEA defines specific learning disability as "A disorder in one or more of the basic psychological processes involved in understanding or using language that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculation" (Heward, 2013, p. 160). This definition includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, and dyslexia, but does not include learning problems that are the result of other disabilities or environmental, cultural, or economic disadvantage (Heward, 2013; IDEA, 2004; USDOE, 1977). The National Joint Committee on Learning Disabilities (NJCLD) contends that the federal definition contains several inherent flaws including the exclusion of adults, the inclusion of spelling as a learning disability, the inclusion of obsolete terms such as brain dysfunction, and the wording of the exclusion clause which suggests learning disabilities cannot occur along with other disabilities (Heward, 2013). Overall, most agree on the conceptual basis for SLD, which is the concept of "unexpected" underachievement for those struggling to read, write, or do math in optimal learning conditions (Fletcher, Lyon, Fuchs, & Barnes, 2007; Fletcher et al., 2013).

In general, most states use the federal definition when identifying students with learning disabilities and typically require three criteria for placement. First, a severe discrepancy between ability and achievement must be present. This discrepancy is determined by comparing the student's score on an IQ test with his or her score on a standardized achievement test. Second, the student's difficulties are not a result of another known condition that could result in learning problems. Lastly, the student is not exhibiting academic success despite normal educational efforts and thereby demonstrates a need for special education services (IDEA, 2001; USDOE, 1977).

"Learning disabilities are associated with problems in listening, reasoning, memory, attention, selection and focus on relevant stimuli, and the perception and processing of visual and/or auditory information" (Heward, 2013, p. 162). The assumption is that, as a result of these cognitive and perceptual difficulties, students with learning disabilities experience difficulties in one or more of the areas of reading, written language, deficits in math calculation, poor social skills, attention deficits and hyperactivity, behavior problems, and low self-esteem in spite of adequate overall intelligence (Heward, 2013).

Other health impaired. Health impairments can be used to describe special health conditions or diseases that affect a child's educational performance and/or activities (Heward, 2013). According to IDEA, the category Other Health Impaired (OHI) is defined as having limited strength, vitality, or alertness due to a chronic or acute health condition which adversely affects academic performance (IDEA, 2004). Acute or chronic conditions can include such health problems as asthma, Tourette syndrome, diabetes, epilepsy, and heart conditions. Additionally, children with attention deficit/hyperactivity

disorder are commonly served under the category of OHI. In 2011-12 approximately 12% of students with disabilities were served in the general education classroom under the category of OHI (NAEP, 2013).

Summary of Mild Disabilities

The general education classroom is quickly becoming the predominant instructional setting for secondary students with mild disabilities and/or high incidence disabilities (Vaughn, Klingner, & Bryant, 2001). These students require psychological, educational, and social support along with quality instructional practices to enhance their learning outcomes (Henley et al., 2008; Vaughn et al., 2001). As stated previously, over 60% of secondary students with disabilities are being served in the general setting, are enrolled in a standard course of study, and participate in all common core state assessments (NCES, 2011) Unfortunately, the evidence also shows that these students are struggling to be successful in this environment (NCES, 2011; NLTS-2, 2011).

Additional supports and strategies are needed to support secondary students with mild disabilities in the general setting, improve test scores, and increase the graduation rate of these students. Research shows that multi-tiered instructional programs could (a) allow secondary schools to efficiently identify and assess students, (b) effectively and consistently provide evidence-based interventions, and (c) improve the outcomes for all students throughout instructional and social settings (Brownell et al., 2010; Fuchs, Fuchs, & Compton, 2010; Fuchs, Fuchs, & Compton, 2012; Kennedy & Ihle, 2012; Lenz, Ehren, & Deshler, 2005; Simonsen et al., 2010).

Secondary Multi-tiered Instructional Models

Faced by the challenges of providing high quality, evidenced-based instruction to all students, including culturally and linguistically diverse learners and learners with special needs, researchers and policy makers have proposed tiered schoolwide approaches as prevention models for academic and social behavioral support (Kennedy & Ihle, 2012; Simonsen et al., 2010).

With the reauthorization of IDEA in 2004, a new method was proposed as an alternative to the traditional IQ achievement discrepancy model. The method, termed Response to Intervention (RTI), was identified as an option for identifying children with learning disabilities and as a "means of providing early intervention to all children at risk for school failure"(Fuchs & Fuchs, 2006, p. 93). Two multi-tiered systems hold promise in meeting the numerous demands of secondary schools and their literacy needs are RTI (Fuchs & Fuchs, 2007) and the Content Literacy Continuum (Boudah, 2013).

RTI. Response to Intervention (RTI) and "its role in supporting a paradigm shift in the identification of students with learning disabilities and support of at risk learners" (Murawski & Hughes, 2009, p. 267) has become popular in lectures, at conferences, and within emerging research. Many postulate that RTI can reduce the number of students categorized as learning disabled, provide more opportunity for instruction in the general classroom, and reduce the number of minority students placed in special education (Burns & Yesseldyke, 2005; Fuchs & Deshler 2007; Fuchs & Fuchs, 2007; Fuchs & Fuchs, 2009; Fuchs, Fuchs, & Compton, 2010; Murawski & Hughes, 2009). RTI is typically defined as a multi-tiered model with a continuum of services and interventions for students who struggle academically, with each tier providing a more intensive level of instruction (NJCLD, 2005). Over the past decade several models of RTI have been

introduced such as the problem-solving model, the four-tiered model, and the three-tiered model (Fuchs & Fuchs, 2007; Murawski & Hughes, 2009; Tilley, 2003). Despite varying models and methods of effective RTI, most share similar fundamental characteristics, (a) the use of research-based interventions in general education, (b) curriculum based measures of student achievement, and (c) informed instruction based on data assessment (National Joint Committee on Learning Disabilities, NJCLD, 2005).

Tier 1. Tier 1 in an RTI model occurs in the general classroom and provides core instruction for all students. In Tier 1 it is expected that all students receive high quality, research-based instructional and behavioral supports in the general education setting. Academic supports in this setting are expected to be effective for 80% of the students and student performance is assessed multiple times each school year as a measure (Fuchs & Fuchs, 2007; Murawski & Hughes, 2009).

Tier 2. Tier 2 is considered more intensive intervention and is typically provided in the form of small group tutoring, with sessions occurring 3 to 4 times a week with 10 to 15 students in a group (Fuchs & Fuchs, 2009). Students move to Tier 2 if their level of achievement on the schoolwide benchmark assessments falls below a predetermined level. It is possible for Tier 2 interventions to be conducted in either the general classroom if structured well and staffing permits, or outside the general education classroom by another staff member (e.g. reading specialist, special education teacher). Interventions in this tier are considered short term and are determined through the collaboration of the general education teacher and a specialist. It is estimated that 15% to 25% of students would be served at this level (Murawski & Hughes, 2009). Assessment continues and progress-monitoring data are collected in Tier 2 to determine effectiveness

of the intervention.

Tier 3. Tier 3 is considered the most intensive level of intervention, where students are pulled out into small groups or individually for an extended period of time for intervention. It is estimated that 5% of the school population will enter Tier 3 (Fuchs, & Fuchs, 2007; Murawski & Hughes, 2009). Some consider Tier 3 to be placement in special education. Others feel students can move between the three tiers, based on progress or lack of progress, and only after a student fails to make progress at Tier 3 is special education is recommended (Murawski & Hughes, 2009). Tier 3 requires a teacher with extensive training in the method and delivery of significant interventions to serve students at this level, such as a special education teacher, reading specialist, or tutor (Fuchs & Fuchs, 2009).

Considering the difficulties with scheduling, compliance, and graduation requirements, as well as a lack of research on academic interventions, few researchers have focused on RTI at the secondary level (Fuchs, Fuchs, & Compton, 2010; Sansosti, Telzrow, & Noltemeyer, 2010; Vaughn & Fletcher, 2012; Vaughn et al., 2008; Vaughn et al., 2010).

Vaughn et al (2010) examined the effectiveness of a Tier 1 and Tier 2 literacy intervention within the RTI model, on the reading skills of 248 sixth through eighth grade students with reading difficulties. The researchers conducted professional development for the general education teachers to integrate reading instruction into the regular classroom, then students at risk from those classes were randomly assigned to a "business as usual" group and an intervention group. Using a pretest posttest control group experimental design, they examined the effects of the researcher-designed Tier 2

intervention. Although results indicated some statistically significant effects for certain measures the students who received the intervention outperformed the other group in several measures (e.g., word attack, spelling, comprehension, decoding efficiency), and across measures the median effect size was 0.16. Consequently, the Tier 2 intervention did not increase students' chances of passing the state assessment. The authors noted that the differences between implementation of RTI at the elementary versus the secondary level need to be addressed. Students who have been significantly behind for several years may require different types of interventions at this level and additional research is needed.

In 2011, Sansosti, Goss, and Noltemeyer conducted a qualitative study to examine the perceptions of 17 special education directors on the barriers, facilitators, and implementation of RTI at the secondary level. Two focus groups sessions were conducted and data were recorded, compiled and analyzed to establish emerging themes. Results were compiled into four themes: (a) system structure, (b) roles and attitudes, (c) evidence-based practices, and (d) training and professional development. Important observations made by the special education directors included the need for a clear design for implementation within secondary schools, and co-teaching was suggested as a needed addition to the structure. Also suggested was a need for change in the roles and attitudes of secondary personnel for success with RTI, Further, they suggested significant professional development for implementation was needed, and evidence-based practices were essential. One barrier that was noted was the lack of evidence-based practices and data-driven decisions at the secondary level.

A tiered model of instruction such as RTI cannot stand alone in supporting students with disabilities at the secondary level. Teachers must provide students with interventions and instructional practices established from research-validated principles (Swanson & Deshler, 2003; Vaughn & Fletcher, 2012). In an effort to establish quality, the University of Kansas Center for Research and Learning (KUCRL) developed the Content Literacy Continuum (CLC) to address comprehensive literacy interventions for secondary students.

Content Literacy Continuum. The Content Literacy Continuum (CLC) is a multi-tiered system derived from 30 years of research and development by researchers from KUCRL. The CLC is a system created to increase the content literacy performance of secondary students and designed to help secondary schools sustain comprehensive literacy interventions through effective instruction (Boudah, 2013). Characteristics of the CLC include (a) school-wide commitment to support all learners, (b) universal screening and progress monitoring, (c) research-based instruction, (d) increasingly intensive levels of instruction, and (e) data-based decision making. Interventions focus on helping content area teachers present content in a manner appropriate for adolescent learners, as well as more intensive interventions that teach specific skills and strategies. The continuum is made up of five levels of increasingly intensive interventions: Level 1; Enhanced Content, Level 2; Embedded Strategy Instruction, Level 3; Intensive Strategy Instruction, Level 4; Intensive Basic Skill Instruction, and Level 5; Therapeutic Intervention (KUCRL, 2007). The CLC can be implemented within a general problem-solving approach to RTI and offers an exceptional framework for addressing literacy in secondary schools (Ehren, Deshler, & Graner, 2010).

In 2003, Swanson and Deshler reviewed a previous meta-analysis of eight instructional factors (e.g., questioning, sequencing, segmenting, skill modeling, organization/explicit practice, small-group, technology and scaffolding) in an effort to translate results to practice. The authors found the eight instructional factors encompassed the majority of interventions for literacy instruction for adolescents with learning disabilities. Of the eight, only two instructional components, advanced organizers and explicit practice, contributed significantly to the variance of effect size (16%). From their findings the authors established content enhancement routines and learning strategy instruction as viable instructional practices.

Most recently, Scruggs et al. (2011) synthesized the research from 70 experimental or quasi-experimental studies on content area instruction for more than 2,400 adolescents with disabilities from 1984 to 2006. Effect size was calculated for the different content areas (e.g. science, social studies, English) and for types of interventions. The results indicated moderate to high effect sizes in the areas of science and social studies and the three interventions of greatest magnitude were explicit instruction with a mean effect size of 1.68, mnemonic instruction (M = 1.47), and classroom learning strategies (M = 1.11). Positive overall effect sizes indicated the field had some promising research-based practices for content area instruction at the secondary level.

Summary of Secondary Multi-tiered Models

With the increased emphasis on statewide high stakes testing and the increased popularity of secondary RTI, there is a significant need for more information on effective research-based practices that can be delivered across the tiers (Fuchs et al., 2010; Sansoti

et al., 2010; Sansoti et al., 2011; Scruggs et al., 2011). By the time students with disabilities reach high school they have most likely already been exposed to inadequate interventions in earlier grades, their needs were inadequately addressed, and/or they have failed to respond to research-based interventions (Vaughn & Fletcher, 2012). Therefore, there is a need for studies that focus on interventions for secondary students recognized as inadequate responders (Marchand-Martella, Martella, Moderman, Petersen, & Pan, 2013; Vaughn & Fletcher, 2012). Two widely researched areas that have demonstrated positive effects on the reading skills of a wide variety of students are peer-mediated interventions and repeated reading.

Peer-Mediated Reading Interventions

The growing diversity of ability levels in classrooms today presents a number of instructional challenges for teachers as they strive to provide best practices to improve the educational outcomes for all learners (Hall & Stegila, 2003). One of the most widely researched areas is peer-mediated approaches. Evidence-based peer-mediated approaches, often considered Tier 1 strategies, can serve as an approach that meets the needs of all students regardless of ability level (Abbott, Greenwood, Buzhardt, Wills, & Terry, 2011). Peer-mediated approaches engage students in active learning and complex skills focused on academic tasks (Abbott et al., 2011). The use of these strategies can strengthen differentiation of instruction and provide flexibility in the use of materials and content coverage (Abbott et al., 2011).

The collective body of experimental research on peer-tutoring strategies is vast and spans more than three decades. Positive educational outcomes have been consistently demonstrated for peer-mediated approaches through meta-analyses since the early 1980s

(Bowman-Perrott et al., 2013; Cohen, Kulik, & Kulik, 1982). Additionally, over the years, peer-tutoring research has produced positive results with a range of students from kindergarten through twelfth grade (Bowman-Perrott et al., 2013; Rohrbeck et al., 2003) with students with learning disabilities (Hughes, & Fredrick, 2006; Maheady, Harper, & Sacca, 1988) students with emotional behavioral disabilities (Bowman-Perrott, Greenwood, & Tapia, 2007; Spencer, Simpson, & Oatis, 2009; Staubitz, Cartledge, Yurick, & Lo, 2005), and English language learners (Calhoon, Otaiba, Cihak, King, & Avalos, 2007).

Since that time a variety of models and methods of instruction have focused on or incorporated peer-mediated approaches. Common methods that have been defined and frequently researched are cooperative learning (Johnson & Johnson, 1986; Kagan, 1992; McMaster & Fuchs, 2002); peer mediated instruction and interventions (PMII) (Greenwood, Terry, Delquadri, Elliott, Arreaga-Mayer, 1995; Utley, Mortweet, & Greenwood, 1997), and reciprocal teaching (Palinscar & Brown, 1984; Rosenshine & Meister, 1994). Two of the most widely researched and widely used evidenced-based peer tutoring approaches are Peer-Assisted Learning Strategies, better known as PALS (Bemboom & McMaster, 2013; Calhoun, Otaiba, Cihak, King, & Avalos, 2007; Fuchs, Fuchs, & Kazdan, 1999; Fuchs et al., 2001; McMaster, Fuchs, & Fuchs, 2006), and class-wide peer tutoring (CWPT; Delquadri, Greenwood, Whorton, Carta, & Hall, 1986; Greenwood & Delquadri, 1995; Veercamp, Kamps, & Cooper, 2007). Both strategies are considered evidence-based practices and randomized trails have reported moderate to large effect sizes for each (Abbott et al., 2011; Fuchs, Fuchs, Mathes, & Simmons, 1997;

Greenwood, Kamps, Terry, & Linebarger, 2007; Rohrbeck, Ginsburg-Block, Fantuzzo, & Miller, 2003).

