THE IMPACT OF FLUENCY AND VOCABULARY INSTRUCTION ON THE READING ACHIEVEMENT OF ADOLESCENT ENGLISH LANGUAGE LEARNERS WITH READING DISABILITIES

by

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To Jason, Lila, and Miles

Why, sometimes I've believed as many as six impossible things before breakfast

.

Lewis Carroll,
Alice In Wonderland

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ABSTRACT

Being able to read proficiently is a critical skill all students must master in order to graduate from high school, pursue postsecondary learning opportunities, and secure employment. English language learners (ELLs) are a group of students at risk for leaving school without becoming proficient readers. Repeated reading has been identified through the literature as a promising approach for remediating reading difficulties for adolescent ELLs with reading difficulties (Denton et al., 2004; 2004; Hawkins et al., 2011; Malloy et al., 2006; Tam et al., 2006; Valleley & Shriver, 2003). Repeated reading been shown to increase students' reading fluency and in turn their comprehension, and vocabulary instruction is considered an essential component of instruction for ELLs.

The main purpose of this study was to extend the literature and investigate two components of reading intervention for adolescent ELLs with reading difficulties: fluency instruction and vocabulary instruction. Specifically the study examined the following research questions: (1) What is the impact of a repeated reading intervention on the reading fluency, accuracy, and reading comprehension of adolescent ELLs with reading difficulties? (2) What are the additive effects of vocabulary instruction, in conjunction with the repeated reading intervention, on the reading fluency, accuracy, and reading comprehension of adolescent ELLs with reading difficulties?

Summary of Study Design and Findings

A single case ABCBC multi-treatment design was used to investigate effects of repeated reading over no intervention (baseline) and the additive effects of vocabulary instruction for three adolescent ELLs with reading disabilities. The repeated reading intervention phases consisted of adult modeling, error correction, feedback, and practice reading expository passages. The repeated reading + vocabulary instruction phases added direct instruction of six vocabulary words found in the passage.

Overall findings indicate that ELLs with reading disabilities benefit from repeated reading interventions but respond differentially to the addition of vocabulary instruction.

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INTRODUCTION

English Language Learner Statistics

Being able to read proficiently is a critical skill all students must master in order to graduate from high school, pursue postsecondary learning opportunities, and secure employment. English language learners (ELLs) are a group of students at risk for leaving school without becoming proficient readers. ELLs are overrepresented among struggling readers (August & Shanahan, 2006) and demonstrate low rates of reading proficiency on the National Assessment of Education Progress (NAEP), with only 7% of 4th grade and 3% of 8th grade ELLs scoring at or above benchmark (U.S. Department of Education, 2011). The ELL population is on the rise across the country with an estimated 10% of students enrolled in K–12 public schools participating in programs for ELLs, and 67% of K–12 public schools serving students who are classified as limited English proficient (LEP; U.S. Department of Education, 2012). The lack of academic achievement among this growing population requires immediate attention from researchers in order to close the achievement gap and decrease the number of ELLs who are struggling readers. The purpose of this study is to examine the effects of a reading intervention for adolescent ELLs at risk for reading failure.

ELLs Receiving Special Education Services

ELLs are less likely to read at a proficient level, more likely to drop out of school (Chapman, Laird, Ifill, & Kewal-Ramani, 2011), and disproportionately identified for special education services (Ford, 2012). This disproportionate representation demonstrates how difficult it is to accurately identify ELLs with Learning Disabilities (LD; McCardle, Mele-McCarthy, Cutting, Leos, & D'Emilio, 2005). Approximately 10% of ELLs receive special education services (U.S. Department of Education, 2002), and

most ELLs who are identified for special education services are identified as having reading disabilities (i.e., 56%) (Klingner, Artiles, & Barletta, 2006).

Researchers have found that ELLs with limited language proficiency in both their native language and English are more often identified for special education services than ELLs who demonstrate proficiency in their native language (Artiles & Ortiz, 2002). In addition, ELLs who demonstrate slow vocabulary development are at an increased risk for being diagnosed with a LD (August, Carlo, Dressler, & Snow, 2005).

Schools in the U.S. currently use a model for identification that relies on a student's individual "response to evidence-based instruction" as one part of determining eligibility for special education services (Fuchs, Fuchs, & Compton, 2012). This model has shown promise for accurately identifying ELLs with disabilities and reducing disproportionality, but it is not without problems. One of the major concerns is the lack of evidence-based interventions for ELLs, especially those who are experiencing academic difficulties (Artiles, Kozleski, Trent, Osher, & Ortiz, 2010). In order to determine if an ELL is in need of, and eligible for, special education services, teachers and practitioners need evidence-based interventions designed specifically for adolescent ELLs with reading difficulties.

If an ELL is eligible for special education services, special education teachers must have interventions that are specifically validated for use with ELLs available to them (Klingner & Boardman, 2011). As with English Only (EO) students there is unlikely to be one intervention that works for all students and it is important for researchers to not only determine which interventions are effective for different students but also what components of interventions are effective (McCardle et al., 2005). At this time, there is a lack of evidence on effective interventions for adolescent ELLs with reading difficulties and disabilities (Denton, Wexler, Vaughn, & Bryant, 2008; Linan-Thompson, Vaughn, Prater, & Cirino, 2006; Solari, Petscher, & Folsom, 2012; Tam,

Heward & Heng, 2006; Vaughn, Mathes, Linan-Thompson, & Francis, 2005) making both identification and instruction of ELLs with reading disabilities difficult.

Reasons Why ELLs are At-Risk for Reading Difficulties and Disabilities

Researchers and practitioners are aware that ELLs are at risk for reading difficulties and disabilities but that awareness does not easily translate to an understanding of the reasons for the difficulties (August & Shanahan, 2006). Similar to their EO peers, ELLs must become proficient with numerous skills (e.g., decoding, reading fluently, using comprehension strategies) in order to demonstrate reading proficiency; however, ELLs have the added layer of second language development. This added layer makes it difficult to know if ELLs struggle with reading because of their limited English proficiency, because of inadequate instruction, or because of a learning disability (Klingner, et al., 2006), and in turn makes it difficult to know where to target instruction.

Adolescent ELLs are also at risk for reading failure because of limited English vocabularies, which in turn affects comprehension especially when reading academic words found in middle and high school text (Carlo et al., 2004). Larger vocabularies aid comprehension while limited vocabularies slow down comprehension and reciprocally decrease the likelihood that a student will learn new words when reading (Carlo et al., 2004; Francis, Rivera, Lesaux, & Kieffer, 2006; Stanovich, 1986). In order for ELLs to demonstrate comprehension they need to not only read accurately and efficiently, but also have sufficient vocabulary and background knowledge, which may be affected by second language acquisition.

Purpose of and Instructional Approach Used in the Study

The main purpose of this study is to extend the literature and investigate two components of reading intervention for adolescent ELLs with reading difficulties, fluency

instruction and vocabulary instruction. Previous fluency and vocabulary research has focused on ELLs in grades 1-5 (Carlo et al., 2004; Denton, Anthony, Parker, & Hasbrouck, 2004; Kim & Linan-Thompson, 2013; Malloy, Gilbertson, & Maxfield, 2006; Tam et al., 2006), and a review of the literature found no studies of fluency interventions with adolescent ELLs (Wexler, Vaughn, Edmonds, & Retebuch, 2008). This intervention includes elements to increase students' accuracy and fluency (repeated reading) and studies the systematic addition of vocabulary instruction in order to determine what components are most likely to increase adolescent ELLs' reading achievement.

Definitions

- **Comprehension**: an active process that requires intentional and thoughtful interaction between the reader and the text in order to understand what is being read (National Reading Panel, 2000).
- **English language learner (ELL):** a student whose home language is not English, who demonstrates limited English language proficiency, a need for special support, and is served in a program of language assistance (U.S. Department of Education, 2013).
- **English only (EO):** a student whose first language is English.
- **Fluency**: the ability to recognize words easily, read with automaticity, accuracy, and prosody in order to better understand what is read. Children gain fluency by practicing reading until the process becomes automatic (National Reading Panel, 2000).
- **Long-term ELL:** a student who has been in English instruction since Kindergarten, and has failed to make enough progress towards full English proficiency by middle and high school. Long-term ELLs often have a limited academic vocabulary, significant deficits in reading and writing, and gaps in other academic skills (Olsen, 2010).

- **Phonemic awareness**: the knowledge that spoken words can be broken apart into smaller segments of sound known as phonemes (National Reading Panel, 2000).
- **Phonics**: the knowledge that letters of the alphabet represent phonemes, and that these sounds are blended together to form written words. Readers who are skilled in phonics can sound out words they haven't seen before, without first having to memorize them (National Reading Panel, 2000).
- **Vocabulary:** is the words used in a given language. Vocabulary is important for reading comprehension. When a reader encounters an unknown word in print they work to decode the word to speech. If the unknown word is in the reader's oral vocabulary, the reader will be able to understand it. If the word is not in the reader's oral vocabulary, the reader will have try and figure out the unknown words meaning. The larger the reader's vocabulary the easier it is for them to comprehend the text (National Reading Panel, 2000)**.**
- **Oral Passage Reading (OPR):** an individually administered measure of students reading fluency and accuracy in connected text. OPR is a good predictor of overall reading achievement. OPR passages are different but of similar difficulty. They are administered for one minute and the number of words read correctly is recorded as the OPR score (Hosp, Hosp, & Howell, 2007).
- **Maze:** a measure of students overall reading proficiency that encompasses both reading automaticity and comprehension. Maze is a multiple-choice cloze task that students complete while reading silently. The first sentence of a 150- to 450-word passage is left intact. There after every seventh word is replaced with three words inside parentheses. Students select the

one word that makes the most sense. Students are given 3 minutes and asked to circle the word (given a choice of three words) that best completes the sentence. Correct answers are totaled, and this number is the student's score on the Maze assessment (Hosp et al., 2007).

CHAPTER TWO

LITERATURE REVIEW

Chapter Overview

The increasing population of ELLs and the alarmingly low rate of reading proficiency among adolescent ELLs has led to an increased focus on reading research for this population of learners. This literature review will review the characteristics of adolescent ELLs with reading difficulties and disabilities, theories of reading achievement, reading instruction, current reading intervention practices for adolescent ELLs, repeated reading interventions, and vocabulary interventions.

Adolescent ELLs with Reading Disabilities

An ELL is a student who is served in a program of language assistance such as an English as a Second Language program (ESL; U.S. Department of Education, 2013). ELL identification varies by state and generally includes students whose home language is not English and who demonstrate limited English language skills and a need for special support in English language development (Solari et al., 2012). ELLs may demonstrate good conversational English skills but lack the academic vocabulary necessary for success in content area instruction (Francis et al., 2006).

ELLs have some characteristics in common (e.g., home language other than English) but remain a heterogeneous group. ELLs differ in terms of language proficiency, socioeconomic background, ethnicity, instruction (Klingner et al., 2006), culture, and language support systems (Solari et al., 2012). These differences are important when determining why ELLs struggle to develop reading skills. Is it because of the interaction of language skills, culture, instruction, background knowledge, or because of a learning disability (Klingner et. al., 2006)?

ELLs are traditionally thought of as recent immigrants; however, data suggest that the majority of ELLs in the United States are Spanish-speaking, U.S. born children, who have been in schools in the United States since kindergarten (Kieffer & Vukovic, 2012; Francis et al., 2006). ELLs who have been in English instruction since Kindergarten, but have failed to make enough progress towards full English proficiency by middle and high school, are classified as long-term ELLs (Olson, 2010). Long-term ELLs may sound similar to native English speakers, but have a limited academic vocabulary (Menken, Kleyn, & Chae, 2007). Long-term ELLs often have significant deficits in reading and writing as well as gaps in other academic skills (Olsen, 2010). In middle and high schools it is estimated that 30 – 50% of students classified as ELLs are long-term ELLs (Menken et al., 2007; Olson, 2010). ELLs who meet the characteristics of long-term ELLs are at an increased risk for special education placement and academic failure.

Overall approximately 13% of the school age population receives special education services and 10% of ELLs receive special education services (U.S. Department of Education, 2002) with the majority receiving services for reading difficulties (Klingner & Artiles, 2006). ELLs have been disproportionately represented in high incidence categories of special education (e.g., LD, speech and language disabilities), and researchers have found both overrepresentation as well as underrepresentation depending on student, school, and district characteristics (Artiles & Bal, 2008; Ford, 2012; Solari et al., 2012; Sullivan, 2011). One reason for this disproportionate representation is the difficulty in distinguishing between learning disability and language acquisition in order to accurately identify ELLs with LD.

Identification

Identification of ELLs for special education services is an area of controversy within the field of special education. High incidence disabilities (such as LD) are considered "judgment" categories because decisions about eligibility are subjective and

therefore open to bias (Artiles et al., 2010). Identification of ELLs with disabilities can have contradictory problems of both over and under identification due in part to: a) teacher beliefs that ELLs cannot be referred for special education services until they have acquired sufficient English skills; b) lack of effective instruction for ELLs; and/or c) lack of resources to provide effective interventions for ELLs struggling to make academic growth (Hayman, Marler, Sanchez-Lopez, & Damico, 2007; Sullivan, 2011).

Two models of identification for special education eligibility are most frequently used. The first model, considered the original approach, requires the use of IQ and achievement assessments to show a severe discrepancy between intelligence and achievement (Francis, Fletcher, Stuebing, Lyon, Shaywitz, & Shaywitz, 2005). This model is generally considered to be an inappropriate way to determine eligibility for ELLs, as the assessments typically used can be culturally biased and often provide underestimates of both intelligence and achievement (Hayman et al., 2007; Sandberg & Reschly, 2011). The second, more current, model for identification is Response to Intervention (RTI). This model uses a student's individual "response to evidence based instruction" as one part of determining eligibility for special education services (Fuchs et al., 2012), and has the potential to more accurately identify ELLs with disabilities. However, the RTI model relies on evidence-based interventions and there is a lack of evidence-based interventions for ELLs with academic difficulties (Artiles et al., 2010; Klingner et al., 2006; Wayman, McMaster, Saenz, & Watson, 2010). Identification of learning disabilities remains difficult even with evidence-based interventions because the characteristics of students learning a second language can be similar to the characteristics of students with LD (Klinger & Artiles, 2006).

Characteristics

Describing ELLs with reading difficulties and disabilities is complex, and the sources of difficulties are not completely understood (August & Shanahan, 2006).

Similarities are found between EO students and ELLs with reading difficulties including phonological awareness as well as word and pseudoword reading deficits (Lesaux, Koda, Siegel, & Shanahan, 2006). ELLs who demonstrate reading difficulties generally demonstrate low vocabulary knowledge, low second language proficiency, and limited first language reading abilities (Lesaux & Geva, 2006). If students *have* had adequate instruction of early literacy skills and word level skills, then deficits in these skills often accurately identify ELLs with reading disabilities (Lesaux et al,. 2006). However, if students are demonstrating deficits in comprehension, the sources of difficulty (i.e., reading disability, language acquisition, lack of instruction) are much less clear. ELLs tend to demonstrate lower levels of comprehension than their EO counterparts (August & Shanahan, 2006). Reading comprehension is an area of difficulty for ELLs across the grade levels, with sources of difficulty including vocabulary, background knowledge, word level skills, text level skills, motivation, and home literacy practices (Lesaux et al., 2006). These constitute some of the essential components of instruction and intervention.

Essential Components of Effective Reading Instruction and Intervention

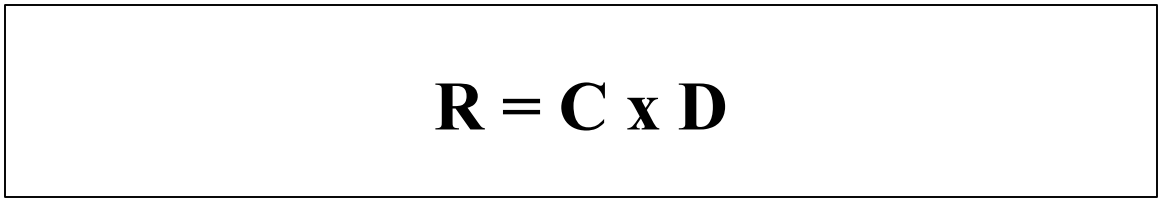
There is some controversy within education surrounding the essential components of reading instruction and intervention. There is, however little to no controversy over the ultimate goal of reading instruction, which is to provide students with the skills necessary to comprehend all types of text they read (Torgeson, 2002).

Theoretical Models of Reading

One model of reading is Gough's simple view of reading. In Gough's simple view of reading, decoding skills (i.e., recognizing the words on the page) and oral language (e.g., understanding the words) are the two skills necessary for reading comprehension and most of the differences in comprehension performance can be accounted for by differences in these two areas (Gough, 1996, Gough, Hoover, & Peterson, 1996; Hoover

Gough, 1990). Said another way, reading comprehension is the product of oral comprehension and decoding (Gough, 1996; Hoover & Gough, 1990).

Figure 1
Reading Comprehension Equals the Product of Oral Comprehension and Decoding



According to the simple view of reading, in order to comprehend text students must be able to read accurately and fluently as well as possess general oral language skills that aid them in comprehending what they read (Torgeson, 2002). Oral language skills are increased when students are able to link lexical representations, pronunciation, and meaning of words (Ehri, 2005; Fuch, Fuchs, Hosp, & Jenkins, 2001). Some students with reading difficulties require much more practice than peers to make the connections and achieve levels of automaticity that are conducive to comprehending text (Ehri, 2005). ELLs may not have adequate levels of oral comprehension, due to limited vocabulary skills, to support automatic reading and in turn comprehension (Lesaux & Geve, 2006).

