A COMPARISON OF SPANISH AND ENGLISH MULTIMEDIA SHARED STORY INTERVENTIONS ON THE ACQUISITION OF ENGLISH VOCABULARY WORDS FOR ENGLISH LANGUAGE LEARNERS WITH AN INTELLECTUAL DISABILITY

by

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ABSTRACT

CHRISTOPHER JUAN RIVERA. A comparison of Spanish and English multimedia shared story interventions on the acquisition of English vocabulary words for English language learners with an intellectual disability.
(Under the direction of DR. FRED SPOONER)

Literature on the development of literacy skills for students with a moderate to severe intellectual disability is growing; however, little is known about effective literacy practices for Hispanic English language learners with a moderate intellectual disability. Additionally, little research has been conducted on how to utilize a student's primary language, technologies found in the classroom, and systematic instruction to teach English oral vocabulary to this specific population. The purpose of this study was to examine the comparative effects of an English and Spanish multimedia shared story intervention, with a constant time delay procedure, on the acquisition of English oral vocabulary for two English language learners with a moderate intellectual disability. Instruction was provided to students for two weeks and lasted approximately 7-11 minutes per session. Results from the study suggest that language of instruction played an important role in English vocabulary acquisition. Second, results also indicated that language of instruction did not have a meaningful impact on generalization and maintenance of vocabulary from both conditions over time. Finally, teachers reported that multimedia shared stories were practical and a useful supplemental form of instruction.

DEDICATION

I would like to dedicate this dissertation to my best friend and love of my life. Amy, you have been more than supportive through all of my academic endeavors and without you I would not be where I am today. Thank you. I would also like to dedicate this dissertation to my daughter Ava, to my parents Johnny and Mayra Rivera, and to Paul and Lou Keeter. Your support and encouragement has propelled me higher than I could have ever imagined. I thank and love you all for pushing me when I thought I could not go any further. There is nothing greater on this earth than having the love and support of a family. I am truly blessed.

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CHAPTER 1: INTRODUCTION

Statement of the Problem

A students' ability to master early literacy skills, interpretations of words and concepts that comes from using a combination of written, oral and spoken language (e.g., vocabulary; Vacca, Vacca, Gove, Burkey, & Lenhart, 2006), is a critical factor that impacts their future academic and functional success. It is important that young children master emergent literacy skills since these are prerequisites to more complex reading skills needed later in life (Whitehurst & Lonigan, 1998). An important component of emergent literacy is oral language. If students are unable to master oral language skills there is an increased likelihood that they will develop reading difficulties (Menyuk & Chesnick, 1997). Consequently, there is a relationship between a deficit in oral language and poor reading skills (Adams, 1990) suggesting that reading achievement is partially linked to proficiency in oral language (Scarborough, 1990, 1998; Wise, Sevcik, Morris, Lovett, & Wolf, 2007). For example, Wise et al. (2007) conducted a study to determine the causal relationships between various components of reading and measures of reading achievement between groups of students with reading disabilities. The study examined 279 second and third graders in public schools. The participants included 135 African American and 144 Caucasian students. Several standardized tests were used and administered to students (e.g., PPVT-R, Dunn & Dunn, 1981; WISC-III, Wechsler, 1991; WRAT-3, Wilkinson, 1993; WRMT-R, Woodcock, 1987). A statistical analysis revealed that there was a significant relationship (i.e., $p < .05$) between receptive vocabulary and

expressive vocabulary (i.e., components of oral language/vocabulary) on pre-reading skills and word identification skills.

Components of oral language, specifically oral vocabulary, needs to be taught to students at an early age to prevent future reading difficulties that may jeopardize their academic success. This is especially true for students with disabilities who are also considered English language learners. Currently, researchers and practitioners have had trouble determining ways to increase literacy skills and academic achievement for English language learners with an intellectual disability (ID; Mueller, Singer, & Carranza, 2006). Part of these difficulties stem from a continuous influx of the English language population that has overwhelmed practitioners and school systems. For example, in the past 11 years the number of English language learners has grown 60% while the total school population has only grown by 3% (U.S. Government Accountability Office; GAO, 2009). The Office of English Language Acquisition, Language Enhancement, and Academic Achievement for Limited English Proficient Students (OELA, 2008) has estimated over 5 million English language learners across the United States, of which 80% is Spanish speaking (GAO, 2009).