For the purpose of this study the following section will review current research that focuses on peer-mediated reading interventions in which the research is conducted with dyads of same-age peers deemed at risk for reading problems or identified as having a reading disability.

Elementary interventions. There is a great deal of research on implementing peer-mediated approaches at the elementary level; however, the majority has been on the use of PALS or CWPT (see Greenwood et al, 2007; McMaster et al., 2006; Rohrbeck et al., 2003). Given the selection parameters for this review, fewer studies were found that examine the effects of peer-mediated reading interventions with dyads of same-age elementary students. Recent studies that met the previously mentioned criteria are reviewed below.

First, Hofstadeter-Duke and Daly (2011) examined the effects of a peer-delivered reading intervention on the oral reading fluency of a 7-year old first grade student considered at-risk for reading problems. A brief experimental analysis (BEA) was conducted in order to select individualized intervention components for the student and three peers in the student's same grade were trained to lead the student through the structured intervention. For the BEA component, baseline and two conditions, instruction (IN) and instruction with reward (IN+R) were administered. The student showed the greatest improvement in the IN+R condition and therefore that was the model of intervention used during the peer-tutoring condition. A multiple probe design across passages was used to evaluate the student's oral reading fluency (e.g., correct words read

in 1 minute) on select passages. Visual analysis of data showed a clear increase in the student's oral reading fluency and decrease in errors following the introduction of peer tutoring.

Next, Mackiewicz, Wood, Cooke, and Mazzotti (2011) compared the incidental learning of vocabulary words within classroom instruction to the same instruction combined with supplemental peer tutoring. The authors examined the additive effect of peer tutoring with audio prompting on the number of selected target vocabulary words correctly placed in context on posttests. Eight 4th grade students, five who were identified as having a disability and three who were performing below average on classroom reading assessments, were selected for the study. A simultaneous treatment design was used to compare the effects of an incidental learning condition (e.g., students were exposed to target words during core reading instruction) to the same condition with the addition of reciprocal peer tutoring with audio prompting. Results showed greater gains during the peer tutoring with audio prompting condition with the mean performance for all participants was greater for peer tutoring (M = 4.1 of 6) compared to incidental learning (M = 1.2 of 6).

Another study by Marr, Algozzine, Nicholson, and Dugan (2011) examined the effects of a peer coaching fluency building (PCFB) intervention on the oral reading fluency and reading comprehension of 17 2nd grade students at risk for failure. An additional 17 students with similar levels of "at-risk" benchmark scores were selected from other schools to participate in the control group. PCFB was designed as one-to-one practice with targeted students being paired with strong readers and occurred during independent work time at the end of reading instruction. Students in the control group

participated in independent work as normal. Dependent variables included district-wide standardized oral reading fluency and comprehension assessments administered in the fall, winter, and spring. A statistical comparison of pretest and posttest measures of oral reading fluency and comprehension indicated scores were statistically significantly higher for students in the treatment group on posttest measures and effect sizes were moderate (ES =0.41-0.81). Although statistically significant gains were made from pretest to midpoint and from midpoint to posttest for both the control group and the treatment group, the differences were greater for students participating in PCFB. Overall, students who participated in the peer-coaching program showed significant continual growth in oral reading fluency throughout the school year.

Finally, Wood, Mustian, and Lo (2013) investigated the effects of computer-assisted peer tutoring to support instruction of a phonemic awareness program. Four Kindergarten students identified as at-risk for reading failure from a public elementary school participated in the study. The dependent variable measured was phoneme segmentation fluency, defined as the number of correctly segmented phonemes in 1 minute. During baseline, students participated in a published reading program, however no supplemental phonemic awareness instruction was given and the students continued to struggle with these skills. Pairs were trained using a PowerPoint presentation containing slides of picture cues modeling the script. During intervention, tutors followed procedures from the computer-assisted peer tutoring, and a phonemic awareness probe was given at the end of each session. Using a multiple probe design across students, the authors evaluated the effects of the computer-assisted peer tutoring on students' phoneme segmentation fluency. Visual analysis of data showed a functional relation between

computer-assisted peer tutoring and an increase in phoneme segmentation fluency, with three of the four students showing an immediate change in level and trend and the fourth demonstrating a gradual but continual increase in trend. A posttest, spring benchmark assessment, revealed all students who participated in computer-assisted peer-tutoring moved out of the "At Risk" status, with three of the four placing in the "Established" range and the fourth in the "Emerging" range on final benchmark assessments.

Secondary Interventions. The same selection criteria used for elementary studies was applied to the selection of peer-tutoring studies for secondary students; however, studies that examined the effects of peer tutoring on the reading skills of secondary students are limited. Five studies are reviewed below.

First, Mastropieri et al. (2001) investigated the effects of pairing middle school students with learning disabilities and mild intellectual disabilities together to tutor one another using reading comprehension strategies to increase reading comprehension performance. Twenty-four students with disabilities ages 12-13 were selected as participants. Based on standardized reading test scores, students were ranked from highest to lowest performance and paired together accordingly (e.g., #1 with #13; #2 with #14) Twelve dyads of higher and lower readers were randomly assigned to either the tutoring or control condition. Dyads in the tutoring condition practiced reciprocal tutoring and were trained on a modified PALS model including preview, oral reading, error correction, and summarizing procedures. Pairs in the control condition received traditional instruction (e.g., instruction, questions, oral reading, silent reading, worksheets). There were no significant differences between the groups performance on the pretest; however, posttest scores were significantly higher for the tutoring group

showing a statistically significant difference (t (19)=2.72, p=0.013). Qualitative data compiled from teachers' journal entries, surveys, interviews, and observational data revealed positive support for peer tutoring from both students and teachers.

Next, Mastropieri, Scruggs, Spencer, and Fontana (2003) compared the outcomes of two conditions: peer-tutoring and teacher-directed guided notes on the academic achievement of 16 10th grade students with mild disabilities in a special education world history class. Students were trained in the tutoring procedures (e.g., oral reading, questioning, summarizing) and each served as both the tutor and tutee throughout the intervention. The guided notes condition was considered traditional instruction. Both conditions occurred over a nine-week quarter and dependent measures included pretest and posttest measures of fluency and comprehension, and content test performance. No significant differences were found on the oral reading fluency and comprehension measures, but findings revealed student performance on content area tests were significantly higher in the peer tutoring condition than the performance of students in the guided notes condition. Furthermore, students who participated in the tutoring condition performed higher on the end-of-year content assessment than students who received guided note instruction.

Additionally, Spencer, Scruggs, and Mastropieri, (2003) replicated this study in a self-contained setting with 7th and 8th grade students with emotional disabilities. The authors replicated all instructional procedures as previously described, however, using a crossover design, each student participated for two weeks in the instructional condition and two weeks in the peer tutoring condition. Results indicated students' recall of content was significantly higher and on-task behavior improved during peer tutoring instruction.

Another study by Wood, Mustian, and Cooke (2012) examined the comparative effects of morphograph instruction and whole-word vocabulary instruction along with the use of computer- assisted peer tutoring on the acquisition and generalization of vocabulary words of eight 7th grade students with disabilities. All students were trained on reciprocal tutoring steps (tutoring and feedback) and students received instruction on following the script format using a PowerPoint presentation for both whole word and morphograph conditions. Each student acted as both the tutor and tutee during intervention. Dependent variables measured through pretests and daily probes were the acquisition of vocabulary (e.g., the number of words directly taught and correctly selected on multiple choice probes) and generalization of vocabulary (e.g., the percentage of novel words that included a morphograph from the directly taught words). Authors used a simultaneous treatments design to evaluate the effects of whole word instruction versus morphograph instruction on vocabulary acquisition and generalization. Results showed the percentage difference between the two conditions to favor the morphograph condition with a difference of more than 20 percentage points (M=26.9%) for four of the students and more than 9 percentage points (M = 10.9%) for three other students. In the morphograph condition the mean was 82.9% as compared to 65.4% in the whole word condition. Finally a continuous data path showed percent correct on generalization words was higher for all eight students in the morphograph condition. Social validity measures indicated all students enjoyed being the tutor and seven of the eight students stated they enjoyed interacting with the computer program and would like to use it again.

Most recently, Scruggs, Mastropieri, and Marshak (2012) compared the effects of peer tutoring with specialized materials to traditional classroom instruction in 10 middle

school inclusion social studies classes over an 18-week period. Participants included 133 general education students and 24 students with disabilities assigned at random to a traditional instruction condition or the experimental peer tutoring condition. The teacher paired tutoring dyads together based on who would work well together, however, no two students with disabilities were paired together. Students assigned to the tutoring condition received training and critical target content was developed into tutoring materials. Tutoring pairs proceeded through the materials (including target and non-target content) and recorded their performance. During the traditional condition the teacher directed all aspects of instruction (e.g., lecture, class notes, class activities). All students participated in a pretest and posttest measure and results indicated students with and without disabilities in the peer tutoring condition outperformed students in the traditional condition. Pretest and posttest measures were analyzed using an ANOVA and statically significant main effects were observed for the experimental condition F (1, 153) = 8.96, p. = .003). Effect sizes (ES) for peer tutoring fell within the moderate to high range, with an ES of 0.57 for general education students and an ES of 0.74 for students with disabilities. Consequently, student feedback was uniformly positive for peer tutoring suggesting most students enjoyed working with partners and saw the benefits of practicing material with another student.

Summary of Peer Mediated Reading Interventions

Special education has produced a substantial amount of empirical research on the effects of peer-mediated interventions. Across ages, content, and ability levels, peer-mediated reading interventions have been shown to be effective in increasing the academic performance and reading skills of students with and without disabilities (e.g.,

Hofstadeter-Duke & Daly, 2011; Huang, Nelson, & Nelson, 2008; Mackiewicz et al., 2011; Mastropieri et al., 2003; Scruggs et al., 2012; Wood et al., 2012; Wood et al., 2013). Peer-mediated approaches can strengthen Tier 1 instruction by increasing opportunities for differentiation in general education classrooms and can provide a viable option for small group instruction at Tier 2 (Abbott et al., 2011). Another area that has potential as a multi-tiered intervention and has demonstrated positive effects on the reading skills of a wide variety of students is repeated reading.

Repeated Reading Interventions

Repeated reading is a fluency intervention in which a student reads the same connected text multiple times until done smoothly, effortlessly, and automatically (Hudson, 2011; Meyer & Felton, 1999). Repeated reading is based on the concept of automaticity; that is, students' gain fluency to the point at which the reading skill becomes effortless and automatic (Leberge & Samuels, 1974). Researchers have examined the effects of a number of methods and variations of repeated reading interventions. Certain variations focused on reading until a defined rate has been met (Herman, 1985; Samuels, 1979) or reading connected text a specific number of times (Homan, Klesius, & Hite 1993). Specific methods studied include students reading independently (Dahl, 1979) with assistance from a peer (Mathes & Fuchs, 1993; Musti-Rao, Hawkins, Barkley, 2009; Oddo & Staubitz, 2010; Yurick, Robinson, Cartledge, Lo, & Evans, 2006), with an adult (Vadasy & Sanders 2008), or in a small group (Begeny, Krouse, Ross, & Mitchell, 2009; Kuhn, 2004). Additionally, researchers have studied the effect of repeated reading with average readers, students at risk, and students with disabilities (Chard, Vaughn, & Tyler, 2002; Meyer & Felton, 1999; NRP, 2000) and

found some to be more effective than others, especially with students with learning disabilities (Hudson, 2011). One major reason for focusing on repeated reading for fluency development is the theoretical relationship between fluency and comprehension and the premise that fluent reading allows the reader to attend more to meaning than to mechanics (Adams, 1990; Meyer & Felton, 1999; Samuels, 1979). This is a critical skill for all students but more so for secondary students whose coursework requires a comprehensive understanding of complex text.

For decades teachers have used repeated reading approaches to improve students' reading fluency. One of the first to investigate what is now commonly called repeated reading was Samuels in 1979. In an effort to increase the reading rate of students, the author had students read short, simple passages repeatedly until a rate of 85 wpm was reached. Results showed that the number of word recognition errors decreased while reading speed increased and students were able to generalize fluency between texts (Samuels, 1979).

More recently, the National Reading Panel (NRP; 2000) explored 16 studies of guided oral repeated reading which used a variety of instructional methods. Upon analysis, the NRP found repeated oral reading to have a moderate effect on reading achievement (e.g., ES of 0.44 for reading rate and accuracy; ES of 0.35 for comprehension) for students of all ages and ability levels (NRP, 2000). Consequently, an extensive amount of research on the positive effect of repeated reading on the oral reading fluency of students has been conducted (Begeny et al., 2009; Begeny, 2010; Chard, Ketterlin-Geller, Baker, Doabler, & Apichatabutra, 2009; Huang, Nelson, & Nelson, 2008; Morgan, Sideridis, & Hua, 2012; Nanda & Fredrick, 2007; NRP, 2000;

Przychodzin-Havis et al., 2005; Therrien, 2004; Wexler, Vaughn, Edmonds, & Reutebuch, 2008). Therefore, two research summaries of repeated reading will be reviewed.

First, Therrien (2004) conducted a meta-analysis to determine the effects of repeated reading on the fluency and comprehension of both nondisabled (ND) students and students with learning disabilities (LD). Effect sizes were calculated for two dependent measures: non-transfer measures (i.e., measures of comprehension and fluency by reading the same passage multiple times) and transfer measures (i.e., measures of comprehension and fluency by reading a new passage after reading different passages multiple times). The overall analysis indicated that repeated reading showed a moderate mean increase in fluency (ND students *ES*= .76; students with LD *ES* = .77) and a smaller mean increase in comprehension (ND students *ES* = .48; students with LD *ES* = .59) of both nondisabled students and students with LD.

Second, in 2009, Chard et al. examined research on the efficacy of repeated reading for increasing reading fluency for students with disabilities and students at-risk. Using standards and quality indicators for research established by Horner et al. (2005) and Gersten et al. (2005), the authors found repeated reading did not meet the criteria to be considered an evidence-based practice for students with disabilities. However, the authors felt their findings were more a reflection of the intense rigor required to produce quality research rather than the ineffectiveness of repeated reading measures, and they were strongly reluctant to suggest that teachers cease implementing repeated reading interventions. The most significant reason for this conclusion was that, while few studies met the rigorous criteria for high-quality research, the meta-analyses reviewed produced

effect sizes that suggested repeated reading "is likely to positively affect fluency outcomes for students who are building fluency" (Chard et al., 2009, p. 278).

Elementary repeated reading. There is empirical support for the practice of repeated reading to improve the oral reading fluency and comprehension for younger students. Numerous studies, along with several meta-analyses have been conducted to measure the effects of repeated reading on the reading fluency of elementary students (Begeny et al., 2009; Chard et al., 2002; Hapstak & Tracey, 2007; Nanda & Fredrick, 2007; Therrien, 2012; Wanzek, Wexler, Vaughn, & Ciullo, 2010).

In 2002, Chard et al. conducted a meta-analysis of studies that focused on fluency interventions for elementary students with learning disabilities. Within the analysis, 21 of the 24 studies included examined the effects of repeated reading on fluency, accuracy, and/or comprehension of students with learning disabilities. The research design of the studies varied (group, single case, case studies) and a standardized mean difference effect size was calculated for studies that reported enough information. The results of other studies were reported in a narrative summary. For fluency outcomes the authors found average effect sizes for repeated reading without a model (ES = 0.68) and an ES of 0.71 for interventions that included additional features along with repeated reading. Overall findings suggested a correlation between repeated reading interventions and improvements in reading accuracy, rate, and comprehension.