Gough's simple view of reading has also been used to explain variations in English reading comprehension among Spanish-speaking ELLs (Hoover & Gough, 1990; Mancilla-Martinez, Kieffer, Biancarosa, Christodoulou, & Snow, 2011; Nakamoto, Lindsey, & Manis, 2007; Proctor, Carlo, August, & Snow, 2006). Decoding skills and oral language skills contribute significantly to Spanish-speaking adolescent ELLs reading comprehension outcomes (Mancilla-Martinez et al., 2011). The simple view of reading

accounts for the two facilitators of reading comprehension (reading fluency and vocabulary) for adolescent ELLs but does not provide guidance on the best way to teach these skills.

Effective Instructional Components

Decades of research support key components of instruction that increase student learning regardless of the subject matter. In order to help students process the information they are learning, teachers must help students develop well connected knowledge structures by presenting new material in small steps, guiding students as they practice, and checking for understanding (Rosenshine, 1995). Teachers can further advance students' learning by connecting what is known with what is unknown and teaching students to organize, review, rehearse, summarize, and compare and contrast new information (Rosenshine, 1995). In order to help students become independent with new skills it is important that students are provided with extensive practice in order to develop automaticity. This is especially true for students with LD.

Effective instruction for students with LD. Students with disabilities must learn the same skills as students without disabilities, in order to become proficient at academic tasks, however their instruction must be more explicit, intense, and comprehensive (Foorman & Torgeson, 2001). There are clear instructional components and types of instruction that increase achievement for students with LD. When effective instructional practices are implemented achievement gains for students with disabilities are large with mean effect sizes ranging from 0.70 to 1.62 (Burns & Yesseldyke, 2009).

Meta-analyses of effective instructional components for students with LD revealed direct instruction, strategy instruction, and a combination of the two led to the largest gains for students with LD (Swanson, 1999; Swanson, Carson, & Sachse-Lee, 1996; Swanson & Hoskyn, 1998, 2001; Swanson & Sachse-Lee, 2000). Across academic

domains these meta-analyses found it is important to control task difficulty and use small group instruction for students with LD (Swanson & Hoskyn, 1998, 2001).

Direct instruction is a method of instruction that uses fast paced, well sequenced, and highly focused lessons. Direct instruction is generally used to teach skills such as phonemic awareness, phonics (i.e., decoding) and reading fluency. Elements of direct instruction that increase student achievement are (a) fast paced, (b) well sequenced, (c) highly focused lessons, (d) repetition and practice, (e) opportunities to respond, (f) opportunities for feedback, (g) content broken down in to small tasks, and (h) probes used to monitor progress (Swanson 1999; Swanson & Hosykn, 1998, Swanson & Sasche-Lee, 2000). Direct instruction is generally considered the bottom up approach for instruction and strategy instruction is considered the top down approach.

Strategy instruction is a method of instruction that teaches cognitive strategies, or guides, to support students as they learn how to perform higher level skills such as generating questions while they read (Rosehshine, 1995). Strategy instruction is generally used to teach strategies to increase comprehension and is an instructional approach that increases achievement for students with disabilities either alone or in combination with direct instruction. Elements of strategy instruction that increase achievement for students with LD include; (a) advanced organizers, (b) elaboration, (c) summarization, (d) teacher metacognition, (e) modeling from the teacher, (f) reminders to use strategies and procedures, (g) dialogue (h) questioning, and (i) teacher assistance as needed (Swanson & Hoskyn, 1998, 2001; Swanson & Sachse-Lee, 2000). Both direct instruction and strategy instruction produce the greatest gains in achievement when they include review, objective statements, teacher presentation of new material, guided practice, independent practice, feedback, and evaluation (Swanson & Hoskyn, 2001).

Research is clear that students with disabilities benefit from both direct instruction and strategy instruction. The skills developed through direct instruction and strategy

instruction do not exist in isolation of one another and students will have to use both types of skills in order to perform the complex tasks necessary to read with comprehension. Similar to students with disabilities, ELLs also benefit from specific evidence-based instructional practices.

Effective instruction for ELLs. There is little evidence to suggest that effective instruction for ELLs differs from effective instruction for EO students (Snow, 2006). Similar to EO students, high quality instruction for ELLs should be systematic, intensive, and differentiated for individual students' needs (Snow, 2006). ELLs benefit from both direct instruction and strategy instruction, especially when these practices are combined with instruction to increase English language skills (Shanahan & Beck, 2006).

There is some controversy over the best models within which to use effective instruction (e.g., bilingual or English only). Recent research found the most important factor was not the language of instruction, but the quality of instruction as indicated by trained teachers, professional development, and coaching (Cheung & Slavin, 2012). With quality instruction ELLs are able to gain literacy skills (i.e., phonemic awareness, concepts of print, decoding, and fluency) at the same levels as their EO peers (Lesaux et al., 2006). High quality instruction is necessary for ELLs but not sufficient, as instruction for ELLs must also work to build English language skills (Shanahan & Beck, 2006).

English language development should focus on developing both social and academic proficiency in English (Gersten & Baker, 2000), and embed effective strategies to increase oral language proficiency (e.g., purposeful language support activities such as: using visuals, gestures, and facial expressions, explicit instruction of vocabulary; and multiple opportunities for response) within instruction and intervention (Torgeson et al., 2007). When effective instructional practices are used, ELLs are able to achieve success with word-level skills and reduce their risk for reading difficulties (Snow, 2006). Word

level reading skills are one important component for overall reading success but not sufficient as detailed in the National Reading Panel (NRP) Report.

Reading Instruction

In 2000, the NRP published a report synthesizing research on reading instruction and giving implications for classroom practices. The report highlighted five areas that were necessary for students to be successful readers as well as instructional practices that would likely help students gain these skills. The five areas; phonemic awareness, phonics, fluency, vocabulary, and comprehension can be linked to either decoding skills (phonemic awareness, phonics, fluency) or oral language (vocabulary) from Gough's simple view of reading. All of these skills are necessary for a student to comprehend what they read. The NRP found that direct instruction and /or strategy instruction were most likely to increase student achievement in all five areas of reading over incidental instruction (National Reading Panel, 2000).

The first two areas reviewed by the panel, phonemic awareness and phonics, are traditionally thought of as early literacy skills. Young children who have good phonemic awareness tend to be good readers and students benefit from as little as 15 minutes of phonemic awareness instruction per day (Torgesen & Mathes, 2000). Phonics instruction increases student's word recognition, spelling, and comprehension skills to the extent it leads to reading words already in the student's oral vocabulary (NRP, 2000). This effect on comprehension diminishes as students get older and are presumably reading text with more content words that may not already exist in their vocabulary (Heibert, 2002).

Once students possess adequate early literacy skills they must continue to develop oral reading proficiency (i.e., reading fluency). Students not only need to read accurately, but with enough speed and automaticity to comprehend what they are reading (Fuchs et al., 2001). Fluency is best taught in grades 1-4 but students in grades 5-9 also show benefit from remedial fluency instruction (NRP, 2000). Increases in student's fluency are

linked to increases in comprehension (Fuchs et al., 2001; Shinn, Good, Knutson, Tilly & Collins, 1992).

One way to measure fluency is through oral passage reading (OPR) performance. Widely used norms for adolescents in grades 6-8 as well as growth rates are described in Table 1. These levels reflect the 50th percentile and students scoring 10 or more words below this level need additional instruction to build their fluency (Hasbrouck & Tindal, 2006). Accuracy levels to support comprehension are also well established within the field with accuracy rates of 97% or higher indicating a text is at the independent level; 94-97% accuracy indicates the text is at the instructional level; and accuracy 93% or below indicates the text is at the frustration level (Hasbrouck & Tindal, 1998). Increases in reading fluency and accuracy can lead to increases in comprehension but these increases can be limited if students do not also have adequate vocabulary knowledge.

Vocabulary was the fourth area reviewed by the panel, as it is an important component of reading instruction for all learners. Vocabulary instruction involves more than word recognition, it extends to word meaning (Beck & McKeown, 2005). Vocabulary instruction is most effective when both indirect and direct methods are employed. Direct instruction of word meaning increases student's word knowledge and comprehension (Beck, Perfetti, & McKeown, 2005). If students are able to develop

Table 1
Curriculum-Based Measurement: Oral Passage Reading Norms for Adolescents

Grade	Fall	Winter	Spring	Weekly Growth Rate
6	127	140	150	0.8
7	128	136	150	0.7
8	133	146	151	0.6

Note. adapted from Hasbrouck & Tindal, 2006

the facilitating decoding and oral language skills then they are more likely to comprehend what they read at higher levels.

The final area of reading instruction the NRP reviewed was the area of comprehension. If students do not have the necessary prerequisite skills of phonemic awareness, phonics, fluency, and vocabulary knowledge they are not able to translate the text in order to comprehend it, and automaticity with these skills is necessary in order to use comprehension strategies (NRP, 2000). Students receive additional benefit from strategy instruction in the area of reading comprehension, and this instruction may include such skills as questioning, predicting, clarifying and summarizing (Palincsar & Brown, 1984).

The NRP provided an important framework for teaching students to read, but the report was not without limitations. The report did not examine literacy instruction for students who were ELLs and often times students with reading disabilities were not included in the sample of participants (e.g., comprehension). Making it important to examine reading instruction for these two populations.

Reading instruction for students with LD. Even with adequate instruction in phonemic awareness and phonics skills in kindergarten and 1st grade, a significant portion of students continue to struggle with these early literacy skills (i.e., 6-25%) (Torgeson, 2000; Torgeson et al., 1999). Many students with LD demonstrate persistent deficits with early literacy skills. Students who are older and have not mastered these skills can still benefit from instruction targeting phonemic awareness and phonics but the instruction must be more intense and explicit (Torgeson, 2002).

As with early literacy skills, there is extensive research to support the use of fluency instruction with both regular achieving students and students with reading difficulties and disabilities (Chard, Vaughn, & Tyler, 2002; Kuhn & Stahl, 2003; Therrien, 2004; Wexler, et al., 2008). Students with disabilities tend to read at slower

rates than their non-disabled peers (Chard et al., 2002). Fluency instruction for students with disabilities should include modeling, multiple opportunities for practice, and feedback (Chard et al., 2002). Students with disabilities will likely need more opportunities to practice fluent reading in order to develop skills at the same level as their peers (Ehri, 2005).

Students with LD often exhibit lower levels of vocabulary knowledge but vocabulary instruction can increase this word knowledge (Jitendra, Edwards, Sacks, & Jacobson, 2004). Vocabulary instruction for students with LD that includes active processing of word meanings and small group instruction leads to the largest gains (Bryant, Goodwin, Bryant & Higgins, 2003; Jitendra et al., 2004).

Similar to students without disabilities students with reading disabilities benefit from strategy instruction that includes modeling and feedback, to increase their comprehension skills (Gersten, Fuchs, Williams, & Baker, 2001). Students with disabilities benefit from more explicit instruction, the use of advanced organizers, visual prompts, step by step instruction, and strategy cuing to aide in their use of comprehension strategies (Swanson & Hoskyn, 1998).

The instructional components that increase reading achievement for students with LD are similar to those that increase achievement for all students. The differences lie in the intensity of instruction and how explicit the instruction needs to be. The instructional components for ELLs are also similar although much less is known about how to increase overall reading achievement (i.e., comprehension) for ELLs than for students with disabilities.

Reading instruction for ELLs. Although the NRP did an extensive review of the literature the majority of the studies reviewed did not include ELLs as participants. In 2006 a report was published that summarized the research on literacy instruction for ELLs. This report, *Developing Literacy in Second-Language Learners,* found many

similarities between EO students and ELLs. Both ELLs and EO students benefit from instruction in phonemic awareness, phonics, fluency, vocabulary, and comprehension (August & Shanahan, 2006).

Similar to EO students, phonemic awareness and phonics skills are important for ELLs and are linked to later reading success (Lesaux & Geva, 2006). Systematic, explicit, and intense reading instruction that includes phonemic awareness and phonics instruction increases achievement for ELLs in grades K-3 enough to reduce or eliminate the risk of reading failure (Linan-Thompson et al., 2006; Vaughn, Cirino, et al., 2006; Vaughn, Mathes, et al., 2006; Vaughn et al., 2005)

There has been little research examining the use of fluency interventions for ELLs. The studies that have examined fluency instruction for ELLs show promising results but more research is needed to determine if fluency instruction for ELLs is an evidence based practice (Denton et al., 2004; Tam et al., 2006). Francis and colleagues (2006) hypothesize that fluency instruction should focus on increasing both vocabulary and exposure to print, but recognize that this is not yet supported by research.

Similar to their EO peers, it is important that teachers not rely solely on incidental vocabulary instruction for ELLs (Shanahan & Beck, 2006). ELLs tend to demonstrate both a limited breadth and depth of vocabulary knowledge and require direct vocabulary instruction (August et al., 2005). Instruction that incorporates practice, review, reinforcement, and active processing of word meaning leads to greater retention of word meanings and this increased vocabulary knowledge is linked to increased comprehension (August et al., 2005),

Although increased vocabulary knowledge can led to increased comprehension, reading comprehension is an area where many ELLs demonstrate poorer skills than the EO peers (Snow, 2006). This may be due in part to limited oral vocabularies. This limited vocabulary knowledge is linked to lower levels of reading comprehension

(Leausx & Geva, 2006). It is difficult to determine the best way to teach reading comprehension to ELLs based on the limited amount of research available (Shanahan & Beck, 2006). Although there is limited research for increasing comprehension for ELLs one can draw from the research for EO students to learn what instruction and interventions may have the most potential. Specifically, reading instruction for older EO students is valuable as much of the research is focused on increasing student's comprehension of text.

Reading instruction and intervention for adolescents with reading difficulties. Explicit instruction of comprehension skills (e.g., strategy instruction) is important for adolescents and this instruction should be embedded within content areas, use diverse text, technology, and formative assessment (Biancorosa & Snow, 2004). Although comprehension strategy instruction is important, adolescents with reading difficulties can demonstrate a range of deficits including difficulties with word reading, fluency, and vocabulary (Biancorosa & Snow, 2004). Making it important for teachers to have a wide range of interventions to target individual student needs.

Several meta-analyses and practice guides have focused on reading instruction for adolescents with reading difficulties (Edmonds et al., 2009; Flynn, Xheng, & Swanson, 2012; Kamil, 2008; Scammacca et al., 2007; Torgesen et al., 2007; Wanzek et al., 2013). Overall, these meta-analyses support the conclusion that older students with reading difficulties can improve their reading comprehension, word level reading skills, vocabulary, and fluency skills with overall reading achievement effect sizes on standardized measures ranging from 0.10 – 0.47 (Edmonds et al., 2009; Flynn et al., 2012; Scammacca et al., 2007; Wanzek et al., 2013). Although effect sizes are small to moderate for adolescents they do show it is not too late to intervene with older students.

Many different interventions have been shown to be effective (e.g., multicomponent, comprehension, fluency, decoding, and vocabulary) for adolescents

with reading difficulties (Edmonds et al., 2009). Interventions need to be appropriately focused on student's skills deficits for maximum gain (Scammacca et al., 2007). Adolescents with reading difficulties benefit from explicit instruction that is well focused, and intense, and delivered by trained specialists (Kamil, 2008).

The intensity of interventions for older readers is important because interventions may need to be longer in duration, targeted, and more intense (i.e., time in instruction and smaller group size) than those for younger students in order to address the complex needs of adolescents with reading difficulties (Scammacca et al., 2007; Wanzek et al., 2013). It can be challenging to accelerate the progress of older students who are below grade level and interventions may need to be implemented over several years in order to produce positive results (Vaughn, Denton, Fletcher, 2010). It is clear that targeted intense reading interventions increase reading achievement for adolescents with reading difficulties, but much less is known about reading intervention for adolescent ELLs with reading difficulties and disabilities.

Reading Interventions for Adolescent ELLs with Reading Difficulties and Disabilities

A review of the literature revealed eleven studies investigating reading interventions for adolescent ELLs with reading difficulties and disabilities. Tables 2, 3, and 4 include a list of the studies and details of the study design and intervention characteristics. The interventions are grouped into three categories: 1) interventions focused on word level skills such as fluency and decoding, 2) comprehension focused interventions, 3) and multicomponent interventions. Five studies focused only on word level skills such as decoding and fluency, three studies focused specifically on teaching comprehension strategies, four of the studies were multicomponent studies focusing on multiple areas of reading, including decoding, fluency, vocabulary, and comprehension, and one study compared word level instruction to comprehension instruction.

Decoding and Fluency Interventions

Wanzek and Roberts (2012) compared three interventions with a comparison condition of school-provided intervention. Eighty-seven students who were teacher nominated and scored below the 25th percentile on reading achievement assessments were randomly assigned to one of three intervention conditions or to the comparison condition. Sixty-two percent of the students were identified as having limited English proficiency (LEP). The students spent an average of 50 hours over 28 weeks in small group intervention provided by teachers hired by the researchers. All conditions included a small amount of vocabulary instruction (3-4 minutes) as well as a controlled amount of text reading (8-10 minutes). One intervention condition in the Wanzek and Roberts (2012) study had a word study emphasis. The students in this condition (n = 21) received instruction that explicitly taught decoding and encoding strategies (Wilson System Reading) following a systematic sequential order of instruction. Comprehension checks were embedded in this instruction but were not the focus of the instruction. Moderate effects (d = .31 - .54) were achieved but these effects were not statistically different from the effects of the other condition or comparison condition. Students who were identified as LEP performed significantly better on posttests, across conditions, than their peers who did not demonstrate limited English proficiency.