Because of this rapid growth, there has been a shortage of qualified personnel trained specifically and effectively work with this population. According to Mueller et al. (2006) educators who currently teach English language learners with ID are often unable to provide linguistic accommodations and supports that these students need for daily instruction due to a lack of experience with this population. English language learners, by definition, have a first language that is not English, which can make acquiring literacy skills in a second language difficult. These difficulties have a direct impact on literacy

instruction making it harder for these learners to acquire literacy skills, such as vocabulary, (August, Carlo, Dressler, & Snow, 2005; Cartledge & Kourea, 2008; Hickman, Pollard-Durorola, & Vaughn, 2004; Manyak & Bauer, 2009) resulting in lower academic achievement (McCardle, Mele-McCarthy, Cutting, Leos, & D'Emilio, 2005).

There is little known on how to effectively teach literacy skills, such as oral vocabulary, to English language learners with ID. In order to improve the academic success of these students, researchers and practitioners need to develop effective instructional methods to teach vocabulary skills. Research has shown that vocabulary knowledge contributes greatly to reading comprehension and academic success (August et al., 2005; Baumann, Kame'enui, & Ash, 2003; Becker, 1977; Grabe, 1991; Gersten & S. Baker, 2000; Gersten & Geva 2003; Tannenbaum, Torgesen, & Wagner, 2006).

Shared Stories for English Language Learners

A solution for teaching elementary age English language learners with ID important literacy skills, such as oral vocabulary, may lie in the use of shared stories, also known as read alouds, shared storybook readings, and dialogic reading (e.g., Lonigan & Whitehurst, 1998; Mims, Browder, Baker, Lee, & Spooner, 2009; Sipe, 2000). Shared stories have been a successful way to teach literacy skills to typically developing students, students with ID, and English language learners (e.g., Browder, Mims, Spooner, Ahlgrim-Delzell, & Lee, 2008; Coyne, Simmons, Kame'enui, & Stoolmiller, 2004; Silverman, 2007ab; Skotko, Koppenhaver, & Erickson 2004). Justice and Kaderavek, (2002) suggest that shared stories help introduce students to components of reading such as print awareness, alphabet knowledge, phonological, and metalingusitc awareness. Additionally, researchers have shown that young students who are read to on a daily basis

demonstrate higher scores on vocabulary and comprehension assessments (Bus, van Ijzendoom, & Pelligdni, 1995; Coyne et al., 2004).

For English language learners, the literature has reflected that shared story interventions have provided positive results leading to an increase in overall vocabulary development. For example, Silverman and Hines (2009) conducted a group study comparing a multi-media and traditional shared story intervention on vocabulary acquisition for both English language learners and English only learners. Student samples were taken from four grade levels, pre-kindergarten, kindergarten, first grade, and second grade. The total number of participants was 85, of whom 27 were English language learners. Results from this study indicated that English language learners made positive gains in vocabulary word acquisition in both conditions. English language learners in the shared story intervention, that included multimedia enhancements, performed better than students in the traditional shared story intervention on a general vocabulary measurement created by the researchers.

In a second study, Silverman (2007a) created a Multidimensional Vocabulary Program (MVP), a read aloud intervention, to determine vocabulary growth for a group of kindergartners. There were 72 kindergarteners that participated, 44 spoke English only and 28 were English language learners. The MVP includes 10 instructional components (e.g., uses rich context to introduce words, provide definitions and explanations of target words, provides examples of how target words can be used in other context, etc.) that were specially developed with the intention of severing the needs of English language learners. Results from this study showed that English language learners made significant gains (i.e., $p < .0001$) in vocabulary knowledge from pretest to posttest and showed a

faster rate of vocabulary development compared to English only students.

In a third study, Silverman (2007b) examined the effectiveness of three storybook read aloud interventions on the overall vocabulary growth for 94 kindergartners comprised of English language learners and English only students. The interventions focused on using contextual, analytic, or anchored instruction. Results from the study indicated that English language learners receiving the shared story intervention with anchored instruction made significant gains from pretest to posttest on a picture and oral vocabulary measurement.

Shared Stories for Students with ID

Shared stories have not only been effective for English language learners but they also have been successfully used to teach an array of literacy skills to students with ID (Browder, Mims et al., 2008; Crowe, Norris, & Hoffman, 2004; Justice & Kaderavek, 2002, 2003; Justice, Kaderavek, Bowles, & Grimm, 2005; Justice & Pullen, 2003). For example, Spooner, Rivera, Browder, Baker, and Salas (2009) used a cultural contextual story based lesson instructional package to teach emergent literacy skills to a Hispanic English language learner with a moderate ID. A task analysis with forward chaining was used as a way to teach three emergent literacy skill sets. Skills taught within the three sets were (a) making predictions, (b) engaging in the literature (e.g., orientating the book, opening the book, turning the pages), (c) teaching vocabulary words, and (d) asking comprehension questions. Results from found that the student was able to increase the number of correct responses across skill sets, improving upon her emergent literacy skills.