Hapstak and Tracey (2007) investigated the effects of assisted repeated reading on fluency acquisition of four first grade students of varied reading ability (a) a student with a specific learning disability, (b) an ELL student, (c) an at-risk reader, and (d) a general education student. Leveled reading books were used for probes, baseline passages were

read, WCPM were recorded for five days, and the scores were averaged. During intervention, each student completed an initial, one-minute timed reading. After reading, the teacher corrected errors and modeled the passage and the student reread the passage twice. Next, a final reading was completed and recorded. A pretest and posttest assessment was used and initial reading score and final reading scores were graphed for analysis. Results showed an increase in fluency and accuracy from baseline to intervention, and between initial and final readings for all students.

Begeny et al. (2009) conducted a study to investigate the effects of three small-group interventions (listening passage preview, repeated reading, and listening only) that focused on improving the reading fluency of four, second-grade students from a rural elementary school in the Southeast. In the listening passage preview (LPP) condition, the group of students were given a copy of the passage and followed along as the trainer read the passage aloud twice. After the second reading, the students were scored reading the passage independently. In the repeated reading condition (RR), the trainer selected a group leader and the leader read the passage aloud while the other students read aloud slightly softer than the leader. If the leader came to an unknown word the trainer provided word aloud and the leader continued. The process was then repeated with a new group leader. After the second reading, the students were scored in the same manner as the LPP condition. Last, in the listening only condition (LO), the students listened to the trainer read the passage twice. No copies of the passage were provided to the students for preview. Students were then scored in the same manner as the other two conditions. An alternating-treatment design was used to analyze the effectiveness of each condition. A control condition (e.g., the students simply read three unpracticed passages) was also

used to evaluate the effectiveness of each intervention condition. Median WCPM were scored for all passages and for all conditions, and the results indicated that the control condition (CL) resulted in the fewest WCPM for both immediate and retention measures. On the measures of both immediate and retention WCPM gains, all intervention conditions outperformed the CL condition for all participants, and the RR condition produced more immediate WCPM gains than the other conditions for all participants.

Secondary repeated reading. While the research on repeated reading as a fluency intervention for high school students is sparse, positive findings on the effects of repeated reading for secondary students have been reported in recent years (Hawkins, Hale, Sheeley, & Ling, 2011; Roberts, Torgesen, Boardman, & Scammacca, 2008; Valleley & Shriver, 2003; Wexler et al., 2008; Wexler, Vaughn, & Roberts, 2010).

Valleley and Shriver (2003) investigated the effects of repeated reading on the reading fluency and comprehension of four secondary students. The four participants were from a residential treatment facility and ranged in age from 10 to 18 and were nominated by their caseworkers as having difficulties in reading. Additionally, participants had a reading rate of 30 to 50 words per minute correct (WPM-C) and scored below the standard score of 85 on the Woodcock Reading Mastery Tests (WRMT-R). Four students at the facility with average reading ability served as the comparison group. Using passages from a timed reading series program, students were assessed at their instructional level, a ninth grade level, and generalization on passages from their school curriculum. Participants reread the passages until they demonstrated three consecutive fluency improvements. Fluency was defined as the number of words read correctly per minute and improvement was defined as one more WPM-C. Comprehension was

measured using recall questions from social studies and English generalization probes, multiple-choice questions from timed readings, and cloze readings created from ninth grade passages. A multiple baseline across participants was used to analyze the effects of repeated reading on fluency and visual analysis of the data showed all participants reading rate increased from baseline to intervention. Each Participants highest WPM-C occurred during baseline. Additionally, pretest and posttest measures were administered and all participants increased their reading fluency (WPM-C) on both the ninth grade and generalization passages; however, none of the participants demonstrated gains on the standardized measure (WRMT-R). No significant change was shown in comprehension; however, overall results showed an increase in reading fluency across topics and passages as a result of repeated reading.

In 2008, Vandenberg, Boon, Fore, and Bender examined the effectiveness of repeated readings on the oral reading fluency and comprehension of three 10^{th} and 11^{th} grade students with specific learning disabilities. Participants were selected based on their need for remediation in reading fluency and the study was conducted in the students' special education resource classroom. Fourteen passages were selected based on students' instructional level and a comprehension measure was given along with each passage. A multiple probe design across participants was used to determine a relationship between repeated reading and fluency (e.g., the rate of words read correctly) and comprehension (e.g., the number of correct comprehension questions per passage). During baseline students were given an unpracticed passage and the experimenter timed each student's reading and recorded errors. Students were then given a comprehension test for the passage. They were not allowed to use the passage during this measure. In intervention,

students were given a selected passage to read as many times as necessary until a predetermined fluency criterion was reached. The experimenter recorded errors and the student wrote the errors on note cards for review. The student and the examiner calculated WCPM and charted each reading. When criterion was met the comprehension measure was given. Visual analysis of results showed that repeated reading contributed to an increase in oral reading fluency and comprehension accuracy of both practiced and unpracticed passages for all three students. Furthermore, all three participants stated they liked the repeated reading intervention and felt more confident about reading aloud after completion of the study. Limitations for this study include the small number of participants and the duration of the study, which was only 41 sessions.

Wexler et al. (2010) investigated the efficacy of repeated reading and wide reading practice in a peer-pairing format on the comprehension, fluency, and word-reading skills of high school students with severe reading disabilities. Ninety-six students in grades 9 through 12 were paired within classes and randomly assigned to one of three groups; repeated reading, wide reading, or typical instruction. In the repeated reading group ($N = 33$) each partner in each pair read the same text three times daily and error correction and summarization were included in this condition. The wide reading group ($N = 34$) followed similar procedures as the repeated reading group; however, each partner read three different texts, one time. Error correction and summarization were also included in this condition. The control group ($N = 29$) participated in typical daily instruction, which consisted of students quietly reading and answering comprehension questions independently. A pretest and posttest assessment for fluency, comprehension, and word identification was given and descriptive statistics were calculated for all

conditions. Overall, no statistically significant differences were noted for any condition and only mild effect sizes were found (ES 0.31 to 0.27). As a result, authors suggested high school students with severe reading deficits may require more explicit and intensive interventions to improve fluency and comprehension. The authors also noted that chronic absenteeism of participants and the use of complicated expository text were critical limitations to this study and more research on this topic is warranted.

Another study conducted by Hawkins et al (2011) examined the effects of repeated reading (RR) and RR with a vocabulary preview component (VP) on the reading fluency, comprehension, and comprehension rate of high school students reading below grade level. Six 10th and 11th grade students were selected for the study. All students were receiving special education services, each met the criteria for a specific learning disability in the area of reading, and all were reading at least one level below their current grade level. An adapted alternating treatment design was used to compare the effects of the two intervention procedures (e.g., RR & RR+VP) as well as a control condition. Dependent variables were (a) the number of words read correctly in one minute, (b) the percentage of comprehension questions answered correctly, and (c) the percentage of comprehension questions answered correctly divided by the total number of seconds taken to read the passage multiplied by 60. In the control condition, students read at their normal pace and answered 10 multiple-choice comprehension questions. Word read correctly during the first minute and the total time to read the entire passage was also recorded. In the RR condition, students read passages aloud and misread words were recorded and written on index cards. The students then reread the index cards until each word was read correctly three times, then students were instructed to read the passage aloud again. During the

second reading the number of words read correctly was recorded during the first minute as well as the time it took the student to complete the entire passage. Finally, in the RR+VP condition, students were first presented with index cards of key vocabulary words and definitions from the reading passage. Students reviewed the words and definitions on their own and then read and defined the words aloud for the examiner. Once each word was read and defined correctly three times the procedures for the RR condition were followed. Visual analysis of the data showed that all participants had higher reading fluency, comprehension, and comprehension rate in the treatment conditions as compared to the control condition. Additionally, four students had consistently higher fluency rates in the RR+VP condition and three students showed higher comprehension levels in the RR+VP condition. Findings from this study are consistent with previous repeated reading research on the increase in reading fluency (Valleley & Shriver, 2003) and improved comprehension for high school students (Therrien, 2004; Wexler et al., 2008).

Peer-mediated repeated reading interventions. Several studies were found that combined repeated reading interventions with peer tutoring approaches. All were conducted with elementary students.

First, in 2006, Yurick, Robinson, Cartledge, Lo, and Evans conducted a series of three experiments to explore the effects of peer-mediated repeated reading on the oral reading fluency and comprehension of eight 5th grades students. A multiple baseline design across participants was used in each experiment. In the first experiment, students participated in paired repeated reading for 10 minutes and their performance was compared with a sustained silent reading condition. To reach fluency students were

required to read a minimum of 180 words with 10 or fewer errors and answer five comprehension questions to reach fluency. Results showed students in the repeated reading condition demonstrated a mean increase of 68 wpm over the sustained silent reading condition and all but one student mastered sixth-grade fluency criterion. Next, repeated reading was implemented classwide, and oral reading fluency data were collected on eight 3rd grade students who demonstrated reading difficulties. In addition to collecting data on students' reading rate of practiced passages, generalization was measured each week on unpracticed passages. Results indicated all students performed higher on unpracticed passages than in baseline (78.5 wpm vs. 58.7 wpm); however, none of the students reached the fluency criterion of 145 wpm on unpracticed passages. In the final experiment, six general education 4th grade students participated in repeated reading sessions outside their regular classroom. Fluency criterion was the same as that in experiment 1 and 2 with minor differences in error correction and students began at a lower reading level and advanced when mastery was reached. Three different generalization conditions were examined; covertly timed, overtly timed, and overtly timed with a charting component. Authors found the greatest improvements when students were overtly timed and charted their performance. The collective results of these experiments demonstrate the effectiveness of repeated readings on the oral reading fluency rates of elementary students.

Next, Musti-Rao, Hawkins, and Barkley (2009) investigated the effects of a peer-mediated repeated reading intervention on the oral reading fluency of twelve 4th grade students at risk for reading failure. Students were selected based on at-risk identifiers on the Dynamic Indicators of Basic Early Literacy Skills (Good & Kaminski, 2002). Six of

the 12 students received special education services. During baseline all students participated in sustained silent reading and were assessed using a progress monitoring passage. Prior to beginning intervention, pairs of students were trained separately on the repeated reading and reciprocal tutoring procedures. During intervention, students alternated reading passages for 10-minutes and then each read the passage individually for 1 minute. Correct words per minute were recorded. A multiple baseline was used to evaluate the effects of repeated reading on the oral reading fluency (CWPM) of students. Visual analysis indicated an increase in the fluency rates of all students with the introduction of peer-mediated repeated reading intervention and overall intervention data indicated a mean percentage change of 39.8% for the group, resulting in an estimated moderate to large effect on students' oral reading rate.

Finally, Oddo, Barnette, Hawkins, and Musti-Rao (2010) examined the effectiveness of a peer-mediated repeated reading group on the reading fluency and comprehension of four 4th grade students at risk for reading problems. Given the odd number of students in the class, students were placed in groups of four or five and students were trained on reciprocal peer tutoring, error correction, and repeated reading procedures. Both oral reading fluency and comprehension were assessed. Only four students were targeted for intervention and a multiple baseline across participants was used for evaluation of their performance. Visual analysis of results showed a functional relation between students' oral reading fluency and comprehension and peer-mediated repeated reading. All four participants demonstrated moderate improvement in oral reading fluency and a minimal increase in comprehension as a result of the peer-mediated repeated reading intervention.

Summary of Repeated Reading Interventions

Reading fluency is typically viewed as a skill mastered early in the primary grades (NRP, 2000) and therefore, once students reach middle grades and beyond, fluency instruction becomes minimal. Yet, many secondary students continue to struggle with fluency and comprehension and these difficulties are compounded at the high school level with the increased amount of content reading (Hawkins, Hale, Sheeley, & Ling, 2011). Guided oral repeated reading has been shown to have a positive impact on students at all grade levels (Hawkins, Hale, Sheeley, & Ling, 2011; NRP, 2000; Roberts, Torgesen, Boardman, & Scammacca, 2008; Vandenberg, et al., 2008; Wexler, Vaughn, & Roberts, 2010; Wexler, Vaughn, Edmonds, & Reutebuch, 2008). Resarchers have noted that reading programs that do not include components to enhance reading fluency for struggling readers cannot be considered complete (Mastropieri, Leinart, & Scruggs, 1999). As a result, over the past two decades published reading programs have begun to incorporate fluency components or have been designed to specifically address students' reading fluency.

Published Repeated Reading Programs

While the majority of research on repeated reading has been conducted at the elementary and middle school levels, the research on repeated reading has yielded a number of effective programs for students with reading difficulties. Research has shown that programs that incorporate repeated reading components have shown to be effective in improving the reading fluency and comprehension of students with reading difficulties (Begeny et al., 2009; Begeny, 2010; Nanda & Fredrick, 2007; Przychodzin-Havis et al., 2005; Therrien, 2004; WWCH, 2008).

Three published programs that integrate repeated reading components and have shown positive results in improving the reading fluency and comprehension of students with reading difficulties are Corrective Reading (Engelmann, Haddox, Hanner, & Osborne, 2002), Read Naturally (Ihnot, 1992), and Great Leaps (Campbell, 1998). Although the majority of the research for these programs has been conducted at the elementary level, there has been a small amount of research conducted with the programs that has shown promising results in increasing the oral reading fluency and comprehension of secondary students (Berkley, Mastropieri, & Scruggs, 2011; Harris, Marchand-Martella, & Martella, 2000; Lingo, 2014; Lingo, Slaton, & Jolivette, 2006; Marchand-Martella, Martella, Orlob, & Ebey, 2000; Mercer, Campbell, Miller, Mercer, & Lane, 2000; Przychodzin-Havis et al., 2005; Scott & Shearer-Lingo, 2002; Steventon & Fredrick, 2003; Strong, Wehby, Falk, & Lane, 2004; Walker, Jolivette, & Lingo, 2005).

Corrective Reading. Corrective Reading is a Direct Instruction program with a strong emphasis on decoding that includes a repeated reading component and has been shown to improve students' decoding and reading fluency (Engelmann et al., 2002). The program is designed for implementation with 3rd through 12th grade struggling readers and contains two strands: decoding and comprehension. The decoding levels focus on decoding, fluency, and informational text, and the comprehension level address critical reading and literal and inferential comprehension. In the decoding program, repeated reading is used to promote reading fluency. Participants complete multiple readings within the teacher-directed lessons, and also through partner readings. Fluency and accuracy are monitored through reading checkouts; however, in the overall Corrective

Reading program, the fluency criteria are minimal (Marchand-Martella, Slocum, & Martella, 2004). Over the past 14 years several studies have been conducted on the effects of the Corrective Reading Program on the reading achievement of secondary students' with disabilities.

In 2000, Marchand-Martella et al. examined the effects of a peer delivered Corrective Reading Program (CRP) and repeated reading on the reading comprehension of 22 ninth grade students in a rural high school in the Pacific Northwest. Participants were placed in either Decoding B1, B2, or C based on the program placement test and 10th and 12th grade peers delivered the instruction. Using a pre-experimental one-group pretest-posttest design, participants were assessed using the Gates-MacGinitie Reading Tests and results showed an increase of 1.5 grade levels in reading comprehension, an increase in reading fluency and stable performance in the area of vocabulary. The authors indicated the lack of a control group as a limitation to the study, and suggested future research should include a control group to show significance of the program and increase experimental control.