Denton, Anthony, Parker, and Hasbrouck (2004) compared two interventions and included 93 ELLs in the sample. The first intervention focused on phonics instruction and decoding strategies using Read Well (n = 33). The second used repeated reading (Read Naturally) to intervene with fluency, vocabulary, and comprehension (n =60). The fluency intervention did not include systematic phonics instruction. The decoding intervention, which used systematic explicit phonics instruction, showed a moderately low effect on word identification (d = .37) and a moderate effect on pseudo word

Table 2
Decoding and Fluency Interventions: Description of Reviewed Studies

Article	Sample	Study Design	Intervention Description	Results
Bliss, Skinner, & Adams (2006)	One 5th grade student recommended by the teacher as a struggling reader and who also was a designated ELL	Single subject, multiple baseline study	Sight words intervention using a time-delay taped-words intervention	Positive increase in sight words read
Denton, Anthony, Parker, & Hasbrouch (2004)a	2nd-5th grade students who were struggling readers; All native Spanish speaking students	Experimental design with random assignment of matched pairs of students	Decoding Emphasis (Read Well)	Students in systematic phonics instruction made significant gains in word identification
Denton, Anthony, Parker, & Hasbrouch (2004)b	2nd-5th grade students who were struggling readers; All native Spanish speaking students	Experimental design with random assignment of matched pairs of students	Fluency Emphasis (Read Naturally)	No significant results in favor of the treatment condition
Lovett et al., (2008)	2nd -8th grade students with reading disabilities; 45.7% English Language Learners	Students were matched by ability level and then randomly assigned to treatment or control	Emphasis on word attack and word identification using Reading Mastery, I/II Fast Cycle or Corrective Reading Materials	Treatment condition resulted in significant and substantial effects across measures. No differences was noted for ELL or non ELL students
Tam, Heward, & Heng (2006)	Five third-fifth grade students that were teacher nominated as struggling readers and were also ELLs	Multiple baseline across students, single subject experimental design	Single subject using vocabulary instruction, error correction, fluency building	Improved oral reading fluency rates and comprehension

Table 2 – continued

Wanzek & Roberts (2012)a	4th grade students who were struggling readers; 52.4% - 74% LEP	Random assignment to one of three treatment conditions or business-as-usual instruction	Wilson System with emphasis on word recognition skills	Moderate effect sizes were achieved but they were not statistically significant

reading (*d* = .51). In contrast the fluency intervention, which used repeated readings and supplemental vocabulary instruction, produced results indicating gain scores and effects in favor of the comparison group but that were not significant. These results indicated that even small amounts of systematic English phonics instruction may have effects on ELLs' decoding abilities but fluency may be harder to impact.

Lovett and colleagues (2008) studied 166 students including those in grades four through eight with reading disabilities. Seventy-six of these students were identified as ELLs. The students were randomly assigned to a control or treatment condition. The treatment condition consisted of the combination of Reading Mastery and Corrective Reading. Students in the control condition received traditional instruction in the special education setting. The treatment interventions focused on systematic phonics instruction. Word identification and word attack skills were measured pre and post-intervention. Students in the treatment group showed large effects on reading decoding and fluency compared to the control condition. Data analysis revealed no significant differences between ELLs and non-ELLs.

Bliss, Skinner, and Adams (2006) conducted a study showing improved results at the word level. This time the results were in the area of sight word reading fluency. They used a multiple baseline across word lists design to examine the effectiveness of a taped-words intervention for fluent reading of Dolch sight words. One fifth-grade ELL, who was identified by his teachers as a struggling reader, participated in this self-managed

intervention. The results indicated repeated, immediate, and large increases in Dolch word-reading accuracy with maintenance over seven weeks. The authors noted the ease with which this intervention was implemented and the relatively few resources needed to implement the intervention.

The final study focused on intervening at the word level was conducted by Tam, Heward, and Heng (2006). They studied five students who had been nominated by ESL and reading teachers as being both ELLs and struggling readers. Vocabulary instruction, error correction, fluency building, and comprehension were evaluated. All five learners improved their ORF rates during both the new passage each session and passage to criterion phases, suggesting that vocabulary instruction and error correction both increased reading fluency for ELLs. The authors noted that the explicit and structured nature of the direct instruction contributed to improvement of reading skills for the ELLs participating in the study. The focus at the word level was important for teaching basic decoding skills.

Comprehension Interventions

Klingner and Vaughn (1996) used Reciprocal Teaching combined with either cross-age peer tutoring or cooperative learning groups to teach comprehension skills to adolescent ELLs. Students included in the study were seventh- and eighth-grade ELLs with LD. Students were randomly assigned to a cross-age tutoring group (n = 13) or a cooperative learning group (n = 13), and each group received 15 days of Reciprocal Teaching of comprehension strategies, followed by 12 days of either cross-age peer tutoring or cooperative grouping using the comprehension strategies. Each session was approximately 40 minutes long. While the results indicate that students in both groups made growth on reading comprehension measures (d = .27 - .28), there were no significant gains and moderate effects between treatment groups. This suggests that both

Table 3
Comprehension Interventions: Description of Reviewed Studies

Article	Sample	Study Design	Intervention Description	Results
Klingner & Vaughn (1996)	7th-8th grade ELLs with Learning Disabilities; All used English as a Second Language	Random assignment to one of two treatment groups	Reciprocal teaching of compression strategies combined with cooperative grouping or cross age tutoring	Significant progress for both groups in reading comprehension. Initial reading ability and oral language proficiency effected gains in comprehension
Saenz, Fuchs, & Fuchs (2005)	3rd-6th grade ELLs with Learning Disabilities: All native Spanish speaking students	Teachers were assigned randomly to PALs or contrast groups	Peer-assisted Learning Strategies to teach comprehension strategies	Significant results supporting improved comprehension for treatment condition
Wanzek & Roberts (2012)b	4th grade students who were struggling readers; 52.4% - 74% LEP	Random assignment to one of three treatment conditions or business-as-usual instruction	Collaborative Strategic Reading	Moderate effect sizes were achieved but they were not statistically significant

interventions have promise for instructing students with ELL in the areas of reading comprehension. The authors noted the results were greater for students with adequate decoding skills than for students with significant decoding deficits.

The study by Saenz, Fuchs, and Fuchs (2005) looked at the effects of Peer Assisted Learning Strategies (PALS, a classwide peer tutoring strategy) on ELLs with LD and on their low-, average-, and high-achieving peers (n = 119). In this study, the researchers found positive results when comprehension strategies were explicitly taught. Teachers were randomly assigned to treatment or control conditions and the study included ELLs in fourth and fifth grade. The treatment group participated in the PALS

comprehension intervention three times per week for 35 minutes over 15 weeks during regular reading instruction time. The control group received business-as-usual reading instruction. Reading fluency and comprehension were assessed pre- and post-intervention. Results revealed moderate effect sizes for low-, average-, and high-achieving peers (ES = .60). ELLs with LD showed the highest effect size (ES = 1.01). The treatment PALS group showed an effect size over one standard deviation above the control on the reading comprehension test. This study suggests that teaching reading comprehension using PALS improves the reading comprehension for low-, average-, and high-performing ELLs and those with LD.

A second intervention condition in the Wanzek and Roberts (2012) study used instructional time to explicitly teach comprehension strategies (CSR) such as Preview, Click and Clunk, Get the Gist, and Wrap Up (Wanzek & Roberts, 2012). Word recognition strategies were embedded in this condition but were not the focus of the instruction. Results for students in this condition (n = 24) revealed small to moderate effect sizes on comprehension measures (d = .30 - .46) with no statistically significant differences between intervention conditions or the comparison condition. Although statistically significant differences were not noted between conditions or comparison groups, students identified as LEP seemed to benefit more as they scored higher on measures of word attack and word identification in all conditions. The authors noted the comparison condition of school-provided intervention occurred in a school that was known for their exemplary instruction and the classroom intervention the students received may have impacted the results of this study.

Multicomponent Reading Interventions

Graves, Duesbury, Pyle, Brandon, and McIntosh (2011) produced positive results with 6th grade ELLs who were also struggling readers. Graves and colleagues (2011) investigated Tier II evidence-based reading instruction using two studies across two

years. A total of 109 students who had reading skills below a third-grade level participated in the intervention. In addition, 95% of the students were classified with limited English proficiency (LEP) at some point in their academic careers. Students in the treatment group received a combination of Corrective Reading, REWARDS, Read Naturally, and Daybook to address word analysis, fluency building, comprehension, and vocabulary instruction in groups during the language arts block. Students in the control group received the regular language arts instruction. Instruction in the intervention group took place three times per week for one hour per session over 10 weeks. Strategies to develop vocabulary and comprehension were included to enhance learning. Effect sizes

Table 4
Multicomponent Interventions: Description of Reviewed Studies

Article	Sample	Study Design	Intervention Description	Results
Denton, Wexler, Vaughn, & Bryan (2008)	6th-8th grade students with severe reading difficulties; 46.3% state identified LEP	Random assignment to typical instruction or treatment condition	Adapted Wilson with ESL strategies	Effect sizes were small or negative and indicate older students with severe reading disabilities and ELL will need more intense intervention
Graves, Duesbery, Pyle, Brandon, & McIntosh (2011)a	6th grade ELLs who were struggling 95% were EL at some point in their academic career readers	Random assignment to treatment or control using stratification by gender	20 min word analysis (Corrective Reading or REWARDS) 20 minutes decoding (Read Naturally) 20 minutes comprehension & Vocabulary (Daybook)	Significant gains in oral reading accuracy and speed.

Table 4 – continued.

Graves, Duesbery, Pyle, Brandon, & McIntosh (2011) b	6th grade ELLs who were struggling 95% were EL at some point in their academic career readers	Random assignment to treatment or control using stratification by gender	20 min word analysis (Corrective Reading or REWARDS) 20 minutes decoding (Read Naturally) 20 minutes comprehension & Vocabulary (Daybook)	Significant gains in oral reading accuracy and speed and comprehension
Lovett, Lacerenz, DePalma, & Fritjers (2012)	9th grade students who were struggling readers; 45.6% had English as a Second Language	Quasi-experimental with assignment to either treatment or business-as-usual instruction	PHAST PHASES Word Identification Text Structure Comprehension Strategies	Large overall effects in favor of the treatment group
Vaughn et al., (2011)a	7th-8th grades students who were non-responders to Tier II instruction; 29% identified as LEP	Random assignment to one of two treatments conditions or the business as usual control	Standardized Fluency (repeated readings) Word study (REWARDS) Vocabulary Comprehension	Large effects in favor of the treatment conditions with no statistical significant difference between the two treatment conditions
Vaughn et al., (2011)b	7th-8th grades students who were non-responders to Tier II instruction: 29% identified as LEP	Random assignment to one of two treatments conditions or the business as usual control	Individualized Fluency Word study Vocabulary Comprehension	Large effects in favor of the treatment conditions with no statistical significant difference between the two treatment conditions

Were moderate to large across measures (d = .57 - .75) in study one. Results did not indicate significant differences between treatment and control groups in study one, but

the results on this measure indicated increased performance of students in the comparison group versus those receiving the treatment. Results from study two revealed small to large effect sizes across measures (d = .31 - .93). In study two there were significant differences on the passage comprehension test. Graves and colleagues (2011) concluded that multicomponent reading interventions enhance fluency and comprehension for sixth-grade students who are struggling readers, but more intensive support and longer sessions may be required to support adolescent ELLs with reading difficulties.

Denton and colleagues (2008) studied an intervention for middle school students with severe reading difficulties (many of whom were also ELLs). The intervention taught code-based skills, fluency, comprehension skills, and included ESL strategies. Participants were students (n = 38) who received remedial or special education instruction in reading and were in 6^{th}-8^{th} grade. The treatment group (n = 20) received an average of 43 daily lessons of 40 minutes over 13 weeks using a modified Wilson curriculum with ESL strategy supplements. The control group received the typical school instruction for remedial and special education. No significant differences were noted between groups, and results found students in the control group outperformed students in the treatment. Data was not disaggregated to determine if ELLs performed any better or worse than their EO peers. ES for the treatment condition ranged from small to negative (d = -.007 - .001). The authors provided several possible explanations for the lack of progress, including (a) oral language was not adequately addressed, (b) the intervention needed to be longer with greater intensity, and (c) sociocultural factors affected students' progress (Denton et al. 2008).

Lovett, Lacerenza, De Palma, and Frijters (2012) used a multicomponent intervention (PHAST PHASES) to intervene with high school students who were identified as struggling readers. Participants in the study had standardized reading scores 1.5 to 2 standard deviations below expectations. Of the 351 students identified 45% were

coded as ELL based on English being their second language. The researchers used a quasi-experimental design to provide students in the treatment condition with multicomponent reading package that included phonological and orthographic (decoding) instruction, text knowledge, and comprehension strategy instruction (Lovett et al., 2012). The average ES across measures (d = 0.68) was significantly better for the treatment over the control. The moderately large overall effect and increase in group means support previous conclusions that reading interventions can have positive effects on overall reading abilities for adolescents with reading difficulties (Lovett et al., 2012), including ELLs.

Vaughn and colleagues (2011) found significant positive results with middle school students who did not respond sufficiently to at least 100 hours of Tier II reading intervention instruction. Students were randomly assigned to a standardized multicomponent reading instruction package (including repeated reading, word study, and REWARDS), an individualized multicomponent reading instruction package, or to a control condition of no intervention. Of the 182 participants, 20% of the students in the standardized protocol, 21% in the individualized instruction, and 29% in the control were ELLs. When within-group performance was evaluated, ELLs scored significantly lower on comprehension measures than non-ELLs in the intervention condition. There were not statistically significant differences in favor of standardized or individualized interventions for students who were ELLs with reading difficulties. Moderately large effects were found when comparing either treatment condition to the control group *(g* = .56). These results suggest that students in intensive interventions can make progress and begin to close the achievement gap, but for adolescent ELLs who are struggling readers more intensive and longer interventions are necessary to make significant growth (Vaughn et al., 2011).

Together these studies show it is not too late to intervene for adolescent ELLs

with reading difficulties and no one type of intervention has proved to be more successful than another. This research indicates fluency and decoding, comprehension, and multicomponent interventions for adolescent ELLs with reading difficulties can increase ELLs' reading achievement. However, the research was not able to specifically identify components of interventions (e.g., fluency instruction) that are effective for different ELLs (e.g., students who have low levels of proficiency in both Spanish and English). Two components of reading instruction were found in many of the multicomponent reading interventions these were fluency instruction and vocabulary instruction. One common way to teach reading fluency is through a repeated reading intervention.

Repeated Reading

Repeated reading is an intervention that has the student read a text multiple times to increase students' reading fluency and in turn increase their reading comprehension. Many students with reading difficulties and disabilities struggle to read fluently and without the ability to read fluently their attention is focused at the word level, making comprehensions difficult if not impossible (Chard et al., 2002). Research supports the connection between reading fluency and reading comprehension (Kuhn & Stahl, 2000; Shinn et al., 1992). And meta analyses of fluency interventions have found that repeated reading is linked to improved accuracy, fluency, and comprehension for students with reading difficulties or disabilities (Chard et al., 2002; Therrien, 2004).

Effectiveness of Repeated Reading

Extensive research on fluency interventions including repeated readings have led to several meta-analyses. These meta-analyses have shown repeated reading can increase both reading fluency and comprehension for students with reading difficulties and disabilities (Therrien, 2004), and found that repeated reading was associated with gains in accuracy, fluency, and comprehension (Chard et al., 2002). These findings are not limited

to elementary students as repeated reading increased reading rates for adolescents who were struggling readers (Wexler et al., 2008).

Essential Components of Repeated Reading

Chard and colleagues (2002) found students with LD benefit from multiple opportunities to read the text with corrective feedback, and an established criterion for increasing text difficulty. In addition they found that repeated reading with a model was more effective than without a model (Chard et al., 2002). Kuhn and Stahl (2003) also found that material at or above instructional level could lead to increases in fluency especially when the harder material was accompanied by more scaffolded instruction (e.g., adult modeling).

Therrien (2004) examined the essential instructional components of repeated reading interventions and determined repeated reading interventions were most effective when (a) they were conducted by an adult, (b) they provided error correction, (c) the passage was read 3-4 times if the purpose was to increase comprehension of the passage, and (d) corrective feedback with a performance criterion was used if the purpose is to increase overall fluency and comprehension. Adolescents with disabilities benefited from both repeated reading with error correction and modeling as well as a repeated reading intervention that included vocabulary instruction (Hawkins, Hale, Sheely, & Ling, 2011).

Wexler and colleagues (2008) found that similar to both Chard et al., (2002) and Therrien (2004) that repeated reading with an adult model was the most effective. In contrast Wexler and colleagues (2008) found that non-repetitive readings showed promise for increasing fluency, accuracy, and comprehension with adolescents. The authors suggested this may be true for older readers because continually re-reading the same text limits exposure to a variety of text, vocabulary, and subjects. In addition, the

authors noted that no studies included ELLs and future fluency research was needed for secondary ELLs with reading difficulties (Wexler et al., 2008).

Theoretical Rationale

Gough's simple view of reading posits that being able to decode text is a necessary skill for comprehension (Gough, 1996; Gough et al., 1996). However, students with disabilities, including ELLs may need additional practice to reach appropriate levels of fluency (Ehri, 2005). LaBerge and Samuels (1974) theory of automaticity provides support for the use of repeated reading to develop the necessary decoding skills to support comprehension. With extensive practice, students are able to move beyond conscious control of basic tasks (e.g., decoding words) in order to perform complex skills with minimal effort (e.g., reading fluently) and this frees up cognitive attention for other tasks such as comprehending what is being read (Samuels & Flor, 1997). The theory of automaticity relates to fluency instruction through repeated readings. As students are provided frequent opportunities to practice reading text they become more accurate and automatic with the text and in turn are better able to comprehend what they are reading. Within Gough's simple view of reading, fluency is one facilitator of comprehension. The second facilitator is oral comprehension, which can be strengthened through vocabulary instruction.

Vocabulary Instruction

Students with reading difficulties and disabilities do not read as much as their peers without reading difficulties, often lack strategies to learn new words from context, and have incomplete understanding of word meaning (Jitendra et al., 2004). There is a clear and established relation between vocabulary knowledge and comprehension with limited vocabularies being linked to limited comprehension of text (Carlo et al., 2004; Francis et al., 2006; Stanovich, 1986). There are relatively few research studies

examining vocabulary instruction for students with LD, but the studies that have been conducted have shown promising results (Jitendra et al., 2004).