In a second study, Browder, Mims et al. (2008) used a single subject multiple probe design across participants (i.e., 7-10 years of age) to determine how individualizing a task analysis would impact the number of student responses during a shared story activity or what the authors call a story-based lesson. The study included three participants who were classified as having a profound ID (i.e., an I.Q. below 20). The intervention included: (a) adapted picture books that contained repeated story lines, sensory materials, and objects that matched the theme of the story; (b) a 16 step task analysis used to monitor participation in the shared story; (c) systematic instructional procedures (i.e., prompting techniques); and (d) the use of team planning that addressed how to infuse components of Universal Design Learning (i.e., representation, expression, and engagement) within the task analysis. The results of this study showed that all three students increased their level of participation and the number of independent correct responses throughout the shared story intervention. In addition, the researchers added that the shared story intervention contributed to the development of early literacy skills.

In another study Browder, Trela, and B. Jimenez (2007) used story-based lessons, a shared story intervention, with the use of task analytic instruction to teach middle school students (i.e., ages 12-14) to participate in a read aloud of an adapted novel. The researchers adapted grade-appropriate novels by (a) writing chapter summaries, (b) adding pictures for key vocabulary words, (c) adding a repeated story line that summarized each chapter, and (d) laminating pages for sturdy support and longevity of the novel. A multiple probe across participants design was used to determine if teachers could follow the task analysis to teach these lessons while simultaneously measuring student performance. A functional relationship was found between the number of steps

implemented for the story-based lesson, teacher training, and the number of students' independent correct responses on literacy tasks.

Instructional Components for English Language Learners with ID

Language. Researchers have suggested that shared stories increase academic achievement and overall vocabulary growth for students (Bus et al., 1995; Coyne et al., 2004; Justice & Kaderavek, 2002). The previous studies mentioned, demonstrate that shared story interventions can be used to teach literacy skills to English language learners and students with ID. There is, however, a limited knowledge base on how a shared story intervention may work for teaching vocabulary skills to this culturally and linguistically diverse population. There is also little research that has examined how primary language (i.e., Spanish support) can be used to teach secondary language oral vocabulary skills through the use of shared stories, specifically for English language learners with ID. In addition, there is limited research examining how primary language may affect instructional situations for English language learners with ID. For example, Rohena, Jitendra, and Browder (2002) conducted a study to determine the effects of a Spanish and English constant time delay (CTD) to teach English sight words to four middle school Puerto Rican students. Results from their study indicated that both instructional packages, despite language, provided positive effects for three out of the four students, suggesting that language of instruction may not be an important factor when learning vocabulary in a second language; however, the work of Spooner et al. (2009) suggests that primary language of instruction is a critical component when teaching literacy skills in a student's native language, potentially leading to improved English literacy skills. This corresponds with Krashen (1999) who suggests that, "when we give a child good education in the

primary language, we give the child knowledge, knowledge that makes English input more comprehensible…And more comprehensible English input means more acquisition of English" (p. 111).

Systemic/Explicit Instruction. Language plays a critical role in second language vocabulary acquisition. Determining language of instruction and how it affects English vocabulary development is only part of the solution. What must also be taken into consideration is determining which instructional method should be used to teach English vocabulary to this population. Research has shown that typically developing students and students with ID benefit from forms of direct/explicit instruction and systematic instruction, such as time delay (S. Baker, Chard, & Edwards-Santoro, 2004; Coyne, McCoach, & Kapp, 2007; Collins, 2007; Coyne, McCoach, Loftus, Zipoli, & Kapp, 2009) Time delay, according to a literature review conducted by Browder, Ahlgrim-Delzell, Spooner, Mims, and J. Baker (2009) is an evidenced-based practice that has been successfully used to teach picture and sight word recognition to students with ID. There is research that suggests that time delay is also an effective instructional method for teaching sight words to English language learners with ID (e.g., Bliss, Skinner, & Adams, 2006; Rohena et al., 2002).

Technology. There are a growing number of studies that have examined the use of technology in conjunction with academic instruction for a variety of students (e.g., Chambers et al., 2008; Christensen, Merrill, & Yanchar, 2007; Rivera, Wood, & Spooner, 2010; Silverman & Hines, 2009; Stockwell, 2007; Xin & Rieth, 2001). Determining the influential impact that technology (e.g., computers, software, SMART Boards, video) has on vocabulary acquisition still warrants further research. According to the National

Reading Panel (2000) the use of technology should be incorporated within vocabulary instruction; however there is little research that has identified how this integration of technology and vocabulary impacts the vocabulary development of English language learners with ID (e.g., Rivera et al., 2010).