A similar study was conducted by Harris et al. in 2000 to analyze the effects of high school peers delivering the Corrective Reading Program (CRP) with repeated reading to increase the reading performance of 9th and 10th grade peers, reading at least 2 years below grade level and at risk for school failure. Seventy-seven 11th and 12th graders delivered the CRP to 88 ninth grade students. Based on placement tests, students were placed in either level B1, B2, or level C and the intervention was conducted five days a week for 50 minutes. Data were collected on the Gates-MacGinitie Reading Tests, oral reading fluency and accuracy, and the number of repeated readings. Results indicated the

median grade placement of participants increased approximately two grade levels on the Gates-MacGinitie vocabulary and comprehension subtests and oral reading fluency and accuracy increased for participants in all components (i.e., B1, B2, C). Finally, the authors noted the number of repeated readings decreased by 4.2 repetitions for B1 and by 2.9 for level C. This finding was interesting given the fact that passages gradually increased in difficulty, indicating students became more fluent readers because they were reading more difficult passages with less practice at the end of the of the program.

Steventon and Fredrick (2003) investigated the additive effects of a repeated reading intervention on the oral reading fluency of three middle school students participating in the Corrective Reading Decoding B1 program. A multiple baseline across participants was used to evaluate the effects of the repeated reading intervention on reading fluency and generalization of fluency. After completing the Decoding B1 lesson, the teacher followed the reading checkout procedures for students in baseline, reading the passage only once. Students in the intervention phase orally read the checkout passage three times before scoring the fourth reading as the official reading checkout. Data were collected on accuracy and rate of the fourth passage for participants and results indicated all students increased their mean of correct words read per minute with the repeated reading intervention by reading 20% faster than their baseline mean for two consecutive days.

Strong et al. (2004) examined the effects of a repeated reading intervention in conjunction with instruction in the Corrective Reading Program on the reading fluency of seventh (n = 2) and eighth (n = 4) grade boys in a self-contained school for students with emotional and behavioral disorders. A multiple baseline across participants was used to

measure the effects of Corrective Reading and repeated reading on fluency. During baseline, students received their standard classroom instruction. There were then two phases of intervention: Intervention I, the Corrective Reading Program and Intervention II, repeated reading. All participants received Intervention I together daily for seven weeks, then students were pulled in pairs (Group 1,2, and 3) and Intervention II, repeated reading of CRP passages, and Great Leaps passages, was added to the instruction. Results indicated all students demonstrated moderate growth in oral reading fluency during implementation of the CRP, four of the six students showed increased oral reading rates (i.e. words correct per minute) during the repeated reading component and the four students also showed an increase in correct responses to comprehension questions.

A meta-analysis conducted by Przychodzin-Havis et al. (2005) investigated the effects of the Corrective Reading Program (CRP) on students' reading skills. Twenty-eight studies were included for review based on analysis of dependent measures, research designs, student populations and outcomes. Participants in the studies ranged from third to twelfth grade, were identified as having a disability or at risk, and implementation with the participants occurred in a variety of settings and with different instructors (e.g., peer tutor, paraprofessional, teacher). Twenty-three of the studies examined the effectiveness of the CRP delivered by teachers and five examined the effectiveness of CRP delivered by paraprofessionals. Twenty-six of the studies (92.8%) showed positive results for students taught using the Corrective Reading Program. For the studies using standardized measures, students' vocabulary and comprehension scores increased from pretest to posttest after instruction in the program. Additionally, the authors noted that, based on their analysis, CRP could serve as one possible solution to the limited amount of

instructional resources for secondary students at risk for academic failure.

Finally, Lingo et al. (2006) investigated the effects of the Corrective Reading Program (CRP) on the oral reading fluency and social behaviors of seven middle schools students in an urban middle school in the southeast. Three sixth graders and four seventh graders from two resource classrooms were selected and placed in the CRP based on performance on the program placement test. Using a multiple probe across participants, baseline data were collected using both CRP passages and grade level passages and once baselines were stable the first participant began intervention. During intervention, academic data were collected on oral reading fluency and direct observation data were collected using a 30-second partial interval recording method to record appropriate or inappropriate behavior. Seven general education students were used as comparison during behavioral observations. Results indicated several positive findings related to students reading performance; (a) all participants exhibited an increase in correct words read per minute (CWPM) from baseline, (b) each participant showed an increase in oral reading fluency on grade level generalization measures, and (c) six of the seven participants displayed an increase in overall reading ability based on the Woodcock Johnson Reading Mastery Test. Results of the behavior measure did not indicate a relationship between improved oral reading and a decrease in inappropriate behaviors. None of the participants showed improvement in behavior when engaged in reading activities.

Read Naturally**.** Another published program that incorporates repeated reading is Read Naturally (Ihnot, 1992). Read Naturally is a reading program designed for elementary and middle school students that focuses on improving reading fluency,

accuracy, and comprehension through the strategies of story modeling, repeated reading, and systematic monitoring. Students progress through the program independently using a text and audio version, a computer based version, or web based version.

The repeated reading component in Read Naturally is designed to increase oral reading fluency. Students independently practice 1 minute timed readings to build mastery and when they feel the can achieve their goal, they notify the teacher and he or she conducts a "pass timing." During the timing, students are evaluated using four criteria; (a) reaching goal rate, (b) making three or fewer errors, (c) reading with appropriate phrasing, and (d) correctly answering comprehension questions. Students move on to the next passage if they meet criteria, if not, they continue practicing and repeat the "pass timing" again. There have been several studies that have evaluated the Read Naturally Program; however, only a few were found that focus on fluency and comprehension for students with disabilities.

Denton, Fletcher, Anthony, and Francis (2006) investigated the effects of two intensive tertiary interventions on the decoding and fluency skills of 27 students in 1st, 2nd and 3rd grade with severe reading difficulties. Students received two 8-week interventions, first Phono-Graphix for decoding, and then Read Naturally for fluency. The authors used a multiple baseline design across groups and between interventions. For data analysis they focused on within-group pretest and posttest comparisons using standardized assessments (i.e., TOWRE, WJ-III, and GORT-4). Results indicated students showed significant growth in both decoding and fluency, gains in fluency and decoding on standardized measures and moderate to large effect sizes in decoding, fluency and comprehension.

Gibson, Cartledge, Keyes, and Yawn (2014) examined the effects of a repeated reading intervention on the oral reading fluency, comprehension, and generalization of eight 1st grade students at risk for reading difficulties. Using a multiple probe across participants, data were collected on oral reading fluency and word retell fluency on two treatment phases and generalization probes. Each student was trained to use the Read Naturally Software and engaged with it daily during intervention. There were two phases to the intervention. Phase I used the end-of –year benchmark (40 CWPM) for criteria. In Phase II, fluency criteria were individualized based on Phase I. Results indicated an increase in oral reading fluency and comprehension in both phases; however, generalization was minimal after implementation of Phase II. The average CWPM in baseline of the four participants was 17.8 CWPM and the average increased to 77.2 CWPM after completion of Phase II. For word retell, during baseline, participants averaged 9.9 words retold per minute and at the end of Phase II, average words retold per minute increased to 21.6.

Great Leaps Reading Program. Lastly, a repeated reading intervention that has yielded promising results with struggling readers is the Great Leaps Reading Program (Campbell, 1998). The program uses standard repeated reading techniques, including single word speed drills that have been identified as effective training exercises (Meyer & Felton, 1999). Great Leaps consists of three areas of assessment; Phonics, Phrases, and Stories, and is designed to increase students' oral reading fluency through repeated, timed reading. Each student is timed for one minute per section: (a) *Phonics* consists of reading letter sounds, and then increasing to consonant blends, CV-VC, CVC, CCVCC words; (b) *Phrases* consists of a short series of words to be read together beginning with high

frequency words (I am, she was, he is) and then increasing to longer and more advanced phrases that incorporate common sight words such as, “almost old enough to drive alone;” and (c) the *Stories* component consists of short passages or poems, both fiction and nonfiction, that increase in difficulty as the student goes through the passages. Once the student reads each passage without error in one minute, he or she moves on to the next passage. The intervention is conducted daily for approximately 5 to 10 minutes and can be conducted by a teacher or peer. The program is an efficient, nonintrusive, individual intervention that has been shown to increase reading fluency in elementary and middle school students with reading disabilities. To date, few studies have been published using the Great Leaps Reading Program to increase oral reading fluency skills of students with disabilities or at risk for school failure.

First, Mercer et al. (2000) conducted a study to determine if the GLRP could be implemented by paraprofessionals and could increase the reading fluency of middle school students with learning disabilities. Forty-nine middle school students identified as having learning disabilities participated in a pretest-posttest three-group experimental design study with each of the three groups receiving the intervention for a different period of time (i.e., 6-9 months, 10-18 months, and 19-25 months). Students with the most severe reading disabilities were placed in the 19-25 month group. A grade level assessment and CBM were used for pretest and posttest measures and fluency scores were compared. Hypotheses were tested using a dependent *t* test and indicated statistically significant results for both CBM fluency and grade level scores. All three groups made significant progress in reading during the intervention and the groups that received the intervention for the longest period of time showed a higher level of growth.

Limitations included one-to-one instruction due to the limited staff and time available and suggest future research should consider an additional reading comprehension measure along with fluency measure.

Scott and Shearer-Lingo (2002) examined the effects of the Great Leaps Reading Program (GLRP) along with an additional reading program, Teach Your Child to Read in 100 Easy Lessons, TYC (Engelmann, Haddox, & Bruner, 1983), in increasing the oral reading fluency of three middle school students with emotional and behavior disorders (EBD). TYC was initially used to establish whether students had the skills necessary to participate in the GLRP. The purpose of the study was to examine the effects of the GLRP on the reading levels and on-task behavior of three seventh grade boys in a self-contained EBD classroom. A multiple baseline across subjects design was used to measure students' reading fluency and on-task behavior. Results indicated a marked increase in on task behavior (90%) and also an increasing trend in reading fluency for all three participants with the GLRP. In addition, this study showed that students responded positively to the GLRP self-monitoring process and frequent opportunities for success.

Walker et al. (2005) investigated the effects of the Great Leaps Reading Program (GLRP) on the reading fluency skills and inappropriate behaviors of a third grade student with a learning disability in reading. The student received the intervention in both the resource and general education settings for approximately 10-15 minutes daily. Additionally every third day, the student was given a science or social studies passage to read aloud. Although the participant did not show a decrease in the number of errors, his oral reading fluency increased from a mean of 14 words per minute to an average 36.75 words per minute during intervention. He was also able to more accurately read words on

science and social studies probes. Finally, the authors attributed a decrease in the student's inappropriate behaviors to the reinforcement and positive feedback from the Great Leaps program.

Patton et al. (2010) conducted a study that examined the effects of the Great Leaps Reading Program (GLRP), combined with a comprehension strategy, on the oral reading fluency and comprehension of 59 first, second and third grade students in a southeastern inner-city school. Students were assigned to one of two treatment groups: one group received instruction in the GLRP as it was designed and the second group received instruction in a strategy for answering comprehension questions along with the GLRP instruction. Fluency and reading achievement were measured using the TOWRE and the WJ-III. A split pot ANOVA was used to analyze the pretest and posttest measures to compare passage comprehension, fluency and broad reading. Results showed only the main effect of the area of broad reading was statistically significant, $F(1,57) = 4.237$, $p < .05$. Furthermore, results showed the addition of the comprehension strategy appeared to hinder the reading comprehension of the students, and therefore the authors hypothesized that while repeated readings increase fluency, they do not allow for the use of cognitive resources for comprehension.

Finally, Lingo (2014) investigated the effectiveness of high school tutors implementing Great Leaps with four sixth grade students with mild disabilities. Using a multiple probe across participants, data were collected on the within-program components and on oral reading fluency of grade-level science and social studies text as a generalization measure. Visual analysis of the data showed a positive change in level for all participants on the program components, as well as the generalization measures.

Additionally, social validity survey data indicated that both the participants and the tutors felt that the GLRP helped the tutees improve their reading fluency. The positive results of this study support the research for repeated reading increasing fluency and also suggested that GLRP can increase fluency gains on grade level material for secondary students.

Summary of Published Repeated Reading Programs**.** Many secondary students continue to struggle with fluency and comprehension and these difficulties are compounded at the high school level with the increased amount of content reading (Hawkins, Hale, Sheeley, & Ling, 2011). Guided oral repeated reading has been shown to have a positive impact on students' oral reading fluency at all grade levels (Hawkins et al., 2011; NRP, 2000; Roberts, Torgesen, Boardman, & Scammacca, 2008; Vandenberg et al., 2008; Wexler et al., 2008; Wexler et al., 2010). Specific programs such as Corrective Reading, Read Naturally, and Great Leaps Reading Program are examples of published programs that contain repeated reading components and can be beneficial to both students and teachers given the high demands on instructional time and need for quality interventions (Gibson et al., 2014; Przychodzin-Havis et al., 2005). Several common recommendations for future research emerged from the review of literature on these published programs. First, it was suggested that, given the emphasis on using research-validated instruction, future research should attempt to replicate these findings with larger and more varied populations and for longer periods of time (Harris et al., 2000; Lingo, 2014; Marchand-Martella et al., 2000; Patton et al., 2010; Przychodzin-Havis et al., 2005; Scott & Shearer-Lingo, 2002; Walker et al., 2005). Furthermore, future research should continue to examine the effectiveness of these programs through alternative delivery methods (e.g., peers, tutors, paraprofessionals) and in a variety of

settings (Harris et al., 2000; Lingo, 2014; Mercer et al., 2000; Przychodzin-Havis et al., 2005). Finally, it would be worthwhile to examine the effects of these programs for students at risk for academic failure as a preventative method to placement in special education (Gibson et al., 2014; Przychodzin-Havis et al., 2005).

The few studies that have been conducted using Great Leaps Reading Program have demonstrated positive results with elementary and middle school students; however, none have been conducted at the high school level. Future research is warranted to establish the program as research validated program for secondary students, specifically high school students with disabilities and students at risk for academic failure.

CHAPTER 3: METHOD

The purpose of this study was to investigate the effects of peer-delivered instruction of the Great Leaps Reading Program (Campbell, 1998) on the oral reading fluency of high school students with mild disabilities. This chapter will describe the methods that were used to address the research questions and provide information regarding recruitment of participants, experimenters, setting, data collection, experimental design, general procedures and analysis.

Participants

Students. The target population of this study was six high school students who demonstrated difficulties in the area of oral reading fluency. Selection criteria for participants included; (a) minimum age of 14, (b) enrollment in a high school Curriculum Assistance (CA) class, (c) documentation of a specific disability and a current IEP, (d) recommendation from the student's special education teacher or case manager, (e) consistent school attendance, and (f) a score falling at or below the 25th percentile in the areas of decoding and/or fluency based on the AIMSweb fluency assessment grade-level criteria.

Upon receipt of consent to conduct research from the school's principal (see Appendix A), the experimenter scheduled a meeting to discuss the procedures, expectations, and benefits of the study with all students who met the specific inclusion criteria. At that time, any student who was interested in participating in the study was

given a student assent (see Appendix B) form and a parent consent form (see Appendix C) to be signed by a parent or guardian.

Upon receipt of consent and assent from both the student and parent, each student was given an AIMSweb grade-level fluency assessment to determine reading level and percentile. Students who scored at or below the 25th percentile were invited to participate in the study. Percentiles were based on the AIMSweb fluency measures criteria developed from NCES Digest of Educational Statistics 2009 (Snyder & Dillow, 2010). Six participants, three teams of two students per team, were selected for this study. While permission was received from eight students, only six students met all inclusion criteria.