Effectiveness of Vocabulary Instruction

A meta analysis of vocabulary instruction for students with LD found that vocabulary instruction (i.e., mnemonic approaches, strategy instruction, direct instruction, activity based instruction, and computer assisted instruction) led to clear gains in word knowledge but less clear gains in comprehension (Jitendra et al., 2004). The vocabulary interventions were effective across all grade levels (i.e., elementary and secondary) and the largest effects were seen for the smallest groups (i.e., one or two students). In addition, vocabulary instruction that involved active processing of word meanings including conceptual relations and links to prior knowledge led to improved vocabulary knowledge that showed transfer to content area reading comprehension for secondary students with LD (Bryant et al., 2003).

For ELLs with reading difficulties little research exists examining effective vocabulary instruction. Kim and Linan-Thompson (2013) found third grade ELLs with reading difficulties were able to increase their vocabulary knowledge with direct instruction and self-regulation. Despite research to support various types of vocabulary instruction for ELLs *without* disabilities or EO students, and the intuitive link between vocabulary knowledge and comprehension there have been few studies that have examined the link for adolescent ELLs with reading difficulties. Therefore, in order to determine the essential components of vocabulary instruction for adolescent ELLs with reading difficulties it is important to draw on research for ELLs.

Essential Components of Vocabulary Instruction

Several practice guides have summarized the research and made recommendations for the essential components of vocabulary instruction *(*August et al., 2005; Francis et al., 2006). Vocabulary instruction can reduce ELLs risk for reading

failure and unnecessary special education identification if the instruction (a) includes active processing of word meanings, multiple exposures, and definitional and contextual information, (b) ensures students know the meaning of basic words, (c) provides review and reinforcement of vocabulary, (d) delineates between conversational and academic language, (e) focuses on deep conceptual knowledge including the multiple meanings for words, (f) occurs through oral, reading, and writing activities, and (g) provide students with strategies to learn word meanings independently (August et al., 2005; Francis et al., 2006). These components can lead to increases in not only ELLs vocabulary knowledge, but also their comprehension.

Theoretical Rationale

Gough's simple view of reading also provides a rationale for the use of vocabulary instruction. Reading comprehension can break down because of a lack of basic decoding skills and fluency. In that same manner it can break down if students do not have adequate vocabulary knowledge to understand what they are reading (Gough, 1996). Adolescent ELLs with reading difficulties may not have sufficient knowledge of the vocabulary they are reading in order to develop or maintain comprehension of the content area texts they are required to read (Stanovich, 1986). Two important facilitators of comprehension for adolescent ELLs are fluency and vocabulary knowledge making a combined intervention one possible way to increase reading achievement for this population.

Repeated Reading + Vocabulary Instruction

Although there has been little research on fluency intervention for ELLs, the research that does exist suggests that repeated reading may be effective for ELLs (Denton et al., 2004; Malloy et al., 2005; Tam et al., 2006). Researchers have suggested that fluency intervention may be appropriate for ELLs with reading difficulties and disabilities (August et al., 2005; Francis et al., 2006) and have gone as far as to suggest

which components of a repeated reading intervention may be effective (i.e., oral reading, corrective feedback from adults, discussion and questions to develop vocabulary, and increased exposure to print) (Francis et al., 2006). Repeated reading does not have a large research base supporting its use with ELLs, making it necessary to further investigate the effects of repeated reading for ELLs.

An important addition to fluency intervention for adolescent ELLs may be vocabulary instruction. Vocabulary instruction should be direct; incorporate review, reinforcement, and active processing of words (August et al., 2005); include visuals; and have multiple opportunities for response (Vaughn et al., 2005). Little research has been done combining vocabulary instruction with fluency interventions to increase both vocabulary and exposure to print (Francis et al. 2006). It is important to investigate the addition of vocabulary instruction to fluency instruction for adolescent ELLs with reading disabilities and difficulties.

Both adolescents and ELLs benefit from direct vocabulary with practice, review, reinforcement, and active processing of word meaning (August et al., 2005; Kamil, 2008). The following components are likely to increase ELLs with LD vocabulary knowledge, (a) activate prior knowledge of the target word, (b) provide a student-friendly definition of the word, (c) explain the word's meaning in context using examples and pictures, (d) provide activities for word acquisition (e.g., asking questions and creating a sentence), (e) review the word (Kim & Linan-Thompson, 2013).

Theoretical Rationale

It is important to increase student's ability to read text automatically and understand what they are reading in order to increase overall reading achievement (Gough, 1996). Repeated reading is one way to do this. For students with LD, research supports direct instruction that is fast paced, focused, provides repetition and practice, feedback, and progress is monitored (Swanson & Hoskyn, 1998, 2001; Swanson &

Sachse-Lee, 2000) a repeated reading intervention with adult modeling and feedback incorporates these components. Research supports one-to one intervention for students with LD and ELLs with reading difficulties and disabilities (Chueng & Slavin, 2012; Swanson & Hoskyn, 1998) and repeated reading is an intervention delivered in a one on one setting. Vocabulary instruction may possibly further increase ELLs reading achievement as students are only able to increase their comprehension of text if the words are already in their oral vocabulary (NRP, 2000).

In Gough's simple view of reading, students must not only be able to read the text, but they also have to understand what they are reading. For adolescent ELLs with reading difficulties direct vocabulary instruction may increase their ability to understand what they are reading.

Instructional Context

ELLs are a heterogeneous group making it difficult to know what intervention components are effective for ELLs with different characteristics. ELLs with Spanish as their home language and who have taken part in English instruction since Kindergarten are the largest and fastest growing subgroup of ELLs (Kieffer & Vukovic, 2012) making it important to study the effects of a repeated reading intervention with this subgroup. For both adolescents and ELLs with reading difficulties it is important that instruction also uses expository text, similar to that found in content area classes, in order to allow them to not only increase reading achievement but also learn new content (Biancorosa & Snow, 2004; Gersten & Baker, 2000).

Overview and Hypothesis

Because repeated reading has shown positive results for students with reading difficulties and disabilities, and because vocabulary instruction is widely accepted as necessary for ELLs, I hypothesized that a repeated reading intervention would be more effective if vocabulary instruction was added to it.

The main purpose of this study is to extend the literature and assess the effects of components of a reading intervention for adolescent ELLs with reading difficulties. Previous fluency and vocabulary research has focused on ELLs in grades 1-5 (Carlo et al., 2004; Denton et al., 2004; Kim & Linan-Thompson, 2013; Malloy et al., 2006; Tam et al., 2006) or on EO adolescents (Hawkins et al., 2011; Valleley & Shriver, 2003). This study will investigate the effects of repeated reading for ELLs in grades 6-8. The intervention will include the addition of vocabulary instruction in order to determine if vocabulary instruction has differential effects for adolescent ELLs reading achievement.

The purpose of this study is to determine the effects of a repeated reading intervention and a repeated reading intervention combined with vocabulary instruction on the reading performance of adolescent ELLs with reading difficulties. The following research questions will be addressed:

1) What is the impact of a repeated reading intervention on the reading fluency, accuracy, and reading comprehension of adolescent ELLs with reading difficulties?

2) What are the additive effects of vocabulary instruction, in conjunction with the repeated reading intervention on the reading fluency, accuracy, and reading comprehension of adolescent ELLs with reading difficulties?

CHAPTER THREE

METHODS

Chapter Overview

The purpose of this study was to determine the effects of a repeated reading intervention and a repeated reading intervention combined with vocabulary instruction on the reading performance of adolescent ELLs with reading difficulties. A single case ABCBC multi-treatment design was used to investigate the effects of a repeated reading over no intervention (baseline) and the additive effects of vocabulary instruction to repeated reading for three adolescent ELLs with reading disabilities. The author, a doctoral student with previous experience teaching ELLs with LD, implemented the interventions. Correct words per minute (CWPM) functioned as the primary dependent variable and was collected at each session.

Participants and Setting

Participants in this study attended one middle school in the rural Midwest and were in grades 6-8. Students were initially selected to participate if the school district had classified them as ELL for an extended period of time and if they were at-risk for reading failure based on school district data. Sixteen students met initial criteria and were asked to participate in the study. The initial criteria included: (a) school identified as an ELL with composite scores on the Iowa English Language Development Assessment (I-ELDA) of intermediate or advanced, (b) at-risk for reading failure based on district criteria (i.e., scoring below 41st percentile on the Iowa Assessments), and (c) Spanish identified as their primary language on a home language survey. Parental consent was returned for nine students.

The nine students who returned the parental consent were further screened in order to determine if they matched the characteristics of long-term ELLs and were at an increased risk for reading failure. The students were screened using the Woodcock

Johnson Tests of Achievement – Third addition (WJIII) and the Bateria III Woodcock Munoz Pruebas de aprovechamiento (Bateria III). The author, a doctoral student with training and experience administered the Broad Oral Language and Broad Reading Clusters of the WJ III and two school psychology doctoral students with training and experience, who were also native Spanish speakers, administered the Bateria III. Existing school data were compiled to determine if students received special education services, how students scored on school screening assessments (i.e., Scholastic Reading Inventory), and how long students had been instructed in English.

Three students (Adrian, Angelina, & Miguel) met all of the selection criteria and participated in the study. The selection criteria were: (a) demonstrated minimal Spanish oral language skills on the Bateria III (i.e., below the 10th %ile), (b) demonstrated minimal Spanish reading skills on the Bateria III (i.e., below the 10th %ile) (c) received English instruction for at least six years, (d) scored at the basic or below basic level on the school administered Scholastic Reading Inventory, (e) scored less than the 25th %ile on the WJ III and/or the Iowa Assessment in the area of reading, and (f) demonstrated low levels of English language proficiency on the WJ III (i.e., below the 25th %ile). All three students selected were eligible for and received special education services in the area of reading.

Tables 5, 6, and 7 detail student information from district and researcher assessments. Juan Diego was not administered the Bateria III because his scores on the WJ III did not meet inclusion criteria. Jose moved to the district at the beginning of the school year from Wisconsin, his scores on the state assessments are from the Wisconsin state assessments.

Measures for participant selection. Five measures were used for participant selection. They were the school administered Scholastic Reading Inventory (SRI), Iowa Assessment Broad Reading, the I-ELDA, and the researcher administered WJ III and

Bateria III (Broad Reading and Broad Oral Language). The SRI is a computer adaptive assessment that measures levels of comprehension and was developed for students in grades K-12. The Iowa Assessments are the annual statewide assessment used in the state of Iowa to measure student's academic achievement. The I-ELDA is an assessment given to all students in the state of Iowa who have been identified with limited English proficiency. The I-ELDA measures proficiency and growth in reading, writing, speaking, and listening, as well as provides a composite score (https://itp.education.uiowa.edu/Ielda).

Table 5
Participants' Information

Student	Gender	Age	Grade	Years in English Instruction	I- ELDA Composite Score (Reading Score)	Special Education Or Reading Intervention
Adrian	Male	14	8	8	4 (4)	Reading
Alejandra	Female	13	7	7	4 (4)	None
Angelina	Female	10	6	6	4 (4)	Reading
Javier	Male	13	8	8	5 (2)	None
Josefina	Female	11	6	6	4 (4)	None
Juan Diego	Male	13	7	7	4 (4)	Read 180
Manuel	Male	13	7	2	3.2 (2.4)*	Read 180
Mateo	Male	11	6	6	4 (4)	None
Miguel	Male	13	8	8	5 (4)	Reading

Note. * = Wida Access Composite Score (Reading Score); Reading = reading special education; Read 180 = school provided reading intervention

The researcher-administered measures of the WJ III and the Bateria III are both norm-referenced, standardized assessments and were used to measure student's reading and language proficiency in both English and Spanish (Woodcock, McGrew, & Mather, 2001). The WJ III and the Bateria III are broad achievement tests that can be used with

Table 6
Participants' Assessment Scores English

Student	WJIII Broad Reading Percentile	WJIII Broad Oral Language Percentile	Iowa Assessment Broad Reading National Percentile	Scholastic Reading Inventory
Adrian	14	19	14	866 (Basic)
Alejandra	31	31	31	962 (Proficient)
Angelina	7	6	20	608 (Basic)
Javier	13	21	10	1119 (Proficient)
Josefina	9	9	26	806 (Proficient)
Juan Diego	26	33	19	751 (Basic)
Manuel	4	11	1*	287 (Below Basic)
Mateo	26	29	34	856 (Proficient)
Miguel	30	13	8	844 (Basic)

Note. WJIII = Woodcock-Johnson Tests of Achievement-Third Edition; * = Wisconsin Knowledge and Concepts Examinations Broad Reading National Percentile

people who are age 2-90. The Bateria III is the Spanish adaptation of the WJ III. The WJ III clusters have reliabilities above .80 (Riverside Publishing, 2011). For the Broad Reading Cluster the Letter-Word Identification, Reading Fluency, and Reading

Comprehension subtests were administered. The Oral Language Cluster is made up of the Story Recall, Understanding Directions, and Passage Comprehension subtests. Similar to the WJ III the Bateria III has a Amplia Lecctura and Lenguaje Oral Cluster. The Amplia Lectura is made up of the ID de letras y palabras, Fluidez en la lectura, and the

Table 7
Participants' Assessment Scores Spanish

Student	Bateria III Broad Reading Percentile	Bateria III Broad Oral Language Percentile
Adrian	0.1	0.5
Alejandra	18	4
Angelina	1	1
Javier	3	16
Josefina	1	1
Juan Diego	--	-
Manuel	36	87
Mateo	1	1
Miguel	0.1	0.1

Note. Bateria III = Bateria III Woodcock-Munoz

Comprehension de textos subtests. The Lenguaje Oral is made up of the Rememoracionde cuetos, Comprehension de indicaciones, and the Comprehension de textos.

Instructional Materials

All passages used were non-fiction passages selected from the Timed Reading Plus Series (Spargo, 1989). Each book in this series contains 25, four hundred word passages leveled to be at fourth grade through college reading level. Sample passages (not used for the intervention phases) were given to the students and a survey level procedure was used to determine instructional level (Hosp et al., 2007). The highest level was selected at which students could read between 70- 100 CWPM with fewer than 6 errors. For Adrian and Miguel this was level 6, and for Angelina this was level 4. The passages in the Timed Reading Series increase in difficulty (Spargo, 1989), because of this more passages than necessary were selected and scanned, using optical character recognition, and readability scores were calculated using interventioncentral.org. In order to further reduce variability among passages, four commonly used formulas were applied and passages that met criteria were selected for use in the intervention.

The criteria were designed to select passages in the students' instructional level. The selection criteria for passages for the two students (Adrian and Miguel) was: (a) Dale Chall score of Fifth/Sixth grade, (b) Fog score between 7.5-9.5, (c) Flesch Reading Ease score between 70-80, and (d) SMOG score between 7.8-9.5. The selection criteria for the sixth grade student (Angelina) was: (a) Dale Chall score of Fourth grade, (b) Fog score between 5.0-7.0, (c) Flesch Reading Ease between 83-93, and (d) Smog score between 6.2-7.2. These selection criteria resulted in 28 passages for each level. Once the passages were selected they were randomly assigned to an order for which they were used during the intervention. Although these procedures were employed to reduce the variability in the text they could not account for variability as a result of the text's difficulty in regards to content. Readability formulas can both over and underestimate text difficulty as they do not account for the readers prior knowledge of the text or the vocabulary words that the reader has in his/her oral vocabulary (Stahl, 2003).

Instruments

The non-fiction reading passages from the Timed Reading Plus Series (Spargo, 1989) were adapted to create the passages used for both OPR and Maze. The comprehension questions associated with the series were used as written and were not adapted.

Oral passage reading. Oral passage reading (OPR) functioned as the primary dependent measure. OPR was calculated by determining the number of words read per minute and subtracting the errors to get CWPM. The standard procedures for administering OPR were used (Hosp, Hosp, & Howell, 2007). The student read aloud from a passage while the interventionist followed along on a separate copy and marked any words read incorrectly. A word was scored as correct if it was read aloud by the student with correct pronunciation in 3 seconds. If a student read a word incorrectly, but self-corrected within 3 seconds the word was counted as correct. If a student did not attempt to read a word within the 3 s or continued to struggle with the word for 3 s the interventionist read the word for the student and marked the word as incorrect. Words were also marked as incorrect if the student omitted the word or read the word incorrectly. In order to calculate CWPM, the interventionist took the total words read in the first minute of reading minus the total errors in the first minute.

OPR CBM has been shown to be both a reliable and valid measure of students overall reading competence. Test-retest reliability coefficients range from .82 -.97. Similarly, alternate-form reliability coefficients range from .84 -.96 (Wayman, Wallace, Wiley, Ticha, & Espin, 2007). In addition, most criterion-related validity coefficients have been shown to be above .80 (Wayman et al., 2007). OPR CBM has also demonstrated moderate to high correlations to standardized reading assessments for ELLs (Sandberg & Reschly, 2011).

Maze. In order to estimate comprehension gains on the instructional passages, performance on maze probes was used, the same passages used for OPR were used for Maze (Oddo, Barnett, Hawkins, & Musti-Rao, 2010). After the passages were selected they were modified to create Maze passages. Maze passages were constructed using interventioncentral.com. Standard administration and scoring rules were followed (Hosp et al., 2007). Students were given 3 minutes and asked to circle the word, given a choice of three words, which best completed the sentence. Correct answers were totaled, and this number was recorded as the student's score on the maze assessment.