The lack of research conducted on English language learners with ID leaves many unanswered questions such as: (a) what instructional methods are best to use when teaching vocabulary to these students (e.g., time delay), (b) does primary language instruction lead to faster acquisition of English vocabulary words compared to English only instruction, (c) can shared stories serve as an effective intervention for increasing oral vocabulary skills for these students, and (d) how can technology be used for vocabulary instruction? There is not a definitive answer on how to effectively teach English vocabulary to this population and how language of instruction may be used to facilitate their English vocabulary development; therefore, the purpose of this study will be to examine the comparative effects of an English and Spanish shared story intervention, using CTD, and determine its impact on oral vocabulary acquisition for four English language learners with ID.

Significance of the Study

With the growing number of culturally and linguistically diverse students across the United States there is an urgent need to define effective strategies to teach vocabulary skills to English language learners with ID. This study will provide critical information that will help to further understand the importance of providing students with primary language support when teaching second language vocabulary. This study will also serve as a potential instructional model that teachers, practitioners, and researchers can use to

build effective pedagogy for English language learners with ID. It is critically important to teach these literacy skills to this population. Research suggests that vocabulary instruction is related to academic success and to reading comprehension (Bus et al., 1995; Coyne et al., 2004; Justice & Kaderavek, 2002). In addition maximizing skills in oral vocabulary may lead to better social outcomes, more inclusive opportunities, increased engagement during academic instruction, and improvements in quality of life.

Shared story reading with culturally and linguistically diverse students has not been thoroughly researched (T. Jimenez, Filippini, & Gerber 2006). This study will expand the current research by providing additional outcomes for the use of shared stories with a CTD procedure. Shared story interventions have demonstrated increases in literacy skills for students with disabilities and English language learners (Browder, Mims, et al., 2008; Coyne et al., 2004; Silverman, 2007ab; Skotko et al., 2004) and time delay has also been found to be an evidenced based practice when teaching early literacy skills (Browder et al., 2009). Nevertheless, current studies have not focused on using these methods in conjunction and examining the benefits of incorporating technology to teach oral vocabulary to English language learners with ID. The current study will extend and build upon previous research by comparing the effectiveness of two linguistic multimedia shared story interventions using CTD and determining which is best suited to teach oral vocabulary.

Research Questions

1. What are the comparative effects of an English and Spanish shared story intervention package on oral vocabulary acquisition for English language learners with a moderate ID?

2. Which linguistic instructional condition (English or Spanish shared story) will lead to faster acquisition of English vocabulary words?
3. What are the comparative effects of each shared story intervention package on the maintenance of English vocabulary words over time?
4. What are the comparative effects of each shared story intervention package on English vocabulary generalization outcomes?
5. How do teachers view the use of multimedia shared stories and the use of primary language instruction as way to promote English vocabulary acquisition?

Definitions:

Bilingualism: An individual's use of at least two languages. Proficiency and development of languages are on a "continuum with dominance and development varied across people" (C. Baker, 2006, p. 3).

Constant Time Delay: An antecedent response prompt procedure that uses a fixed time delay interval (e.g., 3, 4, 5) to "transfer stimulus control from a prompt to the natural stimulus by delaying the presentation of the prompt following the presentation of the natural stimulus" (Cooper, Heron, & Heward, 2007, p. 404).

Emergent Literacy: Developmental precursors of formal reading that have their origins in the life of a child (Whitehurst & Lonigan, 1998).

English Language Learners or students who are limited English proficient: Students who are 3-21 years of age, are enrolled or about to enroll in a public school, and/or whose first language is a language other than English, which creates difficulties in the areas of reading, writing, speaking, and understanding the English language (NCLB, 2002).

Literacy: An interpretation of words and concepts that comes from using a combination of the written, oral, and spoken language (Vacca et al., 2006).

Oral Language: "Receptive and expressive skills" that "encompass knowledge or use of aspects of oral language, including phonology, *vocabulary*, morphology, grammar, discourse features, and pragmatic skills" (Lesaux & Geva, 2006, p. 55).

Oral Vocabulary: Words that are recognized and used in listening and speaking (Lehr, Osborn, & Hiebert, 2004).

Primary Language Support: Providing materials and instruction in a student's native language when teaching literacy skills in a second language.

Reading: Using the process of decoding and comprehension to extract meaning from printed text (Carnine, Silbert, & Kame'enui, 1997).

Shared Stories: "Includes all instances when an adult reads to a child or children, pausing to engage children in discussion about the text. That discussion includes items inside the text; the story and pictures and words and letters; and outside the text; responses and connections to experiences" (Beauchat, Blamey, & Walpole, 2009; p. 27).

Students with a Moderate to Severe Intellectual Disability: Students who have limitations in intellectual functioning and adaptive behavior (i.e., IQ score of 55 and below). The onset of the disability occurs before the age of 18 (Association for Americans with Intellectual Developmental Disabilities, 2008).