Table 1. Participant demographics

Student	Age	Gender	Ethnicity	Grade	Percentile
J.D.	16	Male	Black	10	9th
Sylvia	16	Female	Hispanic	10	10th
Maya	15	Female	Black	9	25th
Madeleine	15	Female	White	9	21st
Stephen	17	Male	White	11	3rd
Pat	15	Male	White	9	1st

Setting

The study took place in a suburban high school located in the Southeastern United States. The district was composed of 20 elementary schools, 8 middle schools, and 8 high schools. In 2012-2013 the school system enrolled approximately 29,900 students including Asian (3%), African American (19%), Hispanic (14%), Multi-racial (4%), and White (60%). Additionally, 13.9% of students received special education services and

48% of students received free or reduced-price meals. The district reported an overall graduation rate of 86% and a graduation rate of 59% for students with disabilities for the 2012-2013 school year.

The school's total enrollment was 1,147 ninth through twelfth grade students, including Asian (1%), Hispanic (16%), African American (28%), and white (55%). Forty-nine percent of students were eligible for free or reduced-price meals and 12% received special education services.

All training and implementation occurred within a Curriculum Assistance (CA) classroom. The CA class was taught by a licensed special education teacher and was specifically for students currently receiving special education services. The class served a maximum of 14 students and the coursework focused on reading, writing, math, and study skills. Each CA class was scheduled for one hour and thirty minutes per school day.

Experimenter

The experimenter was a doctoral student in the special education doctoral program at the University of North Carolina at Charlotte. She held a Master's degree in Special Education, and was licensed in the areas of Emotional and Behavioral Disabilities and General Curriculum. She had eight years experience teaching students with disabilities, and had used the Great Leaps Reading Program in both elementary and high school classrooms. The experimenter served as the primary interventionist and data collector.

Second Observer

Another doctoral student in the special education program collected interobeserver agreement (IOA) on the primary (number of words read correctly per

minute) and secondary dependent variable (number of words correctly identified on a comprehension measure) across all phases of the study. The second observer conducted IOA for approximately 30% of all sessions of the study.

Data Collection

Primary dependent variable. The primary dependent variable was fluency, defined as the number of words orally read correctly on 8th grade passages during one-minute timed probes. AIMSweb reading curriculum-based measures were used to measure the primary dependent variable. AIMSweb is a progress monitoring tool designed to measure achievement and growth in reading fluency and comprehension (Pearson Education, 2012). Students read the passage aloud for one-minute and errors were recorded. Errors were defined as any word that was mispronounced, substituted, omitted or out of sequence, or that the student did not self-correct within three seconds. Based on the AIMSweb criteria, a word was counted as correct if it was (a) read correctly in the correct order, (b) initially mispronounced but self-corrects within three seconds, or (c) pronunciation reflected regional dialect or pronunciation. An error was recorded when (a) the student mispronounced or substituted a word, (b) omitted or skipped words or lines, (c) hesitated or struggled for more than three seconds, or (d) transposed the order of two words. Every two instructional days students completed a one-minute timed reading and the number of recorded errors was subtracted from the total of words read.

Secondary dependent variable. The secondary dependent variable was a measure of comprehension, defined as the number of words correctly identified during a three-minute timed probe using a Maze comprehension measure. Maze was a reading curriculum-based measure of comprehension published by AIMSweb. The passages

ranged from 150-400 words and were multiple-choice cloze task passages silently read by participants. Within each passage, the first sentence was left intact; afterwards every 7th word was replaced with three words inside parenthesis. One of the words was the exact one from the original passage. At the beginning of baseline and then at the end of intervention, students were given three minutes to read each passage and circle the correct word within the parenthesis.

Interobserver agreement. Interobserver agreement (IOA) data were collected by a member of the research team across all phases of the study. The experimenter trained the observer on the data collection procedure as defined by the AIMSweb how to identify correct responses and errors for the dependent variable. In training, the experimenter provided the observer a copy of a passage and modeled specific errors and method of scoring during several one-minute timed practices. The observer practiced scoring several passages independently and 90% agreement on three consecutive practice probes was demonstrated prior to beginning data collection.

During implementation of the study, the observer listened to audio-recorded sessions across students and independently scored the number of errors and calculated the number of words read correctly. The observer collected IOA for 30% of sessions across baseline and intervention phases. IOA was scored using the gross method (Cooper, Heron, & Heward, 2007) calculated based on the number of agreements between the experimenter and observer divided by the total agreements and disagreements multiplied by 100. A minimum of 85% agreement was accepted.

Social validity data. Social validity data were collected upon completion of the study to measure the social acceptability of the intervention procedures and outcomes for

each student. A six-item, five point Likert-scale questionnaire was given to each student at the conclusion of the intervention (see Appendix D). The classroom teacher distributed and read aloud the social validity measure to the students.

Experimental Design

The experimental design was a multiple probe design across participants (Cooper, Heron, & Heward, 2007) and examined the effects of the GLRP on students' oral reading fluency. The use of this design allowed the experimenter the opportunity to present the intervention to each team daily at staggered points over time in order to individually examine the effects of the intervention on the dependent variables. This study followed the single case design standards (Kratochwill et al., 2012). It included two phases (baseline and intervention) and at least five data points were taken during each phase. The experimenter conducted a visual analysis of the data throughout each phase to determine a functional relation. A functional relation was determined based on the six criteria (i.e., level, variability, trend, immediacy of effect, overlap, and consistency of data patterns) as defined by Kratochwill et al., (2012).

Students were selected to begin intervention based on comparable performance during baseline and class schedules. Once baseline data were stable for participants, the first two students began intervention. Students were paired based on teacher input as well as comparable performance during baseline. The first two students (Team A) began peer-supported practice of the GLRP and intervention data were collected simultaneously on both students. Once each demonstrated an increasing trend, a minimum of three consecutive increasing data points, the next pair of students (Team B) began intervention (See Figure 1).

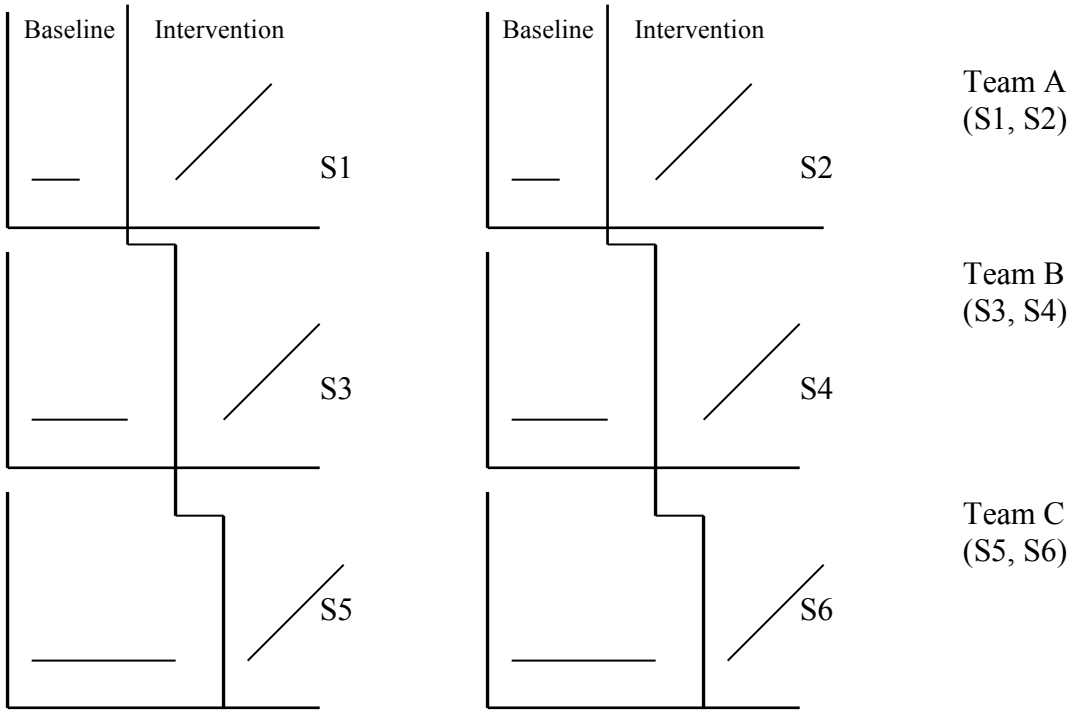

Figure 1. Sample graph

Procedures

Materials. The Great Leaps Reading Program, GLRP (Campbell, 1998) was used as the intervention for the duration of this study. The GLRP consists of three areas of assessment: Phonics, Phrases, and Stories and is designed to increase oral reading fluency. *Phonics* consists of reading letter sounds, and then increasing to consonant blends, consonant-vowel (CV)- vowel consonant (VC), consonant vowel consonant words (CVC), and CCVCC words. *Phrases* consists of short series of words to be read together beginning with high frequency words (I am, she was, he is) and then increasing to longer more advanced phrases that incorporate common sight words such as, “climbed the hill,” “on a trail,” to phrases such as, “filled with danger,” “beautiful full moon,” and “almost old enough to drive alone.” In the *Stories* component, students will be given short passages or poems and will be asked to read them during a one-minute timed probe.

Additionally the dependent variables were measured using published AIMSweb reading curriculum–based measures (R-CBM). Fluency data was collected every two instructional days and comprehension data was collected every two weeks.

Baseline. During baseline each student was given one-minute timed probes using an Aimsweb 8th grade passages. Each day, students were asked to read a page or passage as quickly as he or she could, but no feedback or error correction was provided during baseline. A minimum of five probes was given one-on-one to each student by the experimenter. Words read aloud correctly and errors made were recorded and correct number of words per minute were graphed for visual analysis. In addition, at least one probe on comprehension was given during baseline.

Training on GLRP procedures. Each team of students was trained on the GLRP procedures prior to beginning intervention. Each day the team practiced timing and scoring each section (e.g., phonics, phrases, stories). Students learned how to accurately operate the timer and how to identify and record errors on their copy of each passage. They also received instruction on how to calculate correct words read per minute. To develop familiarity with the program passages, students used beginner level passages from the GLRP that were not used during intervention to practice scoring. This helped to ensure accuracy and success in scoring. Students practiced timing and scoring both each other and the experimenter until each student timed and scored three consecutive sections with 90% accuracy based on the fidelity measure. Practice passages were at least one grade level below student's current level of performance.

Peer delivered Great Leaps. During the peer-delivered Great Leaps intervention students completed a three-step process daily: huddle, practice, and checkout.

Huddle. After receiving training on the GLRP, students learned an adapted pre-practice procedure for peer-delivery of the GLRP called "tutor huddle"(Heward, Heron, & Cooke, 1982). Each day during intervention each team spent up to 5 minutes with the experimenter reviewing the passages and identifying any challenging words. Difficult or challenging words were defined as any word the student or team did not immediately recognize or could not sound out independently within 3 seconds. The examiner pronounced the word or words for the students and they repeated the word or words back to the examiner. Once all challenging words were reviewed, the team returned to practice their three passages (e.g., phonics, phrases, stories) for that day. The tutor huddle was used during all practice sessions so the students would be familiar with the process when intervention began.

Practice. After the students met for the "tutor huddle" with the experimenter to go over unknown or challenging words from each component included in the program (i.e., phonics, phrases, and passages), the team practiced one-minute timed assessments from the GLRP. Then students took turns timing one another on each of the three components. Students alternated timing each other on each component. Each student read one passage from each section of the GLRP (phonics, phrases, stories) and each passage was timed for one minute. During each reading, if an error occurred, the peer instructor corrected the error and the student continued reading. The error was circled on the peer's photocopy.

Checkout. Once a student felt he or she was ready to make a "great leap" (i.e., orally read the assessment in one minute with two or fewer errors), he or she orally read the selected section for the experimenter who timed and scored the performance. Both words read correctly and errors were recorded. An error was defined as skipping a word,

not knowing a word, changing, adding or deleting a word. An error could also occur if the student lost his or her place, ignored punctuation, substituted a word or continually restarted. Self-correction was not counted as an error. If the student completed the one-minute timed assessment with two or fewer errors, he or she then moved to the next assessment.

Each pair of students practiced the three components daily for a minimum of 5 minutes and a maximum of 10 minutes before checking out with the experimenter. Approximately every two instructional days the student was given an 8th grade AIMSweb passage to read in one minute and the student's performance, both words read aloud correctly and errors made were recorded. At the beginning and end of the intervention, students were given a Maze passage as a measure of comprehension. Student's performance on the 8th grade AIMSweb and Maze was recorded and graphed for visual analysis.

Procedural reliability. Two school faculty members conducted procedural reliability through direct observation. They were given a photocopy of each student's passage, and a procedural reliability checklist (see Appendix E). The checklist consisted of the procedural steps as defined by the GLRP and was used to determine if the examiner and peer instructors adhered to the guidelines of the program, provided practice, corrected errors, correctly timed sessions, and moved forward when appropriate. Procedural reliability was collected for a minimum of 30% of sessions during intervention.

Data Analysis

To examine the effects of peer-delivered fluency instruction on oral reading fluency and comprehension, the experimenter used Microsoft Excel® to graph words read correctly per minute and words correctly identified on the comprehension measure during baseline and intervention passages for all six students. Visual analysis of results was used to determine if changes occurred in any or all of the six variables outlined in Kratochwill et al. (2012), level, trend, variability, immediacy of effect, overlap, and consistency of data patterns. In addition to analysis of the primary and secondary independent variables, errors and percentage of accuracy for each student were also graphed for visual analysis.

CHAPTER 4: RESULTS

This chapter presents the results of the study in four sections. First, the results for interobserver agreement are reported followed by procedural reliability results. Next, the results of each research question are reported. Last, results of the student social validity questionnaire are reported.

Interobserver Agreement

A trained observer collected reliability data on both the primary and secondary dependent variables (words read correctly per minute and comprehension). The second observer scored 30% (n = 18) of student audio recordings (n = 60) across each phase, baseline 20% (n= 6) and intervention 40% (n=12). For each recording, words read correctly and errors were calculated. Interobserver agreement on audio recordings ranged from 97% to 100% with a mean of 99%. For the comprehension measure, 33.3% (n=4) of all comprehension passages (n = 12) were scored by the second observer and agreement was 100% for all passages.

Procedural Reliability

To ensure the procedural steps of the GLRP and designed steps of the intervention were followed with fidelity (e.g., practice provided, errors corrected, correctly timed sessions), two school staff members completed the procedural checklist (see Appendix E) for 40% of intervention phase per team. One staff member conducted two procedural observations for team one and a second staff member conducted the final four

observations for teams two and three. Percentage was calculated by dividing the number of checks for items divided by the total number of items and multiplied by 100. Fidelity was calculated for each team and overall. Procedural fidelity for Team 1 ranged from 75% to 88% with a mean of 82%. Procedural fidelity for Team 2 ranged from 75% to 100% with a mean of 88% and fidelity for Team 3 was 100%. Fidelity across all three teams ranged from 75% to 100% with a mean of 85%. It should be noted that fidelity for team 3 was only collected during huddle and checkout (questions 1, 7, & 8, Appendix E) because team 3 did not participate in peer-delivery of the GLRP intervention. Due to the significant difference in reading levels for team 3, and one student's unwillingness to work with another student, the experimenter delivered the intervention to each student in team 3 individually.

Effects of Peer-delivered Fluency Instruction on Oral Reading Fluency

Question 1and Question 2: What are the effects of peer-delivered GLRP on the oral reading fluency of high school students with mild disabilities? What are the effects of peer-delivered GLRP on the reading comprehension skills of high school students with mild disabilities?

Results for the three teams are presented in Figures 2 through 4. Figures 2 and 3 show the results of each participant, by team, on words read correctly per minute and errors made on passages across baseline and intervention. Figure 4 shows the percent of accuracy across baseline and intervention for each participant.