Maze is a multiple-choice cloze task that students complete while reading silently. Figure 2 provides an example of a Maze task. The first sentence of a 150- to 450-word passage is left intact. There after every seventh word is replaced with three words inside parentheses. Students select the one word that make the most sense. Students are given 3 minutes and asked to circle the word (given a choice of three words) that best completed

Figure 2
Example Maze Assessment

After the passages were selected they were modified to create Maze passages. Maze passages were constructed using an **(reaction, online, after)** tool. Standard administration and scoring rules **(education, wide, were)** followed. Students were given three minutes **(rest, defiant, and)** asked to circle the word, given **(homely, crazy, a)** choice of three words, that best **(prison, cold, completed)** the sentence. Correct answers were totaled, **(little, amount, and)** this number was recorded as the **(student's, bought, wildly)** score on the maze assessment.

the sentence. Correct answers are totaled, and this number is the student's score on the Maze assessment (Hosp et al., 2007). Maze has technical adequacy for predicting reading achievement on standardized reading measures with correlations ranging from .77 - .83 (Wayman et al., 2007). Maze has also shown promise for accurately predicting ELLs performance on achievement tests with moderate to moderately high correlations (Sandberg & Reschly, 2011).

Comprehension Questions. Ten multiple-choice comprehension questions (three choices each) with a mix of 5 factual and 5 inferential questions were also used to estimate comprehension gains. These questions accompanied the materials selected for intervention and were part of the Timed Reading Plus Series (Spargo, 1989).

Pre/Post. Three 6th grade DIBELS OPR probes were given as a pre-test measure and three different probes were given again as a posttest measure (Good & Kaminski, 1996). The median of the three scores was used to calculate OPR gains over the total sessions of intervention. DIBELS OPR probes have demonstrated moderate to strong correlations with performance on state achievement tests (Roehrig, Petscher, Nettles, Hudson, & Torgesen (2008). For middle school students the mean and median performance on OPR has shown both reliability and validity when used to summarize performance (Barth et al., 2012; Vaughn & Fletcher, 2012).

Interrater Reliability

During the baseline and intervention phases a secondary observer independently scored 30% of the assessments to determine interscorer agreement. The secondary observers were a doctoral student in special education and an undergraduate education major. Both secondary observers received training on the scoring of OPR and Maze assessments. This training included an explanation of the standard scoring procedures, modeling of the scoring procedures, and time to practice scoring with feedback.

The interventionist calculated interscorer agreement using point-by-point agreement and dividing the number of agreements by the number of disagreements plus agreements and then multiplying by 100. Interscorer agreement was at 99.9% for all OPR passages, 99.0% for all Maze passages, and 98.6% for all comprehension questions. Any disagreements were reconciled and the correct score was recorded.

Procedural Integrity

Procedural integrity data were collected for baseline and all intervention phases. A secondary observer used a procedural checklist of the experimental steps (Appendix C) and checked each step that was completed. The secondary observers were a doctoral student in special education and an undergraduate education major. Both secondary observers were trained using the procedural checklist and were familiar with all steps of the intervention. The training included a practice session where the interventionist modeled the interventions and answered questions about different aspects of the interventions. The observers reviewed the intervention protocols and used an implementation fidelity checklist with descriptions of each step of the intervention.

The interventionist calculated procedural integrity by dividing the number of steps observed by the total number of steps and multiplying that sum by 100. Procedural integrity was collected during 40% of all sessions. Procedural integrity was collected at least 33.3% of the time for all participants across all phases except for the first repeated reading + vocabulary phases where it was collected 25% of the time for all participants. Procedural integrity was 100% for the baseline phase, 100% for the repeated reading phases, and 99.6% for the repeated reading + vocabulary phase.

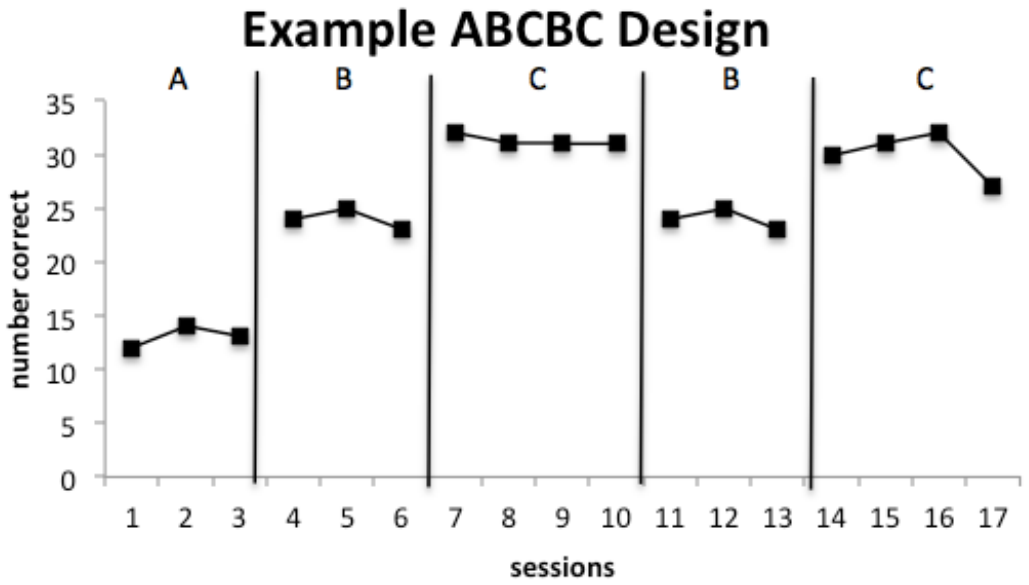
Experimental Design

A single-subject ABCBC multi-treatment design was used to investigate the effects of a repeated reading intervention and the additive effects of vocabulary instruction on adolescent ELLs reading fluency, accuracy, and comprehension. The A

phase (no intervention) establishes a baseline in order to compare the student's performance before intervention to when he/she is receiving an intervention (Kennedy, 2005). In order to establish a functional relation between the students' performance on the dependent variables and the addition of vocabulary instruction planned comparisons were made between B (repeated reading) and C (repeated reading + vocabulary) phases. All phase change decisions were based on the scores obtained from the students' final read of the passage.

In order to reduce threats to internal validity and maximize the possibility that the students' performance was due to changes in the independent variable and not other sources, this design uses within-participant direct replication (Kennedy, 2005). Following the first B-C sequence vocabulary instruction was withdrawn to see if the

Figure 3
Example ABCBC Design



students' performance returned to the original levels seen in the first repeated reading phase. After demonstrating a return to similar levels vocabulary instruction was re-introduced to further demonstrate that student performance was a result of the intervention and not other extraneous variables.

The ABCBC multi-treatment design demonstrates a functional relation by showing changes to level, trend, and/or rapid latency of change only when the intervention is applied and withdrawn (Kazdin, 2011). Similar to Tam et al., (2006) and Kim and Linan-Thompson (2013) once stable responding or a negative trend was achieved under baseline conditions, the first repeated reading intervention was applied.

All experimental conditions were conducted in a quiet classroom away from the general education classroom and all sessions were conducted with one student and one interventionist. Students participated in sessions three to four days each week. Each intervention condition used an instructional passage that has not been previously read. Following the intervention condition the student was assessed with OPR, maze, and comprehension questions on the same instructional passage, and received praise for their effort and feedback about their performance.

Baseline. During baseline students participated in 25 minutes of their business-as-usual instruction. This was a period called Team time where the students worked on their homework. During baseline, I did not provide any intervention instruction; I asked the student to read the first half of the passage aloud and recorded their CWPM during the first minute of reading. I then asked the student to read the second half of the passage aloud and I recorded the CWPM for the second half of the passage. The student then completed a maze assessment on the same passage and answered 10 accompanying comprehension questions. The baseline was followed by the intervention conditions.

Independent variable

The intervention conditions that served as the independent variables were repeated reading and repeated reading + vocabulary instruction. In the repeated reading condition the interventionist modeled reading the passage before having the student begin repeated reading and before recording the first OPR score. In the repeated reading + vocabulary condition the interventionist provided vocabulary instruction and modeled reading the passage before having the student begin repeated reading and before recording the first OPR score. Although both the first and final read in both conditions was recorded only data points from the final read were used to make decisions about when to change phases.

Repeated Reading. The repeated reading intervention included components recommended by Therrien (2004), Chard et al., (2002), and Wexler et al., (2008). An adult conducted the intervention; provided modeling and error correction, and the student read the instructional passage three times. There was not a specific criterion for student performance (e.g., 100 words per minute) because during this intervention the goal was improved fluency and comprehension on the same passage (Therrien, 2004). Syntheses of fluency interventions for secondary students with reading difficulties did not find a difference between setting a criterion for performance or reading a text a set number of times (Wexler et al., 2008).

Although repeated reading interventions typically use text that is approximately 100- 200 words long and can be read in 1-2 minutes (Therrien & Kubina, 2006), this intervention used text that was expository and longer in length (i.e., 400 words per passage) in order to provide the students with instruction on text that was similar to the text they read in content area classes. Both adolescents and ELLs benefit from instruction that uses content area text (Biancorosa & Snow, 2004; Francis et al., 2006). Because this text was longer it was broken in two halves of approximately 200 words for each half.

The interventionist followed all the steps outlined in the repeated reading intervention protocol (Appendix A). The interventionist greeted the student and explained the student would be working to increase his or her fluency, accuracy, and comprehension of the text they were reading. The interventionist then modeled fluent reading of approximately the first half of the passage. After modeling the reading the interventionist asked the student to read what she had just read. Saying, *"Start at the beginning of this passage and read until here (point to where the student should stop). If you come to a word you don't know, I will tell it to you, do your best reading."*

During this reading the interventionist provided error correction using standard error correction procedures (Therrien & Kubina, 2006). If the student hesitated on a word for 3 seconds the interventionist provided immediate error correction and said *"That word is _____."* If the student read the word incorrectly but moved on, the interventionist underlined the word and provided delayed error correction when the student was done reading the passage. During the delayed error correction the interventionist pointed to the word and said, *"that word is_____. " What word?"* The student repeated the word. Then the interventionist reread the word in the phrase and asked the student to also reread the phrase.

After each reading the interventionist provided students feedback on their performance this feedback included a statement such as *"Good job, you increased your fluency by ten words"* and/or "*Your accuracy improved; we only need to review these three words"*. The interventionist repeated these steps until the student read the first portion of the passage two times. The interventionist then asked the student to reread the first half for a third time. The interventionist recorded the CWPM and errors during this third and final read, but did not provide delayed error correction for this reading.

The interventionist then repeated all the steps for the second half of the passage. The interventionist recorded all the scores from all readings on the *data-recording sheet*

(Appendix E). Once the repeated reading intervention was completed, the interventionist had the student complete the maze CBM and answer the 10 comprehension questions. The interventionist graphed the final read OPR score, total corrects on the maze assessment, and the total corrects on the comprehension questions and showed them to the student, praised him/her for their effort, and dismissed him/her back to his/her business-as-usual class. The repeated reading phase took approximately 15-20 minutes.

Repeated reading + vocabulary instruction. During the repeated reading + vocabulary instruction phase the interventionist presented the student with a copy of the instructional passage. The interventionist pointed out the six key vocabulary words in the text. The interventionist then followed the procedures from Kim and Linan-Thompson (2013) to use direct instruction to teach the vocabulary words (Appendix D). The instruction included: (a) activating prior knowledge of the target word, (b) providing a student-friendly definition of the word, (c) explaining the word's meaning in context using examples and pictures, (d) providing activities for word acquisition (asking questions and creating a sentence), and (e) reviewing the word. After the six vocabulary words were taught, the interventionist followed the procedures from the repeated reading phase. This session lasted approximately 25 minutes.

Analysis

Analysis of the data included visual analysis to look for within-phase patterns and between-phase patterns (Kennedy, 2005) and in order to determine if a change was demonstrated that could be attributed to the intervention (Kazdin, 2011). During analysis the level (average of the data points within each phase) was calculated in order to locate patterns and demonstrate a functional relation between the intervention and the student's performance (Kennedy, 2005). Variability was demonstrated using means and ranges (e.g., baseline mean = 80 CWPM : SD = 8.08). Stability, level, and trend were reviewed to further analyze with-in phase and between-phase patterns.

Descriptive statistics (e.g. means, standard deviations, and effect sizes) were calculated. Mean OPR scores have proved to be a reliable and valid way to summarize reading performance for students in middle school (Barth et al., 2012; Vaughn & Fletcher, 2012). Statistical procedures such as effect size calculations can be used to supplement visual analysis in single subject research in order to provide an index of treatment strength (Parker & Brossart, 2003) and compare treatment outcomes within and

Figure 4
Formula to Calculate Effect Size for Mean Differences between Treatment Conditions

$$d = \frac{M_1 - M_2}{SD_{pooled}}$$

between participants (Beeson & Robey, 2006). Effects sizes were calculated (see Figure 3) using the mean differences between conditions and the pooled standard deviation (Busk & Serlin, 1992; Hawkins et al., 2011; Swanson & Sachse-Lee, 2000). Effect sizes were interpreted with caution as the magnitude of effect sizes in single subject research makes Cohen's benchmarks inappropriate (Beeson & Robey, 2006).

In order to further examine the effects of the repeated reading intervention and the repeated reading + vocabulary intervention, I calculated the Percentage of Data Points Exceeding the Median (PEM) (Ma, 2006). PEM has shown promise as a way to quantify

results and it can have greater agreement with visual analysis than percentage of non-overlapping data points (Wolery, Busick, Reinchow, & Barton, 2008; Ma, 2006). PEM is calculated by computing the percentage of phase points above the median of the adjacent phase (i.e. the percentage of points during repeated reading + vocabulary above the median for the repeated reading phase) and assumes the median is a good summary of the scores (Parker, Vannest, & Davis, 2011). PEM scores can range from 0 - 1 with .9 to 1.0 indicating a very effective treatment, .70 to .89 an effective treatment, and less than .70 a questionable effect (Ma, 2006). PEM results were interpreted with caution given that similar to other overlap methods (e.g., percentage of non-overlapping data points) they can overestimate treatment effects (Wolery et al, 2008).

Social Validity

When all intervention sessions had been completed the interventionist asked each student three questions. The questions were: (1) what part of the interventions did you like best, (2) what part of the interventions did you like the least, and (3) is there anything else about the interventions you would like to tell me. The students' responses were recorded and summarized.

CHAPTER FOUR

RESULTS

Chapter Overview

The purpose of this study was to examine the effects of a repeated reading intervention and a repeated reading intervention combined with vocabulary instruction on the reading performance of adolescent ELLs with reading difficulties. Students were selected based on similar participant characteristics including English and Spanish language skills, reading abilities, and years in English instruction. A single case ABCBC multi-treatment design was used to demonstrate the effects of a repeated reading intervention over no intervention (baseline) and the additional effects of vocabulary instruction for three adolescent ELLs with reading disabilities.

This chapter details the results of the intervention for the three students using visual analysis as well as descriptive statistics. The visual analysis includes an examination of patterns within and between phases in order to determine if a functional relation exists between repeated reading and /or repeated reading + vocabulary instruction. The descriptive statistics include the use of means, standard deviations, and effect sizes to further establish if patters of performance are linked to the repeated reading intervention or to addition of vocabulary instruction.

Results

Adrian had five sessions in baseline, Miguel three, and Angelina three. Following the baseline phase the decision to introduce or withdraw vocabulary instruction was made through visual analysis of the students' data. If a stable response or a trend in response was noticeable then the next phase was introduced. All three students had three data points in their first repeated reading phase and four data points in their first repeated reading + vocabulary phase. Miguel had four data points in the second repeated reading phase, while Adrian and Angelina had three data points. In the final repeated reading +

vocabulary phase Angelina and Adrian had five data points while Miguel had three data points.

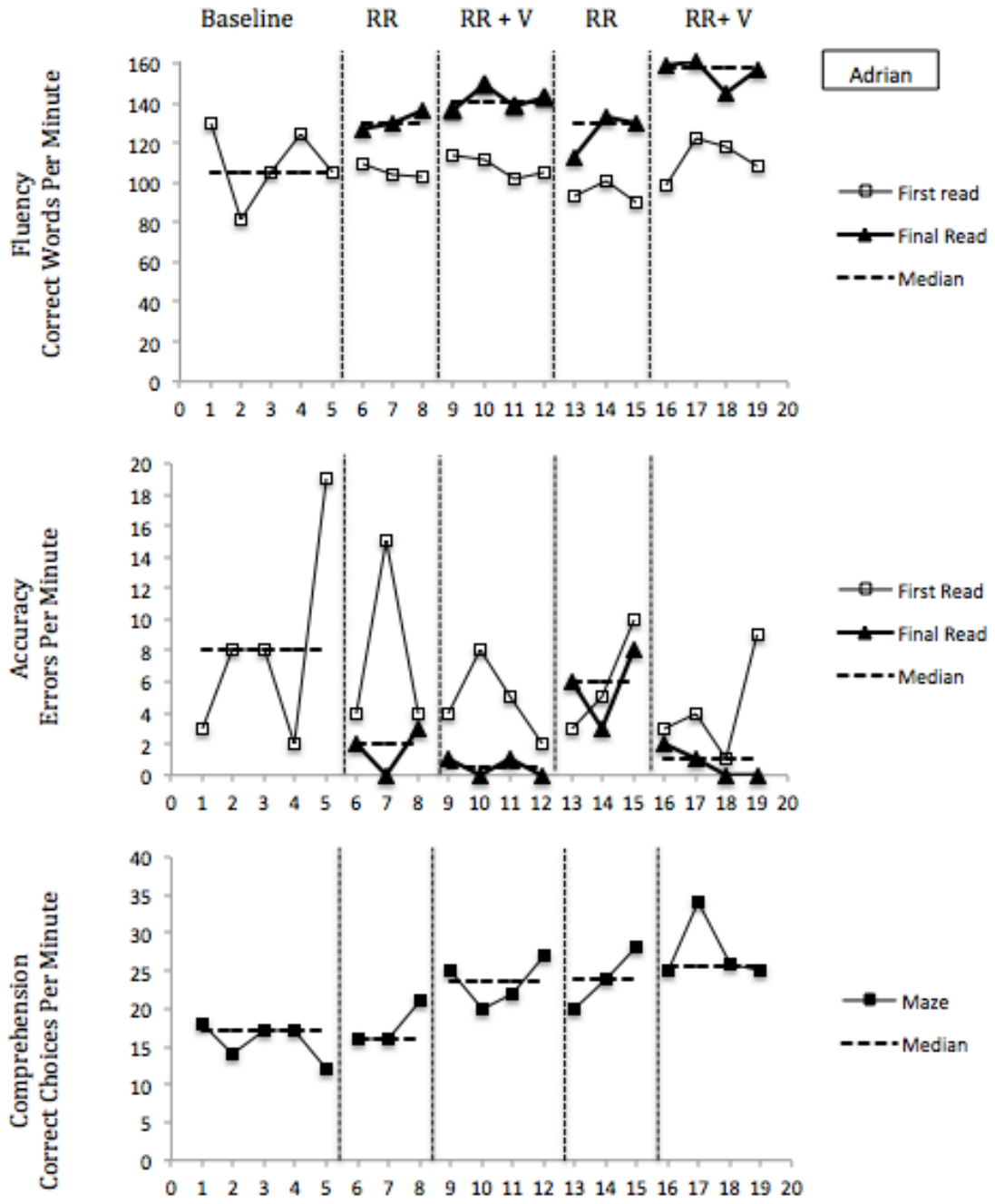
In a single-subject ABCBC multi-treatment design the individual participants serve as their own control and results are discussed based on patterns within phases (e.g., change in level or trend) and across phases. Because an ABCBC multi-treatment design was used it is appropriate to first present the results for each individual student. Figure 5 details the results for Adrian, Figure 6 for Angelina, and Figure 7 for Miguel.