Systematic Instruction: A highly organized, structured, and consistent form of instruction designed to utilize error manipulation, response prompting, and stimulus modification strategies to teach chained or discrete responses to students (Collins, 2007; Snell, 1983).

Vocabulary: Knowledge of words and word meanings (Lehr et al., 2004).

CHAPTER 2: REVIEW OF LITERATURE

Overview

The literature review for this chapter will examine and discuss components that are most critical to the development of oral vocabulary for English language learners with ID. This chapter will focus on seven major tenets:

1. Determining what is early literacy.
2. Establishing an early literacy framework for English language learners with ID
3. Identifying vocabulary as it relates to English language learners with ID
4. The use of shared stories for students with disabilities.
5. Language of instruction.
6. Systematic instruction.
7. The incorporation of technology when teaching vocabulary.

Together these tenets have been used to design the intervention (i.e., multimedia shared stories) for this study, which will serve as a way to teach English vocabulary to English language learners with ID. Potential contributions to the field of special education will also be described.

Early Literacy

Literacy skills are necessary for all students if they are to become successful contributors in an ever-evolving society. The expectations for improved student literacy outcomes has increased since the No Child Left Behind Act of 2001 (NCLB, 2002), which has placed greater emphasis on overall literacy outcomes for all students,

especially for English language learners and students with disabilities. Researchers have suggested that in order to improve literacy outcomes for students, greater emphasis must be placed on teaching early literacy skills as soon as possible (Pullen & Justice, 2003). Early literacy skills sometimes referred to as emergent literacy skills, comprise three main tenets: (a) phonological awareness, (b) oral language (i.e., vocabulary), and (c) print awareness (Lonigan, Burgess, & Anthony, 2000; Pullen & Justice, 2003; Whitehurst & Lonigan, 1998). Emergent literacy is defined as developmental precursors of formal reading that have their origins in the life of a child (Whitehurst & Lonigan, 1998). These skills are often developed through early introductions to print and repeated exposure to books (e.g., having a story read to you). According to researchers, students who have difficulties during early literacy development are less likely to practice reading compared to students who do not have difficulties (Allington, 1984), are more likely to remain as poor readers throughout grade levels (Adams, 1990; Pullen & Justice 2003; Torgesen & Burgress, 1998), and are less likely to be above or equal to their peers in regards to their overall literacy development (Juel, 1988).

This is important to note considering that students with moderate to severe disabilities are already at a disadvantage because they often lack the same life experiences compared to their typically developing peers (Foley, 1993) and are less likely to be exposed to or receive intensive literacy instruction at a young age. Similarly, English language learners also face difficulties developing early literacy skills in a second language resulting in poor academic performance across content area and grade levels leading to higher rates of school dropout (McCardle et al., 2005).

Ultimately, this means that English language learners who have a moderate to severe ID are less likely to receive effective literacy instruction that is needed to provide them with future academic and functional life skill success. Currently, there is a lack of research on this specific population of learners. Little is known on how to teach them functional and academic skills such as vocabulary, which instructional strategies (e.g., systematic, embedded, explicit instruction) work best during literacy instruction, or what language of instruction may produce a faster rate of vocabulary acquisition.

Early literacy framework. Considering the impact that emergent literacy skills have on overall literacy development it is important to understand current conceptual models for teaching these skills. It is also important to begin to construct new models for culturally diverse students with moderate to severe ID. Recently, Justice and Kaderavek (2004) suggested that there are four key areas of emergent literacy skills: (a) phonological awareness, (b) print concepts, (c) alphabet knowledge, and (d) literate language. Justice and Kaderavek further suggested that traditionally there have been two theoretical frameworks that have guided emergent literacy instruction. The first being what the authors call a "top-down" holistic approach and the second being a "bottom-up" model.

The top-down model, also known as the embedded model, focuses on student interactions of oral and written language through environmental, naturalistic, and relevant experiences that are embedded through the entirety of the student's day. This model further emphasizes learning through social interactions. Adults in this model are responsible for facilitating learning; however, meaning of literacy for students is gained through social interactions and repeated exposure to literacy materials and events (e.g.,

books, signs, libraries). The second model, bottom-up, an explicit approach, focuses on a systemic form of teaching emergent literacy. In this model the adult has greater control, targeting specific skills that a student may have difficulty with. Instructional sessions held within this model are scheduled on a consistent basis and are led by the teacher. Instructional sessions are designed to provide students with direct opportunities to learn targeted skills and can include teacher modeling, guided practice, and demonstrations (Justice & Kaderavek, 2004); furthermore, the explicit approach provides systematic, direct, repeated, and scaffold instruction for difficult learning concepts.