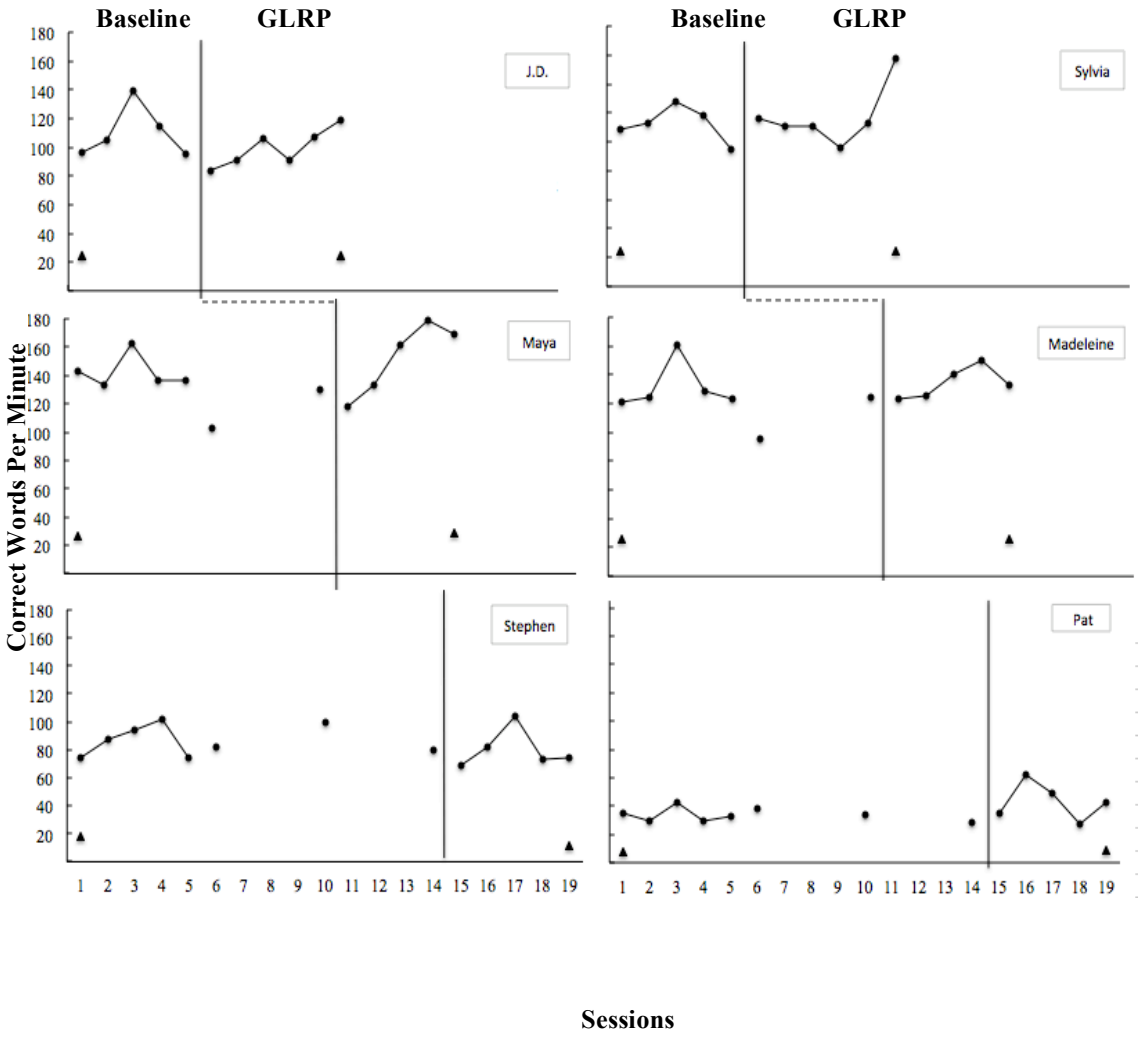

Figure 2. Words read correctly per minute by students across baseline and intervention phases.

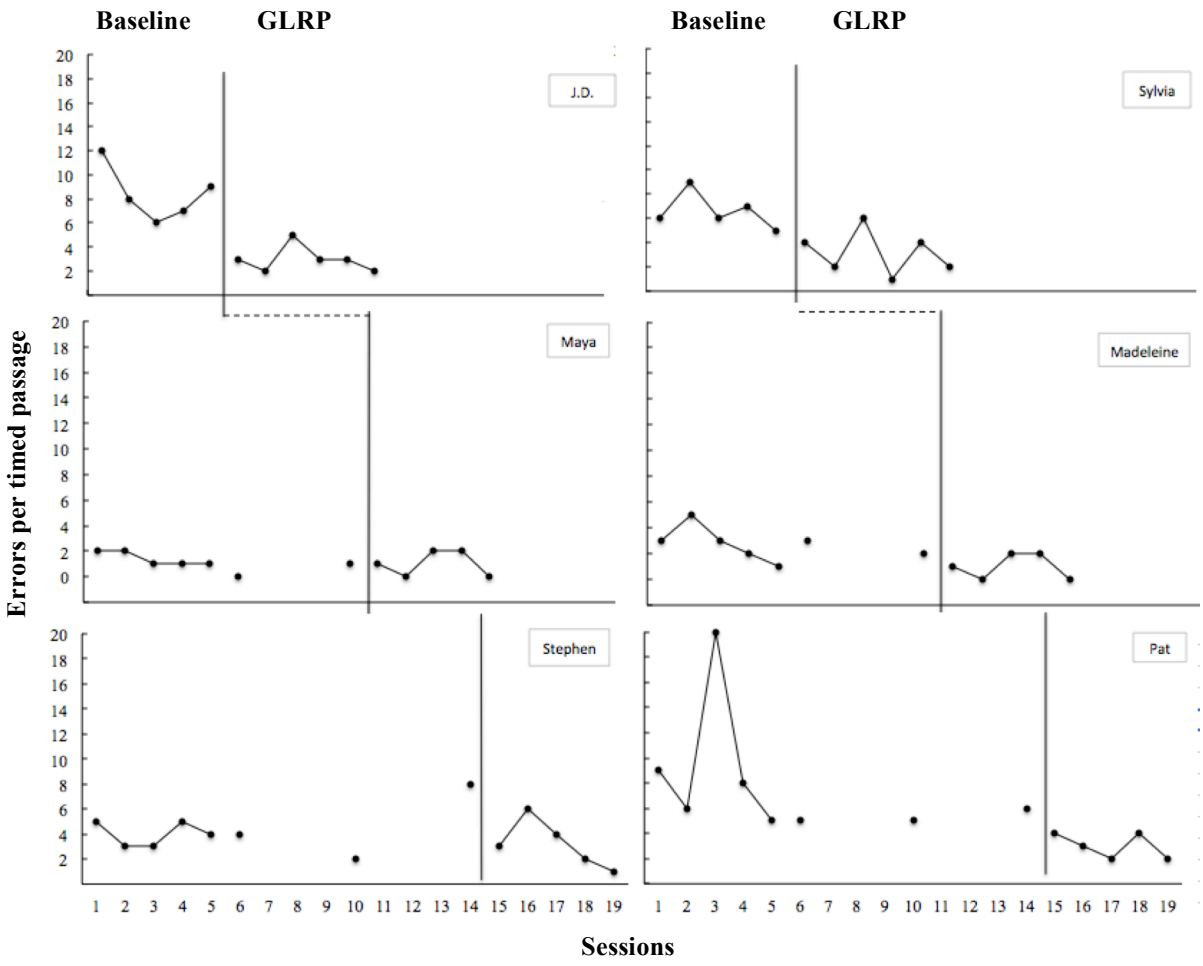

Figure 3. Number of errors made by students on baseline and intervention passages.

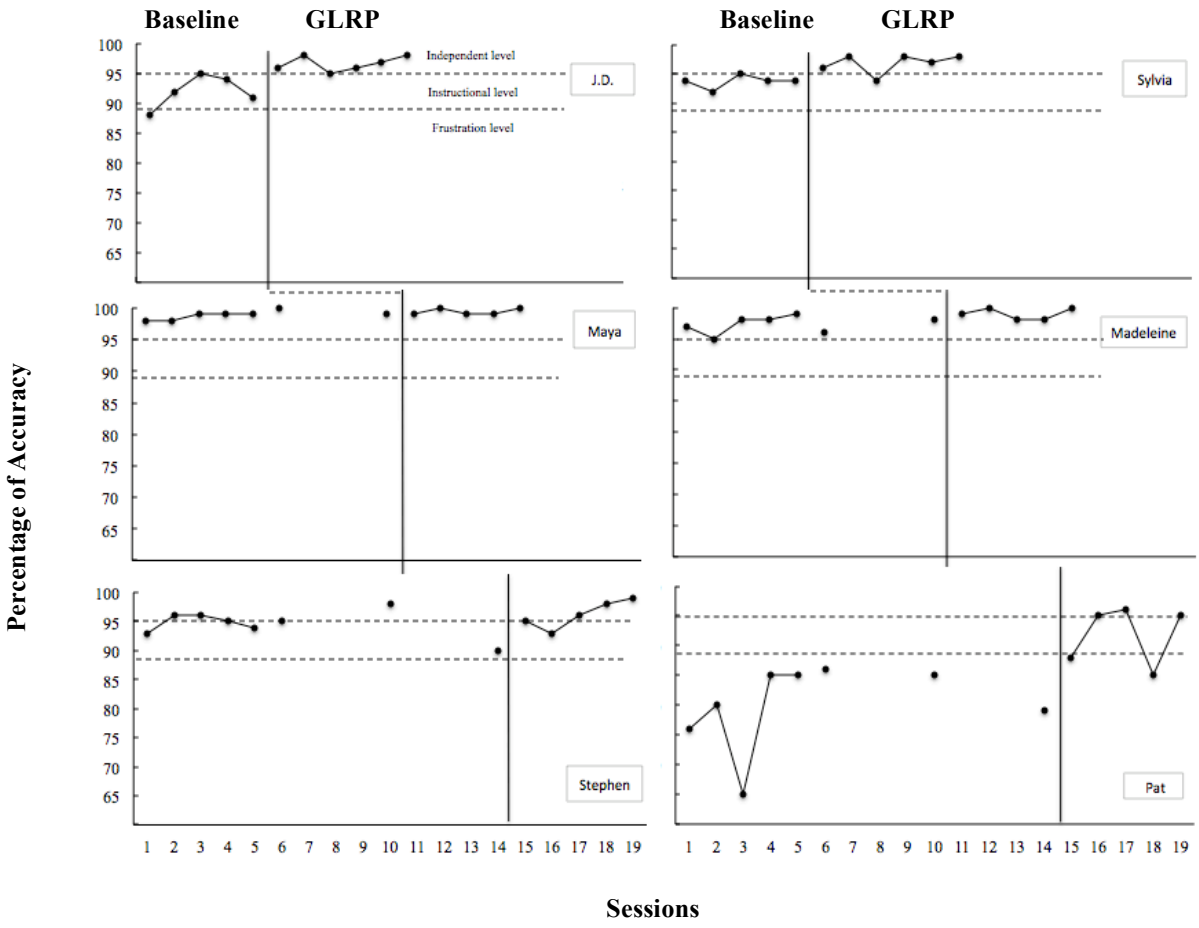

Figure 4. Percent of accuracy of words read correctly per minute across baseline and intervention phases. Dotted lines indicate levels of accuracy: frustration level (< 90%), instructional level (90% - 94%), and independent level (≥ 95%).

The range and mean of words read correctly per minute by students across baseline and intervention phases are shown in Table 2 and the pre- and post comprehension scores are presented in Table 3 below.

Table 2. Range and mean of words read correctly per minute by students across baseline and intervention phases.

Student	Baseline		Peer-delivered Great Leaps	
	Range	Mean	Range	Mean
J.D.	95-139	110	84-119	100
Sylvia	95-128	113	96-158	118
Maya	103-163	135	118-179	152
Madeleine	95-161	125	123-150	134
Stephen	74-102	87	69-104	81
Pat	23-38	29	22-57	38

Table 3. Number of words correct on pretest and posttest three-minute timed cloze passage comprehension measure by student.

Student	Pretest	Posttest
J.D.	24	25
Sylvia	24	25
Maya	27	29
Madeleine	26	26
Stephen	18	12
Pat	3	4

Overall, results showed a slight increase in the mean of words read correctly per minute from baseline to intervention for four of the six students. However, all six students showed a decrease in the number of errors made per one-minute timed passage and an increase in accuracy from baseline to intervention. Finally, a minimal increase in comprehension was demonstrated for five of six students. Individual results for each participant are discussed below.

J.D. During baseline, J.D.'s performance on 1-min. timed passages was relatively stable with words read correctly per minute ranging from 95 to 139, and a mean score of 110 WCPM. Errors made on passages by J.D. during baseline ranged from 6 to 12 errors per passage with a mean error rate of 8.4. During baseline his level of accuracy ranged from frustration level (88%) to independent level (95%), with a mean of 92% accuracy. His initial comprehension score on the Maze pretest during baseline was 24 words correct on a 3-min. timed cloze passage.

During intervention, no immediate change in level occurred in J.D.'s performance on 1-min timed passages; however his data showed a slightly increasing trend of words correct per min ranging from 91 to 119. His mean score decreased slightly from 110 WCPM to 100 WCPM. However, J.D. did demonstrate an immediate change in level and trend on errors per passage, with a decrease in mean error rate to 3, with a range of 2 to 5 errors per passage. As a result, his rate of accuracy remained at the independent level, ranging from 95% to 98% with a mean of 96.6%. Upon completion of the intervention, J.D.'s score on the posttest comprehension measure increased only slightly from 24 to 25 correct.

Sylvia. During baseline, Sylvia's performance on 1-min timed passages remained stable. Words read correctly per minute ranged from 95 to 128, with a mean score of 113 WCPM. Errors made on passages by Sylvia during baseline ranged from 5 to 9 errors per passage with a mean error rate of 6.6. During baseline her level of accuracy ranged from an instructional level of 92% to an independent level of 95%, with a mean of 93.8% accuracy. Her initial comprehension score on the Maze pretest during baseline was 24 words correct on a 3-min timed cloze passage.

During intervention, a change in level occurred in Sylvia's performance on 1-min timed passages; however, the trend of WCPM decreased across four data points before increasing. Her words correct per minute ranged from 96 to 158 and her mean score increased from 113 WCPM to 118 WCPM. Sylvia's data demonstrated a slight change in level and moderate variability of trend on errors per passage (range of 1 to 6 errors), but showed an overall decrease in mean error rate of 3.1 errors per passage. Her rate of accuracy ranged from 94% to 98% with a mean of 97.3% during intervention. Upon

completion of the intervention, Sylvia's score on the posttest comprehension measure increased slightly from 24 to 25 correct.

Maya. During baseline, Maya's performance on 1-min timed passages remained stable with words correct per min ranging from 103 to 163, and a mean score of 135 WCPM. Errors made on passages by Maya during baseline ranged from 0 to 2 errors per passage with a mean error rate of 1.1. During baseline her level of accuracy remained stable at an independent level, with a mean of 98.8% accuracy. Her initial comprehension score on the Maze pretest during baseline was 27 words correct on a 3-min timed cloze passage.

During intervention, no immediate change in level occurred in Maya's performance on 1-min timed passages; however, her data showed an increasing trend of words correct per min ranging from 118 to 179. Her mean score increased from 135 WCPM to 152 WCPM. Maya's range of errors and error rate remained the same for intervention, with a range of 0 to 2 errors and a rate of 1.2. Her level of accuracy remained at the independent level, with the mean increasing slightly to 99.4% during intervention. Upon completion of the intervention, Maya's score on the posttest comprehension measure increased from 27 to 29 correct.