Adrian

Correct words per minute on the final read. During baseline, Adrian read an average of 109 CWPM (range = 81–130; see Figure 4). Following a stable trend, the repeated reading intervention was introduced and implemented with 99% fidelity. During the first repeated reading intervention Adrian read an average of 131 CWPM on the final read and there was a clear and instant change in level and stability (range = 127-136). After three days of stable performance, vocabulary instruction was added to the repeated reading intervention. There was another immediate increase in Adrian's level of performance, he read an average of 141.50 CWPM on the final read and his stability remained about the same (range = 136-149). Following four days of stable performance vocabulary instruction was withdrawn and there was an immediate decline in Adrian's performance. During the second repeated reading condition Adrian read an average of 125.33 CWPM (range = 113-133). After three days vocabulary instruction was reintroduced and Adrian's performance immediately increased to his highest levels with an average of 155.50 CWPM while maintaining relatively stable levels of performance (range = 145-159).

Correct words per minute on the first read. During Baseline Adrian read with an average of 109 CWPM and high variability (range = 81-130). With the introduction of the repeated reading intervention Adrian read an average of 105.33 CWPM on the first

Figure 5
Adrian's Results for the First and Final Read of the First Half of the Passage



Read with an increase in stability (range = 103-109). When vocabulary instruction was introduced Adrian increased to an average of 108 CWPM on the first read with increased variability (range = 102-114). When vocabulary instruction was withdrawn Adrian's performance decreased to an average of 94.66 CWPM (range = 99-101). When vocabulary instruction was reintroduced Adrian increased to his highest levels on the first read with an average of 111.75 CWPM (range = 99-108).

Errors during the final read. Adrian's errors per minute on the final read followed a similar pattern to his CWPM although in a reverse direction. Adrian's errors were highest during baseline with an average of 8 errors and with high variability (range = 2-19). When the repeated reading intervention was introduced Adrian's errors immediately declined to an average of 1.67 and stabilized (range = 0-3). After three sessions vocabulary instruction was introduced and Adrian's errors immediately declined further to an average of 0.50 and he read with almost no errors during this repeated reading + vocabulary phase (range = 0-1). When vocabulary instruction was withdrawn Adrian's errors immediately increased to an average of 5.67 (range = 3-8). The vocabulary intervention was then reintroduced and Adrian's errors returned to a similar level as during the first repeated reading + vocabulary phase with average errors of 0.75 (range = 0-2).

Errors during the first read. Adrian's errors per minute on the first read also followed a similar pattern with his errors highest during baseline and lowest during the repeated reading + vocabulary phases. During baseline Adrian read with an average of 8 errors on the first read (range = 2-19). When repeated reading was introduced his errors on the first read declined slightly to an average of 7.66 (range = 4-15). When vocabulary instruction was introduced his errors decreased to an average of 5 (range = 2-8). When vocabulary instruction was withdrawn his errors on the first read increased to an average

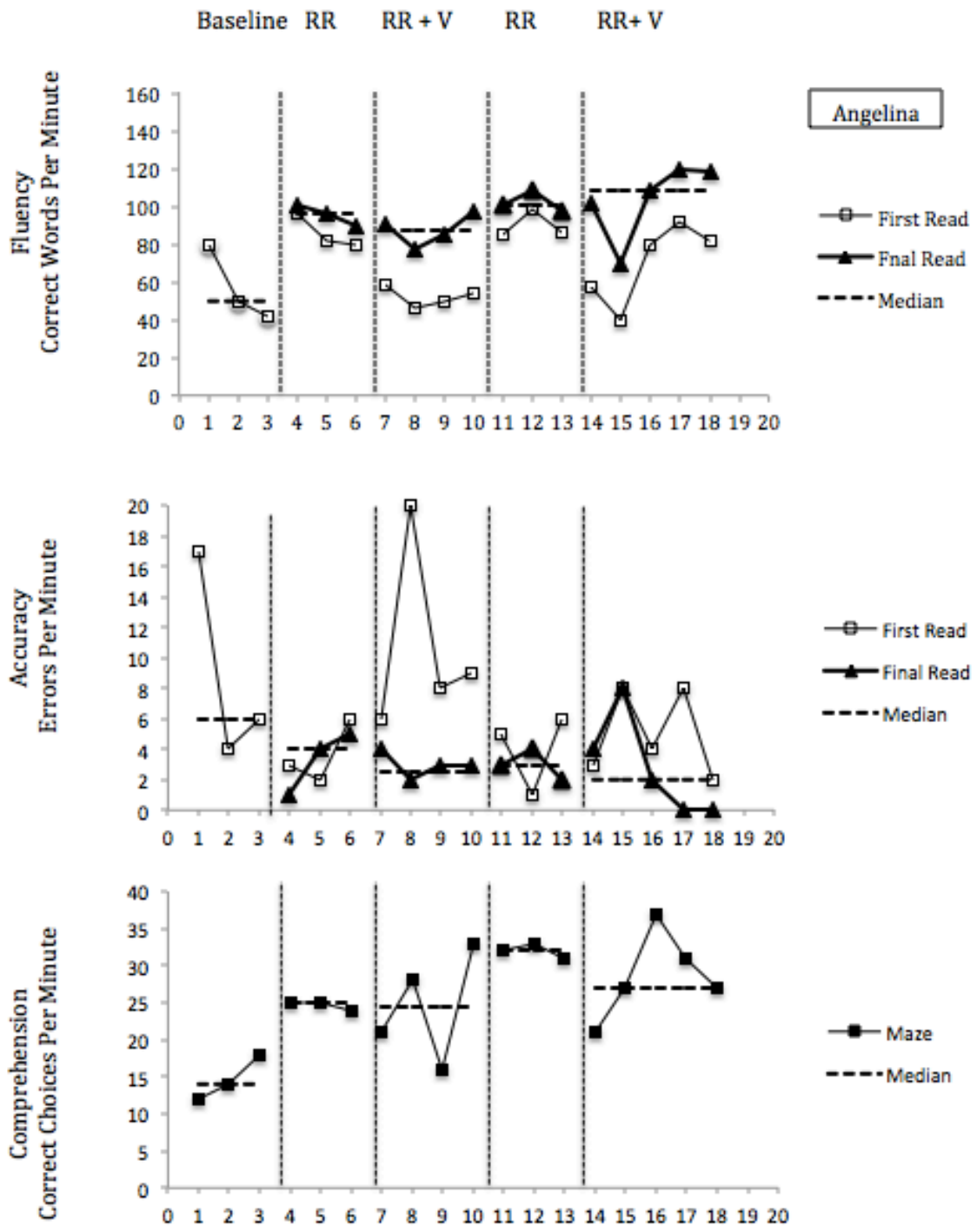
of 6 (range = 3-10). When vocabulary instruction was re-introduced his errors declined again to their lowest level with an average of 4 (range = 1-9).

Maze. Correct choices on maze passages were used to estimate comprehension gains. Because maze was a secondary dependent variable no decisions were made as to when to change phases based on maze results. Adrian averaged 15.60 correct choices during baseline (range = 12-18). When the repeated reading intervention was introduced Adrian's average performance increased to 17.67 correct choices (range = 16-21) and an upward trend emerged. This trend continued when vocabulary instruction was introduced. Adrian averaged 23.50 correct choices (range = 20-27) during the first repeated reading + vocabulary phase. When vocabulary instruction was withdrawn, Adrian's performance on maze did not decline but increased slightly to an average correct choices of 24 (range = 20-28). When vocabulary instruction was re-introduced the upward trend continued and Adrian averaged his highest levels with 27.50 correct choices (range 25-34).

Angelina

Correct words per minute on the final read. During baseline Angelina read an average of 57.33 CWPM (range = 42-80; see Figure 5). Following a decreasing trend, the repeated reading intervention was introduced and implemented with 100% fidelity. When repeated reading was introduced there was a clear and instant change in level and Angelina read with an average of 95.67 CWPM on the final read (range = 90-101). After three days of stable performance, vocabulary instruction was added to the repeated reading intervention. This resulted in a decrease in level of performance as Angelina read an average of 87.75 CWPM on the final read during the repeated reading + vocabulary phase and the variability of performance increased (range = 77-98). Following four days of stable performance, vocabulary instruction was withdrawn and there was an immediate increase in Angelina's performance. During the second

Figure 6
Angelina's Results for the First and Final Read of the First Half of the Passage



repeated reading condition she read an average of 102.67 CWPM and with very little variability (range 98-101). After three days of stable performance in the repeated reading phase, vocabulary instruction was reintroduced and Angelina's performance decreased before returning to similar levels of performance with an average of 104 CWPM and the variability of her performance increased (range 70-120).

Correct words per minute on the first read. During baseline Angelina's CWPM on the first read averaged 57.33 (range = 42-80). When repeated reading was introduced her average on the first read increased to 86 CWPM (range = 80-96). When vocabulary instruction was added her average CWPM on the first read decreased to levels lower than during baseline with 52.25 CWPM (range = 46-59). When vocabulary instruction was withdrawn her average increased to 90 CWPM (range = 86-99). When vocabulary instruction was re-introduced her average on the first read again decreased to 70.40 CWPM (range = 40-92).

Errors during the final read. Angelina's errors per minute were highest during baseline with an average of 9 errors and she demonstrated high variability (range = 4-17). When the repeated reading intervention was introduced Angelina's errors immediately decreased to an average of 3.33 on the final read and her performance demonstrated less variability (range = 1-5). After three sessions vocabulary instruction was introduced and Angelina's errors decreased slightly to an average of 3 during the repeated reading + vocabulary phase (range = 2-4). When vocabulary instruction was withdrawn Angelina's errors remained the same with an average of 3 errors (range = 2-4). The vocabulary intervention was then reintroduced and Angelina's errors decreased slightly to the lowest level for all phases 2.8 (range = 2-8).

Errors during the first read. Similar to the pattern for CWPM Angelina's errors were highest during baseline and lowest during the repeated reading phase on her first

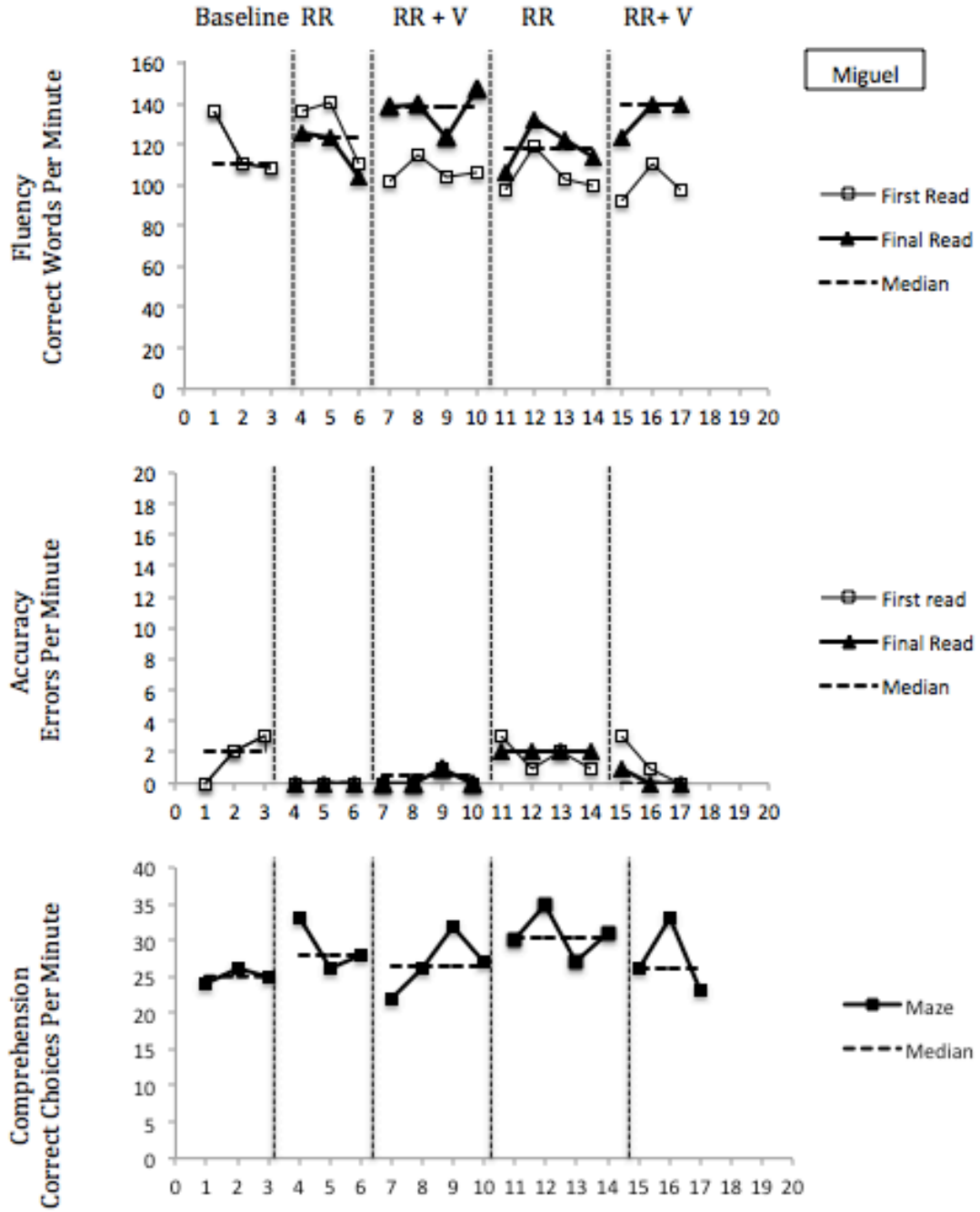
read. Angelina averaged 9 errors (range = 4-17) during baseline. When repeated reading was introduced her errors on the first read declined to an average of 3.67 (range = 2-6). When vocabulary in instruction was introduced her errors increased to an average of 10.75 (range = 6-20). When vocabulary instruction was withdrawn and just the repeated reading intervention was provided her errors decreased to an average of 4 (range = 1-6). When vocabulary instruction was introduced for the second time her errors increased to an average of 5 (range = 2-8).

Maze. Correct choices on maze passages were used to estimate comprehension gains. Because maze was a secondary dependent variable no decisions were made as to when to change phases based on maze results. Angelina's maze results followed a similar pattern to her CWPM results. During baseline she averaged 14.67 correct choices (range = 12-18). When the repeated reading intervention was introduced Angelina's average performance increased dramatically to with 24.67 correct choices (range = 24-25) and her performance showed little variability. When vocabulary instruction was introduced Angelina's averaged decreased slightly to 24.5 correct choices (range = 16-33) and the variability of her scores increased. When vocabulary instruction was withdrawn Angelina's performance on maze immediately increased to average correct choices of 32 (range = 31-33) and her performance stabilized. When vocabulary instruction was re-introduced Angelina's performance decreased to an average of 28.8 correct choices and the variability of her performance increased (range = 21-31).

Miguel

Correct words per minute on the final read. During baseline, Miguel read an average of 118 CWPM (range = 108-136; see Figure 5). Following a decreasing trend, the repeated reading intervention was introduced and implemented with 100% fidelity. During the first repeated reading intervention Miguel demonstrated little change in performance; he read an average of 117.67 CWPM on the final read and his performance

Figure 7
Miguel's Results for the First and Final Read of the First Half of the Passage



was slightly more stable (range = 104-126). After three days and a decreasing trend during the repeated reading intervention, vocabulary instruction was added. This resulted in an immediate increase in Miguel's level of performance, he read an average of 136.75 CWPM on the final read during the repeated reading + vocabulary phase while still demonstrating similar levels of stability (range = 123-147). Following four days of stable performance during repeated reading + vocabulary instruction the vocabulary instruction was withdrawn and there was an immediate decrease in Miguel's performance and a return to the level previously established during the first repeated reading phase. Miguel read an average of 118.50 CWPM and with similar variability (range 106-132). After four days vocabulary instruction was reintroduced and Miguel's performance returned to similar levels of performance as seen in the first repeated reading + vocabulary phase with an average of 134.33 CWPM and the variability of his performance decreased slightly (range 123-140).