The model of literacy instruction provided by Justice and Kaderavek (2004) provides a solid conceptual framework for literacy instruction; however, these models have primarily been used throughout the literature for English-only students. There does not seem to be a conceptual model developed for teaching literacy skills specifically for English language learners with moderate to severe ID. Cline and Necochea (2003) provide a conceptual framework designed for typically developing English language learners in mainstream settings that may be applicable to English language learners with ID in special education. Their model (i.e., Specially Designed Academic Instruction in English, SDAIE) does not focus on literacy; rather it is designed for overall academic instruction. SDAIE includes the following eight components: (a) connecting to previous learning, (b) using visuals and manipulatives, (c) providing low risk and safe environments, (d) providing multiple access points, (e) creating cooperative and interactive instruction, (f) chunking and webbing, (g) being respectful of the learner, (h) and using primary language support.

The first component, connecting to previous learning, involves designing lessons that include the student's funds of knowledge. Moll, Amanti, Neff, and Gonzalez (2001) define funds of knowledge as referring "to the historically accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being" (p. 133). The second component, visuals and manipulatives, can make abstract concepts more concrete and increase active student engagement during instruction. Third, low risk and safe environments welcome diversity and are designed to make culturally and linguistically diverse students feel comfortable. According to Cline and Necochea (2003) these environments increase "language acquisition while valuing the culture, promoting high social status, and affirming the strengths of the English language learner" (p. 21). Fourth, multiple access points are translated into providing students with various instructional delivery formats that will optimize student understanding of concepts being taught (e.g., graphic illustrations, storytelling, oral presentations). Fifth, Cline and Necochea (2003) suggest that providing cooperative and interactive instruction helps to facilitate learning by allowing English language learners opportunities to engage in dialogue and opportunities to interact with the content being presented. Next, chunking and webbing should be used to break down large pieces of information that can be taught in chunks and then linked back together (i.e., webbing). Seventh, respectful of the learner means practitioners should remember that English language learners are learning the traditions of the mainstream culture making it difficult for students to assimilate. It is important to understand the cultural perspectives and traditions of these students as it may lead to positive classroom environments, which in turn may lead to increased academic success. Finally, primary language support means

that English language learners should be provided with instructional support in their native language. Providing primary language support has been supported by the literature (Cummins, 1996; Tikunoff et al., 1991) as being able to build understanding of complex content, facilitating learning, strengthening comprehension, and reducing student frustration.

As discussed, the use of explicit and embedded models for literacy interventions have been used successfully throughout the literature (e.g., Coyne et al., 2007; Justice & Ezell, 2002; Katims, 1991; Whitehurst et al., 1994). In addition, Cline and Necochea (2003) have provided a fundamental conceptual model for providing academic instruction for English language learners. What remains to be seen is how these models can be fused together to develop better literacy interventions for students with moderate to severe ID who are English language learners.

Early literacy outcomes for English language learners. There is an overwhelming amount of literature on effective literacy practices for typically developing students and an increasing amount of literature for students with ID. Many of the interventions used in the literature include explicit and/or embedded instruction as proposed by Justice and Kaderavek (2004); however, there are relatively few studies that examine literacy outcomes for English language learners with a moderate to severe ID (Spooner et al., 2009) those with learning disabilities (Bernhard et al., 2006), and who are at risk.

One of these few studies comes from Bernhard and her colleagues in 2006. They developed a language intervention program called the Early Authors Program (EAP) to teach literacy skills to English language learners at risk and with learning disabilities in preschool. A pretest-posttest experimental design was used to determine the effects of the

EPA on the language and literacy skills of 367 children ranging from ages 3-4. Of these children 280 were placed in the experimental group and 87 were placed in the control group. The focus of the EPA was to foster an environment where children, families, and teachers could engage with reading, authoring, and storytelling of literature. A second and third component of the intervention was to teach children to recite poetry in their native languages and identify letters of the alphabet to their names or family members' names. Results of the study indicated that students in the experimental group outperformed the control group on the *Preschool Language Scale* (Zimmerman, Steiner, & Evatt-Pond, 2002). More specifically, significant gains were made from pretests to posttests in expressive ($p < .05$) and receptive language skills ($p < .05$). Additionally, the authors note that the EAP had a "positive effect on the literacy environment of the classroom and was successful in increasing the number of literacy-related activities engaged in by teachers " (p. 2398).