Madeleine. During baseline, Madeleine's performance on 1-min timed passages remained relatively stable with words correct per minute ranging from 95 to 161, and a mean score of 125 WCPM. Errors made on passages by Madeleine during baseline ranged from 1 to 5 errors per passage with a mean error rate of 2.7. During baseline her level of accuracy remained at an independent level, ranging from 95% to 99%, with a

mean of 97.2% accuracy. Her initial comprehension score on the Maze pretest during baseline was 26 words correct on the 3-min timed cloze passage.

During intervention, no immediate change in level occurred in Madeleine's performance on 1-min timed passages; however, her data showed an increasing trend of words correct per minute ranging from 123 to 150. Her mean score increased from 125 WCPM to 134 WCPM. Madeleine's data demonstrated a change in level and trend on errors per passage (range of 0 to 2 errors), and showed a decrease in mean error rate, 1.0 errors per passage. While her level of accuracy remained at the independent level, the mean increased to 99% during intervention. There was no change in Madeleine's score (26) on the posttest comprehension measure.

Stephen. During baseline, Stephen's performance on 1-min timed passages was remained stable with words read correctly ranging from 74 to 102, and a mean score of 87WCPM. Errors made on passages by Stephen during baseline ranged from 2 to 8 with a mean error rate of 4.3. During baseline his level of accuracy ranged from instructional level (90%) to independent level (98%), with a mean of 94.6% accuracy. His initial comprehension score on the Maze pretest during baseline was 18 words correct on a 3-min timed cloze passage.

Stephen's performance during intervention was variable with words correct per min ranging from 69 to 104. His mean score decreased slightly from 87 WCPM to 81 WCPM. Stephen's data did demonstrate an immediate change in level and trend on errors per passage, with a range of 1 to 6 errors per passage, and a decrease in mean error rate to 3.2. During intervention, percentage of accuracy ranged from 93% to 99% with an

increase in the mean to 96.2%. Upon completion of the intervention, Stephen's score on the posttest comprehension measure decreased from 18 to 12 correct.

Pat. During baseline, Pat's performance on 1-min timed passages remained stable. Words read correctly per min ranged from 23 to 38, with a mean score of 29 WCPM. Errors made during baseline ranged from 5 to 20 errors per passage with a mean error rate of 7.9. During baseline his level of accuracy remained at the frustration level (65% to 86%) with a mean of 80.1% accuracy. His initial comprehension score on the Maze pretest during baseline was 3 words correct on a 3-min timed cloze passage.

During intervention, a slight change in level and a variable trend occurred in Pat's performance on 1-min timed passages, ranging from 22 to 57, and his mean score increased from 29 WCPM to 38 WCPM. Pat's data did demonstrate an immediate change in level and trend on errors per passage, showing a decrease in range (2 to 4 errors) and mean (3). His rate of accuracy also increased ranging from frustration level (85%) to independent level (96%), and a mean of 91.8%. Upon completion of the intervention, Pat's score on the posttest comprehension measure increased only slightly from 3 to 4 correct.

Question 3: To what extent can students with reading deficits serve as peer tutors and deliver instruction in the GLRP with fidelity?

Results of the procedural reliability measure showed that students with reading deficits could deliver instruction in the GLRP with fidelity when paired with a partner reading at approximately the same level.

Team 1. As stated previously, procedural fidelity for Team 1 ranged from 75% to 88% with a mean of 82%. During intervention, Team 1 consistently followed the GLRP

procedures to time each other correctly. However, throughout the intervention they were inconsistent in oral error correction, modeling words, and circling missed words in the passages. Despite having difficulty with error correction, both students consistently made two or fewer errors on the GLRP passages (e.g., phonics, phrases, and stories) during checkout with the examiner.

Team 2. Team 2's procedural fidelity ranged from 75% to 100% with a mean of 88%. During intervention, Team 2 consistently followed the GLRP procedures to time each other correctly. At the beginning of the intervention, like Team 1, they also demonstrated some difficulty with oral error correction, modeling words, and circling missed words in the passages; however, by the end of the intervention they were successful in all steps of the intervention procedures. Both students consistently made two or fewer errors on the GLRP passages (e.g., phonics, phrases, and stories) during checkout with the examiner.

Social Validity

Question 4: What are students' opinions on using peer-delivered GLRP to increase their reading fluency? Results of students' responses to the social validity questionnaire are summarized in Table 4.

Table 4. Summary of students' social validity questionnaire responses.

Question	Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree	Total
I am a good reader.			1	4	1	(n=6)
I understand most of what I read.		1		4	1	(n=6)
The *Great Leaps Reading Program* helped me improve my reading.			1		5	(n=6)
I liked the *Great Leaps Reading Program*.				1	5	(n=6)
I liked practicing reading with another student.				3	1	(n=4)
Reading with another student helped me improve my reading.				2	2	(n=4)

Note. Students in team 3 did not complete the last two questions because the GLRP was not conducted with a peer.

Overall students responded well to peer delivery of the GLRP intervention. Five of the six students agreed or strongly agreed that they were good readers and understood most of what they read. All six participants agreed that they liked the Great Leaps Reading program and five felt that the program helped improve their reading ability. More importantly, of the four students who participated in the peer delivery of the GLRP, all agreed or strongly agreed that they enjoyed practicing with another student and felt that reading with another student helped to improve their reading.

CHAPTER 5: DISCUSSION

The purpose of this study was to extend current research on the GLRP and evaluate the effects of peer delivery of the fluency intervention on the oral reading fluency and reading comprehension of six high school students with mild disabilities. In addition, this study sought to examine the ability of students with reading deficits to serve as peer tutors and deliver instruction in the GLRP with fidelity, and to assess students' opinions on the use of the peer-delivered program. A multiple probe design across students was used to demonstrate the effects of peer-delivered Great Leaps on the dependent variables (i.e., fluency and comprehension). Results of this study did not demonstrate a functional relation between the independent and dependent variables. A minimal difference in the data trend and mean line in intervention phase from baseline did not produce a sufficient effect for all students. Furthermore, due to the difference in delivery of the GLRP for team three, no replication of effect for peer-delivered GLRP was present. Results did, however, show an increase in mean words read correctly per minute from baseline to intervention for four of the six students and all students showed a decrease in the number of errors and an increase in accuracy on passages from baseline to intervention. A minimal increase in comprehension was demonstrated for five of six students. Finally, results of the social validity measure indicated that all six students liked the GLRP and five of the six students felt it helped improve their reading. Discussion of the results is organized by research question and presented in this chapter. Additionally,

specific contributions of this study, limitations, recommendations for future research, and implications for practice are discussed.

Effects of the Intervention on the Dependent Variable

Research Question 1: What are the effects of peer-delivered GLRP on the oral reading fluency of high school students with mild disabilities?

Across students, the results of peer-delivered GLRP on oral reading fluency were variable. While two students' mean number of words read correctly decreased, the majority of students (n=4) showed an increase in the mean of words read correctly from baseline to intervention. Typically, fluency interventions do not result in immediate, dramatic change in fluency, but a gradual increase in rate over time (Deno, Fuchs, Marsten, Shin, 2001; Valleley & Shriver, 2003). Therefore, it is important to note that all six students demonstrated a decrease in errors from baseline to intervention and increased their accuracy of passages read. Findings of this study are consistent with previous research on the use of repeated readings with high school students (Hawkins, Hale, Sheeley, & Ling, 2011; Roberts, Torgesen, Boardman, & Scammacca, 2008; Valleley & Shriver, 2003; Wexler et al., 2008; Wexler, Vaughn, & Roberts, 2010) demonstrating an overall positive effect on reading fluency.

In addition, findings are consistent with previous research on the GLRP. While few studies have examined the effects of the GLRP, none have been conducted with high school students, the research on the GLRP has shown positive effects on the oral reading fluency of both elementary and middle school students (Lingo, 2014; Mercer et al., 2000; Patton et al., 2010; Scott & Shearer-Lingo, 2002; Walker et al., 2005).

Research Question 2: What are the effects of peer-delivered GLRP on the reading comprehension skills of high school students with mild disabilities?

Similar to previous findings, this study found that the GLRP and repeated reading did not have a noticeable effect on comprehension of text (Oddo et al., 2010; Patton et al., 2010; Valleley & Shriver, 2003; Wexler et al., 2010). Four of the six students in this study showed an increase of one additional word correct on the 3-min timed cloze passage, one student showed a decrease from 18 to 12 words correct, and the final student's comprehension score remained the same.

One possible explanation for the minimal changes demonstrated on the comprehension measure is that four of the six students were considered only moderately below grade level (e.g., correctly identifying between 19-30 words) based on the risk level chart of the Maze measure. Considering the Maze measure is composed of multiple-choice questions and relies on recognition of the correct response, it is easier than a free-recall measure. Therefore, given that the four students' levels fell only slightly below grade level and the correct answer is provided, the students could simply guess and get the answer correct. Since the final two students, Team 3, fell into the high-risk range (e.g., 0-18 words identified correctly) and were considered seriously below grade level, there was not an expectation of significant gains on the 8th grade level Maze passage.

Another possible explanation for the minimal change in comprehension is that, similar to fluency, comprehension increases gradually over time, and may require more than a 3-week repeated reading intervention to show a noticeable change. This is especially true for the final two students, Team 3. Given that their scores fell into the 1st and 3rd percentile based on the Aimsweb High School Norm Table and were reading well

below grade level, it would be expected that an increase on an 8th grade comprehension measure would be gradual and take an extended amount of time.

Research Question 3: To what extent can students with reading deficits serve as peer tutors and deliver instruction in the GLRP with fidelity?

The results of this study showed that students with mild disabilities could serve as peer tutors and deliver instruction in the GLRP with fidelity given certain parameters. The fidelity of procedural implementation for Teams 1 and 2 ranged from 75% to 100%. Both teams understood the GLRP, were able to follow the program procedures, and demonstrated success within the program based on program measures. The most difficult part for both Team 1 and Team 2 was following the error correction procedures. The students frequently failed to circle missed words and rarely orally corrected their peer. However, despite difficulty with error correction, each student consistently made two or fewer errors on each section during checkout with the experimenter, and made a "great leap" each day. It is unclear whether this occurred as a result of the tutor huddle, practice on the passage, or both.

Regarding certain parameters mentioned above, it should be noted that both Team 1 and Team 2 were reading on approximately the same level and this was most likely a key factor in their success in the intervention. On the contrary, Team 3 was reading on significantly different levels, and although they did not participate in peer-delivery of the intervention, it would have been arduous for the student reading at the lower level to support his higher-leveled peer.

Within the peer-mediated literature, no studies were found that paired students with disabilities, with similar reading deficits, together to serve as peer tutors; however,

the results of peer-delivery of the GLRP intervention for Teams 1 and 2 are consistent with previous research on peer-mediated interventions that have been shown to increase the academic performance and reading skills of students with and without disabilities (Hofstadeter-Duke & Daly, 2011; Huang, Nelson, & Nelson, 2008; Mackiewicz et al., 2011; Mastropieri et al., 2003; Scruggs et al., 2012; Wood et al., 2012; Wood et al., 2013).

Discussion of Social Validity Findings

Question 4: What are students' opinions on using peer-delivered GLRP to increase their reading fluency?

This study assessed the social validity of peer-delivered Great Leaps based on the opinions of the six students who participated. All six students agreed that they liked the Great Leaps Reading program and five felt that the program helped improve their reading ability. What is more significant to note is that the students who participated in peer-delivery of the intervention liked working with another student and felt reading with another student helped to improve their reading. These findings are consistent with the social validity results from other GLRP studies (Lingo, 2014; Mercer et al., 2000; Patton et al., 2010; Scott & Shearer-Lingo, 2002; Walker et al., 2005). All of the studies in which Great Leaps was used, reported positive student responses on social validity measures and opinions of the GLRP.

Specific Contributions of the Study

This study contributes to the literature in several meaningful ways: (a) this study contributes to the dearth of research on quality literacy interventions for high school students with disabilities; (b) it expands the research base for the GLRP and repeated

reading interventions for high school students; (c) it provides a peer-mediated intervention that is simple, cost effective and efficient and can serve as a secondary or tertiary intervention within a multi-tiered model, and (d) it adds to the research on peer-mediated instruction for high school students with mild disabilities.

First, this study addresses a critical need for additional research-validated literacy interventions for high school students with and without disabilities. Over the past five years, students with disabilities have shown a decline in reading skills with less than 50% scoring at or above the basic level on the national 12th grade reading assessment. Without the core reading skills needed to master state assessments and the high school curriculum, students with disabilities have a greatly reduced probability of graduating with a diploma (Hock et al., 2009; NAEP, 2013). There is very little research on literacy interventions at the secondary level, (Brozo, 2010; Hock et al., 2009; Scruggs et. al., 2011; Swanson, 1999; Swanson & Deshler, 2003; Vaughn & Fletcher, 2012), with only 19 studies found from 1980 to 2005 that evaluated the effects of fluency and comprehension interventions for high school students (Wexler et al., 2008). In addition to the limited options of evidence-based literacy interventions, educators and administrators face the difficult task of delivering quality interventions while still adhering to the rigorous content of secondary courses. The GLRP provides a simple, cost-effective, research-validated fluency intervention that may be easily integrated into the course curriculum.

Second, this study makes a substantial contribution to the research for repeated reading with high schools students and the Great Leaps Reading Program. While there is empirical research on the effects of repeated reading on oral reading fluency, very few studies have investigated the effects of repeated reading with secondary students

(Hawkins et al., 2011; Roberts et al., 2008; Strong et al., 2004; Wexler et al., 2010). The findings of this study are similar to previous research in that repeated readings have been shown to improve fluency and may have instructional value for older struggling readers (Roberts et al., 2008). Additionally, this is the seventh known study that investigates the effects of the GLRP on oral reading fluency and the first study to be conducted with high school students and the GLRP. Results of this study demonstrate that the GLRP could be a viable option for high school teachers in need of a program to support struggling readers.

Third, this study demonstrates that the GLRP can serve as a secondary or tertiary intervention within a high school multi-tiered model. With more schools nationally embracing Multi-tiered Systems of Support, such as RTI, there is a significant need for research on effective research-based practices that can be delivered across tiers at the high school level (Scruggs, Mastropieri, Berkeley, & Graetz, 2011). However, the lack of research on specific academic interventions for high school students has resulted in few researchers focusing on RTI at the secondary level (Fuchs et al., 2010; Fuchs et al., 2012; Sansosti et al., 2010; Vaughn & Fletcher, 2012; Vaughn et al., 2010; Vaughn et al., 2008). Results of this study show that the GLRP could serve as a Tier 2 intervention conducted in either the general classroom or Curriculum Assistance classroom as a peer-mediated intervention. The GLRP could also be done one-to-one with a teacher, staff member, or peer, as a Tier 3 intervention for students with more significant reading disabilities. The peer instructional component combined with the GLRP, provides high school teachers a literacy intervention that could be easily incorporated into the rigorous schedule, alleviates the need for content teachers to integrate basic reading instruction

into their curriculum, and provide increased differentiation for students with reading disabilities in the high school setting.