Correct words per minute on the first read. During baseline Miguel averaged 118 CWPM (range = 108-136). When repeated reading was introduced his average on the first read increased to 129 CWPM (range = 110-141). When vocabulary instruction was introduced his average decreased to 106.75 CWPM (range = 102-115). When vocabulary instruction was withdrawn his average on the first read further decreased to 105 CWPM (98-119). When vocabulary instruction was introduced for the second time his average on the first read was at the lowest level with 100 CWPM (range = 92-110).

Errors during the final read. Miguel read with low levels of errors across conditions on the final read. During baseline he read with an average of 1.67 errors (range = 0-3). When the repeated reading intervention was introduced Miguel's errors decreased to 0. When vocabulary instruction was introduced Miguel's errors averaged .25 (range 0-1) and when vocabulary instruction was withdrawn they increased slightly to

an average of 2 (range = 2-2). When vocabulary instruction was reintroduced they decreased to .33 (range 0-1).

Errors during the first read. Miguel also read with a low level of errors across conditions on the first read. During baseline he read with an average of 1.67 errors (range = 0-3). This fell to 0 when repeated reading was introduced and remained near zero (0.25) when vocabulary instruction was introduced for the first time. When vocabulary instruction was withdrawn he read with an average of 1.75 (range = 0-3) errors on the first read. When vocabulary instruction was re-introduced this declined slightly for an average of 1.33 errors (range = 0-3) on the first read.

Maze. Correct choices on maze passages were used to estimate comprehension gains because maze was a secondary dependent variable no decisions were made as to when to change phases based on maze results. During baseline he averaged 25 correct choices (range = 24-26). When the repeated reading intervention was introduced Miguel's average performance increased to 29 correct choices (range = 26-33) with increased variability. When vocabulary instruction was added Miguel's average decreased to 26.75 correct choices (range = 22-32) and the variability of his scores increased. When vocabulary instruction was withdrawn Miguel's performance on maze increased and returned to similar levels as during the first repeated reading phase, he average 30.75 correct choices (range = 27-35) with similar variability. When vocabulary instruction was re-introduced Miguel's performance again decreased to an average of 27.33 correct choices with similar variability (range = 23-33).

Descriptive Statistics

Correct Words Per Minute. Table 8 details the mean scores across conditions for the participants. For Adrian and Miguel the repeated reading + vocabulary phase resulted in the highest levels of CWPM on the final read during both the first half of the passage and the second half of the passage. Adrian read an average of 148.50 CWPM for

the first half and 147.5 for the second half. These represent a 20 and 21 CWPM gain over repeated reading alone. Miguel read average of 135.71 CWPM for the first half and 130.74 for the second half. These scores represent a 17 and 26 CWPM gain over

Table 8
Participants' Means (M) and Standard Deviations (SD) for Dependent Variables Across Conditions

	OPR			Errors		
	Baseline M (SD)	RR M (SD)	RR + V M (SD)	Baseline M (SD)	RR M (SD)	RR + V M (SD)
Adrian						
1st half	109.00 (19.25)	128.17 (8.03)	148.50[a] (9.62)	8.00 (6.74)	3.67 (2.87)	0.63[b] (.744)
2nd half	111.20 (13.33)	126.00 (10.37)	147.50[a] (11.63)	5.40 (5.50)	2.16 (2.22)	1.36[b] (1.06)
Angelina						
1st half	57.33 (20.03)	99.17[a] (6.30)	96.77 (17.64)	9.00 (7.0)	3.17 (1.77)	2.88[b] (2.42)
2nd half	52.00 (12.49)	99.16 (16.70)	105.88[a] (21.45)	5.30 (3.08)	4.50 (2.30)	2.67[b] (2.39)
Miguel						
1st half	118.00 (15.62)	118.14 (10.47)	135.71[a] (9.15)	1.67 (1.52)	1.14 (1.06)	0.28 [b] (0.48)
2nd half	104.00 (11.13)	127.29 (18.31)	130.57[a] (20.37)	3.00 (3.33)	0.14 (0.37)	0[b]

Note. [a] = the highest average across conditions; [b] = the lowest average across conditions; OPR = oral passage reading

repeated reading alone, respectively. Angelina's performance did not demonstrate a clear difference between the repeated reading phase and the repeated reading + vocabulary phase. However, Angelina's performance did increase dramatically with the introduction of repeated reading, she gained 42 CWPM during the first half and 47 CWPM during the second half when repeated reading was introduced.

Errors. Across all participants for both the first and second half of the passage errors decreased when repeated reading was introduced and further decreased to the lowest level during the repeated reading + vocabulary phases. Adrian decreased to an average of one error per minute from eight and five on the first and second halves of reading, respectively. Angelina decreased to a little less than three errors per minute and Miguel read with almost no errors during the final read.

Table 9
Participants' Means (M) and Standard Deviations (SD) for Comprehension Dependent Variables Across Conditions

	Maze			Comprehension		
	Baseline	RR	RR + V	Baseline	RR	RR + V
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Adrian	15.60	20.83	25.50	6.20	6.00	6.25
	(2.50)	(4.67)	(4.11)	(0.45)	(1.26)	(1.98)
Angelina	14.66	28.33	26.78	5.30	6.22	6.22
	(3.05)	(4.08)	(6.57)	(0.57)	(1.31)	(1.92)
Miguel	25.00	26.42	26.85	7.67	7.71	7.00
	(1.0)	(11.17)	(3.98)	(0.57)	(0.75)	(0.58)

Comprehension. The results for maze comprehension were mixed, detailed in Table 9. Across phases Angelina answered the most correct during repeated reading, Adrian during repeated reading + vocabulary, and Miguel demonstrated little change

between all three phases. There was also little difference for all three participants across all three phases, for comprehension questions answered correctly. All participants averaged within one point of their original score for both repeated reading and repeated reading + vocabulary instruction.

Pre/Post Assessment

The pre/post assessment results for all students are detailed in Table 10. Adrian had a 35 CWPM gain over the five weeks of intervention. This increase puts Adrian's growth per week at 7 CWPM well above the ambitious growth rate for 8th grade students of 0.60 words per week (Hasbrouck & Tindal, 2006). Angelina gained 32 CWPM over the course of the intervention and also demonstrated a weekly growth rate of 6.4 CWPM, which is well above the ambitious rate for 6th grade students of 0.80 words per week. Miguel gained 11 CWPM and demonstrated a weekly growth rate of 2.2 CWPM, this is also above the suggest rate of 0.60.

Table 10
Participants' Pre/Post Test Results on Oral Passage Reading (in CWPM)

	Pre-Test Median (range)	Post- Test Median (range)	Change	Growth Per Week	Pre-Test Mean (SD)	Post-Test Mean (SD)	Effect Size *d (r)*
Adrian	106 (104-138)	141 (140-149)	35	7	116 (19.07)	143.33 (4.93)	1.43 (0.26)
Angelina	57 (55-78)	89 (77-105)	32	6.4	63.33 (12.74)	90.33 (14.04)	2.11 (0.34)
Miguel	118 (108-134)	129 (127-144)	11	2.2	120 (13.11)	133.33 (9.29)	1.01 (0.20)

Note. CWPM = correct words per minute

Effect Sizes

The effect sizes for mean differences are detailed in table 11. Adrian saw the largest difference between repeated reading and repeated reading + vocabulary instruction (2.09 and 3.20) although he also demonstrated a relatively large difference between baseline and repeated reading (1.57). Angelina had a relatively large effect (2.60) with the introduction of the repeated reading intervention and negative or very small effect with the addition of the vocabulary instruction. For Miguel there was a negative effect when repeated reading alone was introduced and relatively large effects when vocabulary instruction was added (1.73 and 1.47).

Table 11
Effect Sizes estimates (d) for Mean Differences in CWPM Between Conditions

	AB_1 (Baseline to RR) *d*	B_1C_1 (RR to RR + V) *d*	B_2C_2 (RR to RR +V) *d*
Adrian	1.57	2.09	3.20
Angelina	2.60	-1.06	0.09
Miguel	-0.03	1.73	1.47

PEM was also used to estimate intervention effectiveness and is reported in Table 12. For Adrian repeated reading was highly effective (PEM = 1) over the baseline condition of no treatment, and repeated reading + vocabulary instruction was highly effective (PEM = 1) over just repeated reading. This finding was replicated with the second introduction of repeated reading and repeated reading + vocabulary instruction.

For Angelina repeated reading was a highly effective (PEM = 1) intervention. Repeated reading + vocabulary instruction did not provided added benefit for Angelina as

the PEM scores fell below 0.70 and is considered questionable. This finding was not replicated with the second introduction of repeated reading + vocabulary instruction.

Table 12
Percentage of Data Points Exceeding the Median (PEM) for CWPM

	AB_1 (Baseline to RR)	B_1C_1 (RR to RR + V)	B_2C_2 (RR to RR +V)
Adrian	1.00	1.00	1.00
Angelina	1.00	0.25	0.75
Miguel	0.66	0.75	0.66

For Miguel the introduction of repeated reading (PEM = 0.66) provided a questionable effect. When vocabulary instruction was added the intervention was effective by PEM standards (PEM = 0.75). This finding was not replicated with the second introduction of repeated reading + vocabulary instruction.

Social Validity

When the interventionist asked the students what their favorite part of the intervention was, Adrian indicated the interventionist modeling the reading was his favorite part. Angelina also indicated her favorite part was when the interventionist modeled reading the passage. Adrian expanded his answer and explained that he liked the modeling because then he knew what the words were. Miguel's favorite part of the intervention was the repeated reading because he indicated he liked to practice reading. When asked what their least favorite part of the intervention phases was Adrian and Angelina both said they did not like the vocabulary instruction because it made the intervention too long. Miguel indicated he did not like answering the comprehension questions because they were hard. When asked if given the chance would they participate

in the intervention again, Adrian said no because he “didn’t like to read”. Miguel and Angelina said they would because they liked to read.

CHAPTER FIVE

DISCUSSION

Chapter Overview

There is a need for research on reading intervention for ELLs with reading disabilities, specifically research examining fluency instruction (Francis et al., 2006; Wexler et al., 2008). This study examined a repeated reading intervention with a three long-term ELLs who received special education services in the area of reading. All students had similar language abilities (i.e., Spanish and English), disability status (i.e., LD), and years in English instruction. Results from CHAPTER FOUR indicate repeated reading and/or repeated reading + vocabulary instruction is effective for improving reading fluency and accuracy for ELLs with reading disabilities. With only five weeks of repeated reading instruction all three participants increased their reading fluency and accuracy. The fluency gains were demonstrated on both intervention passages and pre/posttest passages. These findings are consistent with previous literature (Hawkins, et al., 2011; Malloy et al., 2007; Tam et al., 2006; Valleley & Shriver, 2003; Wexler et al., 2008) and extend the findings to adolescent ELLs. This chapter will includes a summary of findings by skill area (i.e. fluency, accuracy, and comprehension), implications, limitations, and future research.

Summary of Findings by Skill Area

This study examined the effectiveness of a repeated reading intervention and a repeated reading + vocabulary instruction intervention. Visual analysis of the data for the final read demonstrated a functional relation with the introduction of vocabulary instruction for all three students. For Adrian and Miguel there was an increase in CWPM on the final read and a reduction of errors when vocabulary instruction was introduced. For Angelina the relationship was the opposite as she demonstrated a decline in CWPM, on the final read, when vocabulary instruction was introduced. Overall the findings

indicate that either repeated reading alone, repeated reading + vocabulary instruction, or both are beneficial interventions to increase adolescent ELLs' reading fluency and accuracy. These findings are consistent with previous research showing older students do benefit from reading intervention (Vaughn & Fletcher, 2012), including repeated reading interventions (Hawkins et al., 2011; Valleley & Shriver, 2003; Wexler et al., 2008). The findings suggest that adolescent ELLs may benefit differentially from the interventions based on their reading fluency and accuracy skills at the start of the intervention.

Fluency

All three students benefited from either repeated reading alone or repeated reading + vocabulary instruction. On the final read Adrian benefited from both the repeated reading and the repeated reading + vocabulary instruction but benefited the most from that latter phase. On the first read Adrian read at similar levels as during the baseline condition with a small increase when vocabulary instruction was present. It is not surprising that his first read did not increase dramatically as we would not expect adolescents to demonstrate large increases in fluency, from passage to passage, without practicing the passage.

Miguel showed a benefit only on the final read and only when vocabulary instruction was added to repeated reading. Miguel demonstrated a pattern of performance on his first read that was different than one would expect. Miguel initially experienced a jump in reading fluency on his first read, during the first repeated reading phase. However, during each subsequent phase his CWPM decreased on the first read. It is possible that Miguel was not sufficiently motivated by the intervention. Although he demonstrated a decline on his first read his overall pre/post assessment data indicates he did benefit from the intervention.

Angelina showed the most benefit during the repeated reading intervention phase and this was evident for both the first and the final read. Although the hypothesis was

that all students would benefit more when vocabulary instruction was added, this was not true for Angelina. It is interesting that Angelina read at a slower rate on her final read when vocabulary instruction was added. It is also interesting that, on her first read, her CWPM were markedly lower during the repeated reading + vocabulary phase. You would expect the first read to remain at similar levels across intervention phases. These findings may be because Angelina was not automatic enough with decoding to move beyond conscious control and read with minimal effort (LaBerge & Samuels, 1974). When vocabulary instruction was introduced it may have shifted her cognitive attention towards understanding the meaning of words and away from decoding the words therefore slowing down her fluency as measured by CWPM.

Although all the students responded differently to the individual intervention phases they did all demonstrate marked improvements on the pre/post assessments. This indicates that some portion of the intervention (e.g., repeated reading, modeling, vocabulary instruction) was effective at increasing their reading fluency as measured by CWPM.

These findings are important because they extend the literature on repeated reading to adolescent ELLs with reading disabilities. Similar to previous findings for adolescents with reading difficulties (Wexler et al., 2008; Valleley & Shriver, 2003) repeated reading with modeling and error correction increased reading fluency for two students, Adrian and Angelina. The effect sizes for Adrian and Angelina of 1.57 and 2.60 respectively are consistent with the effect sizes found for EO students (ES range 1.66 - 3.17; Hawkins et al., 2011).

As hypothesized two students benefited more from a repeated reading intervention that included vocabulary instruction (Francis et al., 2006). Adrian and Miguel increased their reading fluency when repeated reading was combined with vocabulary instruction with effect sizes ranging from 1.47 – 3.20. These findings are also

consistent with findings for EO students when vocabulary instruction was added to a repeated reading intervention (ES range 0.96 - 2.23; Hawkins et al., 2010). These findings are also consistent with previous findings that some ELLs increased fluency more when vocabulary instruction was added while others did not see an additional increase with vocabulary instruction (Malloy et al., 2006). This may be due in part to the different decoding skills and oral language skills the students entered with.

With only five weeks of instruction (17-19 total session), all three students made gains in OPR as measured by CWPM on the pre/post assessments. Their rate of learning (2.2 – 7 CWPM per week) far exceeded typical growth rates (0.60 - 0.80 CWPM per week) indicating the repeated reading intervention has potential for accelerating ELLs reading fluency towards benchmark levels.

Accuracy

Similar to the fluency results, repeated reading decreased errors therefore increasing reading accuracy for all students. These finding are consistent with previous research for both ELLs and adolescents with LD (Tam et al., 2006; Wexler et al., 2008). The impact on errors was seen for all students when repeated reading was introduced. Adrian and Angelina reduced their average errors per minute by over four words and Miguel by an average of almost three words. Adrian further increased his accuracy by reducing his errors to near zero during the repeated reading + vocabulary phases, and Miguel and Angelina maintained high levels of accuracy and low levels of errors throughout both repeated reading and repeated reading + vocabulary phases.

In order for students to comprehend what they read students must read the text automatically which includes high levels of fluency and accuracy (Torgeson, 2002). Adrian read with an average of 93% accuracy during baseline (frustration level) but with the repeated reading and repeated reading + vocabulary instruction intervention he was able to maintain an average accuracy above 97% (independent level). Similarly,

Angelina read with an average of 87% accuracy during baseline (frustration level) but with the repeated reading and repeated reading + vocabulary intervention she was able to maintain accuracy at 97% (independent level). Miguel began with a high level of accuracy averaging 97% and was able to maintain these high levels throughout. These results are important because they show, that with repeated reading instruction and repeated reading + vocabulary instruction, adolescent ELLs can improve their accuracy when reading expository text found in many content area classrooms.

Comprehension

Comprehension gains, as estimated by correct choices on maze and comprehension questions answered correctly were not clearly attributable to the implementation of the repeated reading or the repeated reading + vocabulary interventions. Adrian and Angelina demonstrated an increasing trend across all conditions. Adrian increased by an average 12 correct choices and Angelina by 14 from baseline to the final repeated reading + vocabulary phase but this increase was not directly tied to any phase changes. Miguel showed no improvement on Maze correct choices. All three students performed about the same level on comprehension questions across phases and there was no noticeable improvement.

Gough's simple view of reading contends that most differences in comprehension can be accounted for by oral language and decoding skills (Gough, 1996). Although this intervention increased all three students abilities to decode text accurately and fluently this may not have been a large enough improvement to be noticeable on measures of comprehension. This finding is consistent with findings for both adolescents and ELLs where reading comprehension gains are much smaller and less detectable (Denton et al., 2008;Vaughn & Fletcher, 2012), and is consistent with finding for secondary students with disabilities (Valleley & Shriver, 2003). It may be that in order to impact comprehension the repeated reading intervention would need to be implemented over a

much longer period of time. Adolescents with reading difficulties require intense interventions in order to see gains in comprehension (e.g., longer in duration, more frequent; Denton et al., 2008;Vaughn et al., 2010; Vaughn & Fletcher, 2012).