A second study conducted by Kamps et al. (2007) used a quasi-experimental design with an experimental control group comparison to describe the effects of secondary-tier interventions on early literacy skills development for English language learners at risk. Participants included a total of 318 (i.e., 170 English language learners and 148 English only) students from six different elementary schools in the first and second grade. Students were selected from a larger study examining school wide three-tier intervention models. Of the six schools three were in the experimental group and three were in the control group. The experimental group implemented a Direct Instruction approach and used the following curricula: (a) *Reading Mastery* (Engelmann, & Bruner, 1995), (b) *Early Interventions in Reading* (Mathes & Torgesen, 2005), (c) *Read Well*

(Sprick, Howard, & Fiddanque, 1998), and (d) *Read Naturally* (Ihnot, 2002). The comparison schools used a "balanced literacy approach" that included guided reading, English as a Second Language placement or pullout, reading activities, writing activities, group readings, and word study. Measures given to students included the Nonsense Word Fluency (NWF) and Oral Reading Fluency (ORF) subtests of the *Dynamic Indicators of Basic Literacy Skills* (DIBELS; Good, Simmons, & Smith, 1998; Kaminski & Good, 1998) and the Word Attack, Word Identification, and Passage Comprehension of the *Woodcock Reading Master Test* (Woodcock, 1991). Results indicate that students in the experimental group receiving Direct Instruction made significant gains in NWF (p = .001) compared to the ESL/balanced literacy group. Students in the Direct Instruction groups also made significant gains for the ORF (p = .000) and on the Word Attack for first graders (p = .000) and second graders (p = .000). Lastly, the rate of progress for English language learners in first grade was faster than the rate of progress for English language learners in the ESL balanced literacy intervention (i.e., NWF slope, p = .000; ORF slope, p = .000).

In a third study, Gyovai, Cartledge, Kourea, Yurick, and Gibson (2009) determined the effects of an early reading intervention (i.e., *The Early Reading Intervention*; ERI; Simmons & Kame'enui, 2003) on the early literacy skills of 12 English language learners at risk in kindergarten and first grade. A multiple baseline design across students was used to examine the effects of how the ERI on phoneme segmentation fluency (PSF) and NWF, subtests from DIBELS (Good & Kaminski, 2002). The ERI was designed to teach early literacy skills in an explicit systematic structure. During baseline students received the school reading program *Trophies* (Beck, Farr, &

Strickland, 2003). Students were placed into three groups of four and were introduced to the intervention in a staggered fashion. For instance, after group one made improvements, group two was introduced to the intervention. Then, when group two made improvements (i.e., at least three data points above baseline data) group three was introduced to the intervention. Student groups one and two received the intervention for 20 minutes for four days a week per session. Group three received the intervention for 20 minutes for two days a week. Results from the study indicate that all students made gains according to the DIBELS measures. A functional relationship was found between the ERI instruction and the PSF. In addition, a visual analysis of data showed that students also made gains on the NWF.

Next, Tong, Irby, Lara-Alecio, Yoon, and Mathes (2010) conducted a longitudinal study to investigate the effects of an English instructional intervention on literacy skill acquisition for 84 Hispanic English language learners. The intervention was designed to improve literacy skills such as decoding, phonological awareness, oral language, and reading. Students in kindergarten received 75 minutes of daily instruction while first and second graders were provided with 90 minutes. The intervention consisted of tutorials from the *Santillana Intensive English* program (Ventrigila & Gonzalez, 2000) used to teach content areas (e.g., math and science). In addition, the intervention also used the ERI, culturally relevant literature, involved practicing oral language skills using *Lakeshore Learning Materials* (1997), and used a modified version of those materials for students in first and second grade. Results from this study indicate that students in the intervention made gains in phonological awareness, knowledge in phonology, letter and word recognition, reading comprehension, and receptive oral language.

Early literacy outcomes for English language learners with ID. The studies previously described have focused on literacy outcomes for English language learners at risk or those identified as having a learning disability. As discussed earlier there is a paucity of research specifically focusing on literacy outcomes for English language learners with moderate or severe ID. A single subject study conducted by Spooner et al. (2009) was the only study found that sought to teach emergent literacy skills to an English language learner with a moderate ID. The participant for the study was one 6-year-old Hispanic English language learner in kindergarten. A multiple baseline across skill sets was used to evaluate emergent literacy instruction using a forward chaining sequence. The intervention consisted of using culturally and contextual shared stories using systematic instruction to teach emergent literacy skills such as accessing literature, text pointing, making predictions and learning story vocabulary words. The results from this study showed that the student was able to increase the number of correct responses across each skill set improving upon her emergent literacy skills.

Summary of early literacy findings. A clear instructional model for teaching early literacy skills (e.g., vocabulary) specifically for English language learners with moderate to severe ID is lacking; however, many points can be drawn from the reviewed literature. First, the literature highlights the importance of direct and systematic instruction when teaching literacy concepts to these students (Cline & Necochea, 2003). Second, while there is little research to support this fact, it may be important to incorporate the student's cultural background when using shared stories to engage and teach literacy concepts (e.g., vocabulary; Spooner et al., 2009). Third, the use of the student's primary language can be used to teach important literacy skills in a second language (Cline & Necochea

2003; Cummins, 1996; Spooner et al., 2009). Finally, practicing oral language skills on a daily basis can lead to increases in receptive and expressive oral vocabulary (Bernhard et al., 2006). These key concepts are consistent with the conceptual framework of Cline and Necochea (2003) who stress the importance of culturally responsiveness, providing solid instructional strategies, and using primary language as a bridge to teach second language concepts. The key points gathered from the literature also align with the conceptual model provided by Justice and Kadervek (2004), who suggest the importance of direct and systematic instruction when teaching literacy skills.