Finally, this study contributes to literature on peer-mediated instruction at the secondary level and shows students with mild disabilities have potential to support each other through peer instruction. Though often considered Tier 1 strategies, at the high school level peer-mediated strategies can also strengthen differentiation of instruction and provide flexibility in the use of materials and content coverage for use in Tier 2 or for more intensive, one to one instruction at Tier 3. The decision to include a peer-delivered approach with the GLRP using two students with reading disabilities was two-fold. First, in order to make the GLRP a viable option at the high school level, minimizing the classroom teacher's time for involvement is critical. By having two students practice the GLRP together first and then checkout with a teacher, teacher involvement is reduced to approximately five minutes per team. Second, considering the potential stigma of being a struggling reader in high school, pairing students of similar abilities, helps to eliminate embarrassment and anxiety and promotes a willingness to participate.

Limitations and Recommendations for Future Research

While this study provides promising results, several limitations and suggestions for future research should be noted. First, the intervention was not conducted using a natural implementer (e.g., general ed. or special ed. teacher). The researcher implemented the intervention; no other school staff was involved. Further research should examine the practicality and sustainability of teacher supervision and implementation of peer-delivered Great Leaps within the natural high school environment. In addition, because no teachers were involved, no feedback on the intervention was gathered from teachers.

Future research should also investigate teachers' opinions on the practicality of the intervention in a high school classroom.

Second, the established inclusion criteria for this study significantly limited the number of participants. Ten students with mild disabilities were identified that the teachers felt (a) would benefit from a fluency intervention, (b) consistently showed poor performance on reading assessments, (c) would willingly participate, and (d) attended school regularly. Of the ten students identified, only seven returned permission slips and one student, after assessment, did not demonstrate a need for the intervention. The small number of participants, while ideal for a single-case research design, limits the generalizability of the results. In the future, it would be worthwhile to consider evaluating the effects of the intervention with (a) a larger group or whole class, (b) students from linguistically diverse backgrounds, or (c) students with moderate disabilities, such as students enrolled in the Occupational Course of Study.

Third, the substantially different ability levels of Team 3, along with the willingness to participate by one member, functioned as limitations and contributed to this study's lack of a functional relation. Due to the significant difference in reading levels of the two students in team three, the decision was made by the research team to have the experimenter deliver the GLRP intervention individually. While both were struggling readers, it was determined that Pat, the lowest reader, would not have been able to follow along and provide feedback to Stephen. In addition, Stephen was extremely insecure in his oral reading skills and expressed strong opposition to working with another student with the GLRP. Future researchers need to consider the reading levels and comfort level, of participants if there is intent to replicate this study.

Participants need to be comfortable with one another and be reading at approximately the same level to promote error correction and demonstrate progress in the GLRP program. It would be worthwhile to investigate whether teams of two students that are both reading significantly below grade level could successfully implement the GLRP program.

Fourth, while the GLRP has the potential to increase the oral reading fluency for students with mild disabilities, the ultimate goal of reading is comprehension. Peer delivered GLRP demonstrated little to no effect on the comprehension skills of the participants. Future researchers should consider developing an intervention package, incorporating peer-delivered GLRP with specific comprehension strategies. The addition of curricula such as the Kansas Learning strategies or explicit instruction in the application of cognitive strategies for comprehension (e.g., identifying important information, inferring, predicting, clarifying, summarizing, synthesizing) could improve overall literacy outcomes for students.

Finally, the high school schedule and time allocated for this study proved to be a limitation for this study. Although students in this study were pulled during the curriculum assistance classes, there was still a minimal amount of time they could be out of the classroom. Therefore, in the interest of time the examiner completed the students' GLRP progress charts. Future researchers should attempt to allocate enough time to allow the students to complete their own progress charts. Previous research of the GLRP has reported that students respond positively to the self-monitoring process (Scott & Shearer-Lingo, 2002; Walker et al., 2005).

Implications for Practice

Results of this study suggest several implications for practice. First, peer-delivered GLRP might not be appropriate for all students. Students must want to participate in the GLRP and work with a peer. The common thread among the six students who participated in this study was the fact that they all admitted they were not strong readers and wanted to improve their reading skills. They were willing participants in the intervention. The challenge was with Team 3. Stephen stated he would not work with another student. While that issue was moot due to their differing abilities, it is something practitioners and researchers will need to carefully consider when implementing this intervention.

Second, both administrators, and teachers should consider student schedules and coursework prior to implementation of this study. As stated previously, a substantial amount of time is needed to demonstrate a marked increase in literacy skills. Consideration should be given to changes in semester courses, continuity of student teams, and the time and teacher needed for implementation. For students who require this level of intensive intervention, it is imperative these considerations be made.

Whether a high school is operating within a multi-tiered system, such as RTI, or delivering a traditional curriculum, educators (e.g., administrators, general and special education teachers) need to understand that students academic deficits are well established and there is little time left to address those deficits (Fagella-Luby & Deshler, 2008). Different from the elementary level, once students reach high school, prevention, screening, and identification are no longer critical, the most important element of a multi-tiered system at this level is treatment (Fuchs et al., 2010; Vaughn & Fletcher, 2012).

High school students with serious academic deficits require the immediacy and intensity of tertiary interventions.

Unfortunately, the remedial instruction or special education that many high school students typically receive fails to have substantial impact. The results are evident in state test scores and graduation rates of students with disabilities (NAEP, 2013; NCES, 2011; Newman et al., 2011). The instructional intensity for special education services often does not meet the standards of a tertiary level (Fuchs et al., 2010). In these cases, the high school resource classroom has become nothing more than a study hall where the homework for content classes is done. Considering the limited time left to support these students, teachers need intensive interventions that can demonstrate sufficiently large gains in a short period of time (Fagella-Luby & Deshler, 2008).

Given the many challenges at the high school level to incorporate intensive fluency and comprehension interventions into high school courses, there remains a need for more extensive research on reading interventions, as well as the method of implementation of intensive interventions at the high school level. Peer delivered instruction, or peer tutoring, is one strategy that may offer support for demanding high school routines (Okilwa & Shelby, 2010) and the *Great Leaps Reading Program* (Campbell, 1998) is a program that can serve as an intensive fluency intervention at the high school level.

Peer-delivered Great Leaps is a literacy intervention that can be easily integrate into the high school classroom, requires minimal time of the teacher while providing intensive intervention, can be done in small increments of time, and has demonstrated positive results. Most importantly, students respond positively to the program. For

interventions to be truly effective at the high school level, the delivery model must motivate and engage, and enlist the endorsement of students (Fuchs et al., 2010). However, if educators at the high school level are to fully support struggling readers, it is important they also incorporate comprehension instruction with the GLRP. An intervention package that includes cognitive strategies and metacognition, "the ability to manage and control cognitive activities in a reflective manner" (Coyne, Kame'enui, & Carnine, 2007, p.86) is critical to success. Educators should seek out instructional packages designed to increase fluency and comprehension. Instruction should be scaffolded for students who also need vocabulary and background knowledge and in which comprehension skills are explicitly taught and practiced (Coyne et al., 2007).

Summary

The purpose of this study was to evaluate the effects of peer delivery of the *Great Leaps Reading Program* (GLRP) on the oral reading fluency and reading comprehension of high school students with mild disabilities. The study sought to examine the ability of students with reading deficits to serve as peer tutors and deliver instruction in the GLRP with fidelity, and their opinions of the program. Six high school students with mild disabilities participated in the study. A multiple probe design across students was used to demonstrate the effects of peer-delivered Great Leaps on the dependent variables (e.g., fluency and comprehension). While the results of this study did not demonstrate a functional relation between the independent and dependent variables, the results did show an increase in the mean of words read correctly per minute from baseline to intervention for four of the six students and an increase in accuracy and decrease in the number of errors from baseline to intervention for all students. Furthermore, results of the social

validity measure indicated that all six students liked the GLRP and five of the six students felt that it helped improve their reading.

In closing, across the U.S. high school students with disabilities are struggling to be academically successful (NAEP, 2013; NCES, 2011; Newman et al., 2011). Nationally, students with disabilities showed a decline in reading skills from 2009 to 2013 with only 10% of students with disabilities scoring at or above the proficient level on the national 12th grade reading assessment (NAEP, 2013). More significantly, adolescents without core reading skills (e.g., phonemic awareness, decoding skills, fluency, comprehension) have a greatly reduced probability of graduating with a diploma (Hock et al., 2009). Although it may be challenging at the high school level, to deliver highly intensive reading instruction to struggling readers, given the rigorous content, and fast-paced, lecture-based instruction of the classroom, and time constraints of the high school schedule, "the consequences of *not* serving these students appropriately are grave—both for the individual students and for society" (Wexler et al., 2010, p. 9).

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Appendix A

UNC CHARLOTTE
College of Education
Department of Special Education and Child Development
9201 University City Blvd, Charlotte, NC 28223-0001

DATE

Andrew Crook, Principal
Central Cabarrus High School
505 Hwy. 49 S
Concord, NC 28025

Dear Ms. Hitt,

I am writing this letter in support of your proposal to conduct a research study with four to five high school students at Central Cabarrus High School who are in need of extensive support in reading. At our school, we share the vision for all students to learn and place extreme importance on providing instruction that is effective in meeting individual needs.

After reviewing the outline of the proposed study, I believe that many of our students could benefit greatly from the reading intervention. I support the quest to validate questions surrounding reading skills and student performance. Increasing reading fluency and comprehension for high school students is critical for success in their content classes and progress toward graduation.

I support your efforts to conduct research that would determine an effective reading fluency program for high school students. I look forward to collaborating with you on this project and feel that you will have the cooperation of our staff members given that all staff members are dedicated to our students' success at Central Cabarrus High School.

Sincerely,

Principal
High School

Appendix B

The University of North Carolina at Charlotte
9201 University City Boulevard
Charlotte, NC 28223-0001

College of Education
Department of Special Education
and Child Development
704/687-2531
FAX 704/687-2916

Student Assent Form for Participation in Educational Research

DATE

Dear Student:

My name is Sara Beth Hitt. I am a graduate student and researcher at The University of North Carolina at Charlotte. Your Curriculum Assistance teacher and I are working on a study to help high school students improve performance in reading by increasing their reading fluency.

I have made plans to work with you using a program called Great Leaps. We would like to study how this reading program helps you read passages quicker and more easily. If you want to be in our study, I will work with you for 15 minutes a day using the Great Leaps Program. I will also give you an opportunity to practice seeing if you understanding what you have read.

Each day, you will take 10 to 15 minutes to complete several 1-minute timed readings and on certain days you will complete a 3 minute timed reading. This practice with Great Leaps will take place during your CA class time. If at any time you decide that you no longer want to participate in our study, then you can stop at any point and no one will be mad at you.

I really hope this study will help you to do well in high school. If this study works, it may help more students like you to pass difficult exams and more easily understand what they read in their classes. I will write a report about the study when we are finished, but I will not put your name in the report.

If you want to participate in this study, please sign your name below.

_____ _____
Signature of Student Date

_____ _____
Signature of Investigator Date

Appendix C

The University of North Carolina at Charlotte
9201 University City Boulevard
Charlotte, NC 28223-0001

College of Education
Department of Special Education
and Child Development
704/687-2531
FAX 704/687-2916

Parent Consent Form for Participation in Educational Research

< Date >

Dear Parents and Guardians,

Your son or daughter has been invited to participate in a research study that addresses the reading skills of high school students. The purpose of this study is to investigate the effects of the *Great Leaps Reading Program* on the oral reading fluency of high school students with reading disabilities. *Great Leaps* was designed to help students increase their reading fluency and has been shown to be successful with all ages.

Investigators: My name is Sara Beth Hitt and I am a doctoral student from the University of North Carolina at Charlotte. I am completing this study, along with Dr. Charles Wood, a faculty member from the Special Education Program, as part of the requirements of the doctoral program in Special Education through UNC Charlotte. Prior to beginning the doctoral program, I was a special education teacher in Cabarrus County for eight years.

Description of Participation: Your child is eligible to participate in this study if he or she is age 14 or older, currently enrolled in a high school Curriculum Assistance (CA) class, and has a current IEP. In addition, selection will be based on scores below the 25th percentile in the areas of decoding and/or fluency on a standardized reading measure.

Each day, the researcher will work with your child for 10 to 15 minutes where he or she will complete several 1-minute timed readings to increase fluency. Every other instructional day your child will complete a 3-minute timed reading to measure comprehension. This practice with Great Leaps will take place during your child's Curriculum Assistance class. If at any time your child decides that he or she no longer wants to participate in our study, then he or she can stop at any point. Certain sessions may be audio recorded and accessed by a third party to ensure that the researcher is conducting the reading assessment with fidelity. No names will be recorded and only the researchers on the study will access the audio recordings.

At the end of the study, your child will be asked to complete a questionnaire to give him or her the opportunity to express his or her thoughts on the reading intervention.

Length of Participation: Your child's participation in this project will begin sometime in December of 2013 while enrolled in his/her Curriculum Assistance class and the study will end in February, 2014. The study participation will not require your child to be removed from class or to miss any typical academic experiences. Permission from your childs teacher will be obtained, prior to beginning the intervention to ensure that he or she will not be excluded from any essential instruction in class.

Risks and Benefits of Participation: There are no known risks associated with this study. The benefits of this study include increased reading fluency and academic performance, likelihood of increased scores on MSL common exams, and improved post-school outcomes.

Volunteer Statement: Your child is a volunteer. The decision to participate in this study is completely up to you and your child. If you and your child decide for your child to be in the study, your child may stop at any time. Your child will not be treated any differently if you and your child decide not to participate or if your child stops once your child has started.

Confidentiality: The data collected by the Investigator will not contain any identifying information or any link back to your child or his or her participation in this study. The following steps will be taken to ensure this confidentiality:

- All participants will not give names on the questionnaire.
- Audio recordings will only be accessed by the researchers.
- No participant will ever be mentioned by name in the reported results. To ensure this takes place, student numbers will be assigned to each participant during data collection.
- Any data collected, including all recordings, will be kept in a locked cabinet in the office of my supervising faculty member at UNC Charlotte.

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the university's Research Compliance Office (704-687-1871) if you have questions about how you or your child is treated as a study participant. If you have any questions about the actual project or study, please contact Sara Beth Hitt (704) 687-8490, or Dr. Charles Wood (704)-687-8395.

Participant Consent:
I have read the information in this consent form. I have had the chance to ask questions about the study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree for my child to participate in the research project. I understand that I will receive a copy of this from after it has been signed by me and the Principal Investigator.

_____ _____
Name of Student Participant Date

_____ _____
Parent Signature Date

_____ _____

Investigator Signature Date

Please place a check in the box if you prefer your child not be audio recorded. ☐

Appendix D

Student Social Validity Measure

Name _____
Date _____

Directions: Mark the box that best describes your feelings:

	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree
I am a good reader.					
I understand most of what I read.					
The *Great Leaps Reading Program* helped me improve my reading.					
I liked the *Great Leaps Reading Program.*					
I liked practicing reading with another student.					
Reading with another student helped me improve my reading.					

Appendix E

Procedural Reliability Checklist

Huddle

1. Did the teacher model the correct pronunciation of phonemes, sight phrases, or words that needed clarification for each pair of students before the session began? Yes____ No____

Practice

2. Did the peer partner ask their partner to read as many phonemes, sight phrases, or words as possible before each timing? Yes____ No____

3. Did the peer partner use a timer to ensure that the data collection occurred for one minute on each variable? Yes____ No ____

4. Did the peer partner circle the phonemes, sight phrases, and words read incorrectly during each data collection procedure for each independent variable? Yes____ No____

5. Did the peer partner follow the GLRP guidelines and count the number of words read correctly for each variable? Yes____ No____

6. Did the peer partner provide immediate feedback following data collection for each dependent variable? Yes____ No____

Checkout

7. At the end of the practice session, did the teacher time and record words read correctly and errors for each student for each phase? Yes_____ No _____

8. Are the data graphed for each dependent variable? Yes____ No____

Total _____/ 8 _____%