The addition of vocabulary instruction did not increase the ELLs' comprehension of the intervention passages. One explanation for this is that the additional five to seven minutes of vocabulary instruction was not enough to provide for deep processing of word meanings in order to increase oral language skills and effect comprehension. This is consistent with previous literature for students with LD where vocabulary instruction led to increases in word knowledge but not comprehension (Jitendra et al., 2004). Another explanation is that although I controlled for text difficulty, the readability formulas I employed did not account for vocabulary knowledge (Stahl, 2003). In individual passages there may have more words that were unknown to the students than in others. The vocabulary instruction provided could have been inadequate to increase comprehension or for different passages it could have been unnecessary. An example of this was the passage Angelina read on a *Constitutional Monarchy*. This passage had many vocabulary words the interventionist anecdotally noted were unknown to Angelina. However, on another day she read a passage about *Butterflies* and appeared to be very familiar with the vocabulary in the passage. It is possible that even though the students received vocabulary instruction they may not have had enough vocabulary knowledge of the some of the passage to increase their comprehension (Stanovich, 1986).

A third possible explanation for lack of improvement on comprehension measures it that students were not sufficiently motivated during the vocabulary instruction component. Angelina and Adrian indicated they did not like the vocabulary instruction because they thought it made the intervention too long and Miguel demonstrated a decline in performance that could be associated with motivation. Researchers have found motivation can be important to consider especially with secondary students with

disabilities (Denton et al., 2008) and long-term ELLs (Olson, 2010). Long-term ELLs persistent academic failure may lead to non-engagement and passivity and reduce their motivation in the intervention (Olson, 2010).

Despite the lack of improvement on comprehension measures the results from this study remain positive. Taken together these results support the use of either a repeated reading or a repeated reading + vocabulary intervention to increase adolescent ELLs with reading disabilities reading fluency and accuracy. The results remain consistent with Gough's simple view of reading which emphasizes the need to both decode text automatically as well as to understand the words that you are decoding (Gough, 1996). The repeated reading intervention is one possible way to increase student's ability to read automatically. It is notable that students responded differently to the repeated reading and the repeated reading + vocabulary interventions possibly based on their skills at entry.

Angelina entered with the lowest fluency and accuracy and benefited the most from the repeated reading phase. She did not demonstrate an added benefit of vocabulary instruction possibly because her skills were so low at entry (i.e., at an average of 57.33 CWPM and 87% accuracy) that she first needed to increase her basic reading skills. It is possible that once Angelina's fluency skills improve (e.g., to levels above 100 CWPM) that she may show benefit from the vocabulary instruction. On the other hand Miguel entered with the highest fluency and accuracy levels (i.e., at an average of 118 CWPM and 97% accuracy) and he did not show any benefit from the repeated reading intervention alone. Miguel did not show benefit until the vocabulary instruction was added. It is possible that Miguel did not need the repeated reading intervention at all and could have made the same gains with vocabulary instruction.

Adrian is the student who demonstrated the most benefit from the intervention. He entered reading an average of 106 CWPM with 93% accuracy. Adrian benefited from

both the repeated reading and the vocabulary instruction. He may have demonstrated the most benefit because his initial fluency was low enough to be influenced by repeated reading but high enough to show benefit from the vocabulary instruction. This finding is important because it underscores the variations in ELLs performance in interventions based on the skills they possess at entry.

Implications

Adolescent ELLs have consistently demonstrated low levels of English reading proficiency and this low achievement is especially pronounced for long-term ELLs and ELLs with reading disabilities (Klingner et al., 2006). In order to increase achievement for long-term ELLs with reading disabilities and difficulties schools must have evidence-based interventions validated for this population (Klingner & Boardman, 2011). Overall, the results of this study provide preliminary evidence that a repeated reading intervention can lead to improvements in reading performance for adolescent ELLs with reading disabilities, and that for some students the addition of vocabulary instruction provides an added benefit. Given that participants in this study demonstrated growth in such a short amount of time schools may be able to use a repeated reading intervention as part of their RTI model in order to determine individual students' response to evidence based intervention (Fuchs et al., 2012).

A second implication of this study is that even when ELLs are grouped by like characteristics (e.g., years in English instruction, English proficiency, Spanish proficiency) they do not respond equally to the same components of intervention. Schools and teachers will need to make sure teachers have specialized expertise to select, implement, monitor progress and adapt interventions for adolescent ELLs. As with EO students there is not one intervention that works for all students, and although repeated reading and repeated reading + vocabulary instruction hold promise, teachers must be

able to determine which components are most effective for individual students. For example teachers should use progress-monitoring data to determine if individual students are benefiting from a repeated reading intervention or if like Adrian they may benefit more from the addition of vocabulary instruction.

A third implication is because these results were achieved using expository text, it may be possible that educators could incorporate repeated reading and vocabulary instruction into content area classes using school curriculum reading materials. This would allow long-term ELLs to benefit from both increased fluency as well as increased academic content knowledge. These findings are overall positive and lead to implications for practice, but more research is needed to determine if repeated reading is an evidence-based practice for adolescent ELLs with reading disabilities.

Limitations and Future Research

Despite the overall positive findings for increasing reading fluency and accuracy for adolescent ELLs with reading disabilities there are several limitations that should be noted as well as directions for future research. The first limitation is the findings of this study may not generalize to other ELLs with disabilities. Although the participants were well described and had many similar characteristics, there were only three participants in this study and each participant responded differently to the interventions.

Future research should replicate repeated reading as well as repeated reading + vocabulary instruction with similar students in order to determine if the results generalize to other long-term ELLs. One possible way to replicate these results would be to implement the intervention with more students who read under 100 CWPM and at frustration levels in order to determine if these students show benefit from only repeated reading like Angelina did.

Similarly, replication could occur with a long-term ELLS who read with high levels of accuracy and higher levels of fluency (e.g., above 110) in order to determine if

they need repeated reading at all or if they can benefit from vocabulary instruction alone. Finally, direct replication should be done with ELLs who have fluency skills around 100 CWPM and accuracy skills in the instructional range in order to generalize the increases in fluency and accuracy to other long-term ELLs with similar reading skills.

A second limitation is with the design of the study. The ABCBC multi-treatment design did not allow for replication between the baseline and repeated reading phase and this design may not have adequately controlled for the practice effects, which may account for the positive trends seen. One way to combat the potential practice effects would be to use a multiple baseline design. Future research should focus on using a multiple baseline design to investigate the effects of a repeated reading intervention on the reading skills of adolescent ELLs with reading difficulties.

In addition, because the repeated reading intervention was multi-component (i.e., adult modeling, corrective feedback, practice reading) it is difficult to know if one aspect (e.g., adult modeling) had more of an impact than other aspects. Two of the students indicated their favorite part of the intervention was the adult modeling and it is possible that this alone could have increased his/her reading fluency and accuracy. Future research should look more closely at the components within the repeated reading intervention to determine what components long-term ELLs benefit the most from.

A third limitation of the study was the duration of the study. The study lasted five weeks and with snow days the students only had 17-19 sessions (approximately 8-9 total hours). If the students had taken part in the study for a more extended period of time there may have been a more clear relation established between the independent and dependent variables. In addition, if the study had lasted longer there may have been an effect on comprehension. Future research studies should employ designs (e.g., group design) that can be conducted over a more extensive period of time (e.g., a school year)

in order to examine the long term effects of repeated reading and repeated reading + vocabulary instruction.

A fourth limitation is that although the repeated reading and repeated reading + vocabulary instruction interventions produced gains for fluency and accuracy but these gains were on practiced passages and generalization data was not collected (except for the pre/post measure). In addition, all the data points for decision-making during phases were on practiced passages from the interventions sessions. It is difficult to know the impact of this intervention on novel content area text. Future research should focus on examining the impact of repeated reading and repeated reading + vocabulary instruction on novel text.

A fifth limitation is the use of the interventionist, who has specialized skills for teaching ELLs and students with disabilities, as the instructor. This could limit the feasibility of schools being able to provide trained personnel to implement an intense (1:1) intervention over a sustained period of time. Another limitation in this area is that the interventionist is also the author. Even though care was taken to follow the intervention protocols and to provide implementation fidelity data, the use of the author as the interventionist could confound the results. Future research should use teachers as interventionist in order to determine if the results can be achieved with teachers.

A sixth limitation of the study was the text itself. The text was leveled using readability formulas but these do not account for text difficulty that arises from the content and vocabulary. There could have been variability in the results based on text difficulty that was not accounted for. In addition, although the passages were randomly assigned to an order, both Adrian and Miguel's passages were in the same order. This could have introduced an order effect that could confound the results. Future research should use passages that are in a counter balanced order in order to account for the

potential order effect. Future research should also work to control text difficulty that arises from the content and vocabulary knowledge.

A final limitation is the vocabulary words selected may not have been unknown for the students. It was not within the scope of this intervention to pre-determine if the words were previously known although care was taken to select words that were relevant to understanding the content of the passage. The impact of the vocabulary instruction may have been more noticeable if the selected words were truly unknown to students (Valleley & Shriver, 2003). Future research should use designs that account for students' vocabulary skills at entry. One way to do this would be to select a content area with pre-determined vocabulary words and pre and post test the student's knowledge of these words.

Despite these limitations there is a need or research with adolescent ELLs with reading difficulties and disabilities and this study provides preliminary evidence that repeated reading and repeated reading + vocabulary instruction may be one way to increase long-term ELLs reading fluency and accuracy. All three participants increased their fluency and accuracy skills with only five weeks of repeated reading instruction. The fluency gains were demonstrated on both intervention passages and pre/posttest passages. These findings extend the research on repeated reading to adolescent ELLs with reading disabilities.

APPENDIX A

REPEATED READING INTERVENTION PROTOCOL

Materials: One student copy of the instructional material, three interventionist copies of the instructional material, maze, comprehension questions, and data recording sheet

Procedure:

1. Greet the student and explain that he/she will be working to increase his/her fluency, accuracy, and comprehension of the text.
2. Prompt each student to do his/her best.
3. Provide the student with a copy of the passage.
4. Model fluent reading of approximately the first half of the passage.
5. Ask the student to read the part you just read. Say, **"Start at the beginning of this passage and read until here (point to where they should stop). If you come to a word you don't know I will tell it to you, do you best reading."**
6. During this reading provide error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is done reading the passage.
7. After the student has finished, provide delayed error correction. Point to the word and say, "**That word is_____. What word?"** The student should repeat the word. Then instruct the student to go back to the beginning of the phrase and reread the phrase with the correct word. Say, **"Start here and reread this part using the correct word".**
8. Repeat steps 4-7 until the student has read the first portion of the passage two times.
9. Repeat steps 4-8 for the 2nd half of the passage
10. After each reading, the interventionist will provide performance feedback to the student. The interventionist will say "**Great job, you read this passage in _____ minutes with _____ errors".** If the student surpasses his/her time from the previous reading and/or reduces their errors the interventionist will praise the student. If he/she do not surpass the previous time and reduce errors the interventionist will encourage them to do so on subsequent readings.
11. Record the scores from all readings on the *data recording sheet* (total-time = 15 minutes).
12. Have the student complete the maze CBM and answer the 10 comprehension questions (5 minutes).
13. Praise the student for their effort and have him/her return to their business as usual instruction.

APPENDIX B

REPEATED READING + VOCABULARY INTERVENTION PROTOCOL

Materials: One student copy of the instructional material, three interventionist copies of the instructional material, maze, comprehension questions, data recording sheet, and six vocabulary words with definitions and activities.

Procedure:

1. Use the pre-selected 6 vocabulary words from each instructional passage that are information oriented and important and useful to the content of the passage (Kim & Linan-Thompson, 2013).
2. Use interventionist created definitions and materials to teach each of the six words according to the steps used by Kim and Linan-Thompson (2013).
3. Activate prior knowledge of the target word
4. Provide a student friendly definition of the first word.
5. Explain the word's meaning in context using examples and pictures
6. Repeated steps 3-5 for each of the 6 vocabulary words
7. Provide activities for word acquisition (asking questions and creating a sentence) using the words (all 6).
8. Review the 6 words
9. Prompt each student to do his/her best.
10. Provide the student with a copy of the passage.
11. Model fluent reading of approximately the first half of the passage.
12. Ask the student to read the part you just read. Say, **"Start at the beginning of this passage and read until here (point to where they should stop). If you come to a word you don't know I will tell it to you, do you best reading."**
13. During this reading provide error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is done reading the passage.
14. After the student has finished, provide delayed error correction. Point to the word and say, "**That word is_____. What word?"** The student should repeat the word. Then instruct the student to go back to the beginning of the phrase and reread the phrase with the correct word. Say, **"Start here and reread this part using the correct word".**
15. Repeat steps 4-7 until the student has read the first portion of the passage two times.
16. Repeat steps 4-8 for the 2nd half of the passage.
17. After each reading, the interventionist will provide performance feedback to the student. The interventionist will say "**Great job, you read this passage in _____ minutes with _____ errors".** If the student surpasses his/her time from the previous reading and/or reduces their errors the interventionist will praise the student. If he/she do not surpass the

previous time and reduce errors the interventionist will encourage them to do so on subsequent readings.

18. Record the scores from all readings on the *data recording sheet* (total-time = 15 minutes).

19. have the student complete the maze CBM and answer the 10 comprehension questions (5 minutes).

20. Praise the student for their effort and have him/her return to their business as usual instruction.

APPENDIX C

REPEATED READING

INTERVENTION INTEGRITY PROCEDURAL CHECKLIST

	YES	NO
Interventionist greets the student and prompt each student to do his/her best.		
Interventionist prompts the student to read fluently and encourages them do their best		
Interventionist provides the student with a copy of the passage.		
Interventionist has a timer to time the students' reading and an data-recording sheet to record their performance.		
Interventionist models fluent reading of the passage (first half)		
The interventionist asks the student to read the first part and says, **"Start at the beginning of this passage and read until here (point to where they should stop). If you come to a word you don't know I will tell it to you, do you best reading."**		
Reading 1: During this reading the interventionist provides error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is done reading the passage.		
The interventionist provides performance feedback		
Reading 2: During this reading the interventionist provides error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is done reading the passage.		
The interventionist provides performance feedback		
Reading 3: The interventionist records CWPM but does not provide error correction		
The interventionist models reading the second half of the passage		
The interventionist asks the student to read the first part and says, **"Start at the beginning of this passage and read until here (point to where they should stop). If you come to a word you don't know I will tell it to you, do you best reading."**		
Reading 1: During this reading the interventionist provides error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is done reading the passage.		

The interventionist provides performance feedback		
Reading 2: During this reading the interventionist provides error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is done reading the passage.		
The interventionist provides performance feedback		
Reading 3: The interventionist records CWPM but does not provide error correction		
The interventionist provides performance feedback		
The interventionist administers maze comprehension assessment		
The interventionist administers comprehension questions		
The interventionist provides praise and graphs the student results		

APPENDIX D

REPEATED READING + Vocabulary

INTERVENTION INTEGRITY PROCEDURAL CHECKLIST

	YES	NO
Interventionist greets the student and prompts the student to do his/her best.		
Interventionist prompts the student to read fluently and encourages them do their best		
Interventionist provides the student with a copy of the passage.		
Interventionist has a timer to time the students' reading and an data-recording sheet to record their performance.		
Interventionist points out 6 vocabulary words in the passage		
Interventionist uses interventionist created definitions and materials to teach each of the six words		
Word 1: The interventionist activates prior knowledge of the target word The interventionist provides a student-friendly definition of the first word. The interventionist explains the word's meaning in context using examples and pictures		
Word 2: The interventionist activates prior knowledge of the target word The interventionist provides a student-friendly definition of the first word. The interventionist explains the word's meaning in context using examples and pictures		
Word 3: The interventionist activates prior knowledge of the target word The interventionist provides a student-friendly definition of the first word. The interventionist explains the word's meaning in context using examples and pictures		
Word 4: The interventionist activates prior knowledge of the target word The interventionist provides a student-friendly definition of the first word. The interventionist explains the word's meaning in context using examples and pictures		
Word 5: The interventionist activates prior knowledge of the target word The interventionist provides a student-friendly definition of the first word. The interventionist explains the word's meaning in context using examples and pictures		
Word 6: The interventionist activates prior knowledge of the target word The interventionist provides a student-friendly definition of the first word. The interventionist explains the word's meaning in context using		

examples and pictures		
The interventionist provides activities for word acquisition (e.g.) asking questions and creating a sentence) using the words (all 6) in order to review the words		
The interventionist models reading the first half of the passage		
The interventionist asks the student to read the first part and says, **"Start at the beginning of this passage and read until here (point to where they should stop). If you come to a word you don't know I will tell it to you, do you best reading."**		
Reading 1: During this reading the interventionist provides error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is done reading the passage.		
The interventionist provides performance feedback		
Reading 2: During this reading the interventionist provides error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is done reading the passage.		
The interventionist provides performance feedback		
Reading 3: The interventionist records CWPM but does not provide error correction		
The interventionist provides performance feedback		
The interventionist models reading the second half of the passage		
The interventionist asks the student to read the first part and says, **"Start at the beginning of this passage and read until here (point to where they should stop). If you come to a word you don't know I will tell it to you, do you best reading."**		
Reading 1: During this reading the interventionist provides error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is done reading the passage.		
The interventionist provides performance feedback		
Reading 2: During this reading the interventionist provides error correction using standard error correction procedures. If the student hesitates on a word for 3 s or omits a word the interventionist should provide immediate error correction and say **"That word is _____."** If the student reads the word incorrectly the interventionist should not say the word and provide delayed error correction when the student is		

done reading the passage.		
The interventionist provides performance feedback		
Reading 3: The interventionist records CWPM but does not provide error correction		
The interventionist administers maze comprehension assessment		
The interventionist administers comprehension questions		
The interventionist provides praise and graphs the student results		

APPENDIX E

DATA RECORDING SHEET

Student Name			
Date			
Passage Title			
Student Reading	Minute 1 CWPM/ Errors 1st Half	Minute 1 CWPM /Errors 2nd Half	Notes:
1st			
2nd			
3rd			
Maze Comprehension Score			
Reading Comprehension Score			

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