Vocabulary

In 2000, the National Reading Panel (NRP) conducted a thorough review of literacy outcomes for students and found five critical components that are needed to develop strong reading skills: (a) phonemic awareness, (b) phonics, (c) comprehension, (d) fluency, and (e) vocabulary. Of these components there has been some evidence that has shown that vocabulary impacts reading comprehension (e.g., Lervag & Aukrust, 2010; Taboada, 2010). According to the NRP there are two types of vocabulary, oral and print. Students who have larger oral vocabularies are more likely to understand the meaning of words. Students who come across words written in print can decode those words into speech. According to the NRP the larger the student's vocabulary, whether oral or print, the easier it is to make sense of text. In their investigation the NRP examined a mixture of 50 experimental and quasi-experimental research studies. From these studies the NRP found the following: (a) vocabulary should be taught directly and indirectly, (b) students should be presented with multiple opportunities to interact with vocabulary words in a variety of settings, (c) technology can be used to increase

vocabulary acquisition, (d) instruction should be multifaceted, and (d) seek to actively engage students in the lesson. Unfortunately the NRP (2000) excluded studies of single subject design and those that included second language learners.

In 2002 the National Panel of Language-Minority Children and Youth was created to determine effective literacy practices and outcomes for second language learners. By 2006 the panel found that instruction in the five components (i.e., vocabulary, fluency, phonics, comprehension, and phonemic awareness) identified by the NRP (2000) were just as important in the development of literacy skills for second language learners. Additionally, the panel suggested that intensive vocabulary instruction improves reading comprehension outcomes and should begin early and last throughout the education of the student (August & Shanahan, 2006). Despite these findings there have been few studies (e.g., Rivera et al., 2010; Rohena et al., 2002) that have examined literacy outcomes, specifically related to vocabulary instruction, for English language learners with moderate to severe ID.

Expressive vocabulary and early literacy development. There are two subcomponents of vocabulary, expressive and receptive. Expressive vocabulary "refers to a child's ability to use spoken words to communicate." Receptive vocabulary "refers to a child's skill at recognizing and understanding spoken words" (Millett, Atwill, Blanchard, & Gorin, 2008; p. 535). There is literature that suggests that a link between expressive vocabulary and pre-reading skills exists (Snow, Burns, & Griffin, 1998). For example, Uccelli and Paez (2007) conducted a longitudinal study to examine the developmental patterns that are related to oral vocabulary and narrative skills in 24 bilingual students in kindergarten and the first grade. Children were given a narrative task in Spanish and

English. The narrative task involved presenting an array of pictures to the students and asking them to retell what they had seen. All student narrations were fully transcribed and then analyzed. Students were given a measure on expressive vocabulary, narrative productivity, and narrative quality. Results from the study showed that students with larger vocabularies coming into the study scored better on narrative measures. In addition, a positive correlation ($r = .55$) was found between narrative ability and vocabulary knowledge. Implications from this study suggest that students who are bilingual may be at risk for early literacy development if more emphasis is not placed on expressive vocabulary instruction.

Lindsey, Manis, and Bailey (2003) verified the importance of expressive vocabulary instruction by examining 249 Spanish speaking English language learners in the first grade. The purpose of the study was to determine predictors of reading skills for these students. Lindsey et al. (2003) found that expressive vocabulary was correlated to rapid object naming and print awareness. Additionally, Chiappe, Chiappe, and Gottardo (2004) and Wise et al., (2007) found that expressive vocabulary had an impact on pre-reading skills for a variety of English only speaking students from grades 1-3 who were at risk or identified as having a reading disability. Chiappe et al. found a strong correlation between expressive vocabulary and phoneme blending ($r = .35$), measures of words ($r = .44$) and nonword identification ($r = .48$), and Wise et al. (2007) found that there was a significant relationship between expressive vocabulary, pre-reading skills, and word identification skills ($p < .05$).

Rationale for Vocabulary Instruction for English Language Learners with ID

According to August et al. (2005) there are few experimental studies that have examined vocabulary development for English language learners (e.g., Calderon et al., 2005; Carlo et al., 2004; Perez, 1981). There have been even fewer studies for English language learners with moderate to severe ID (e.g., Rohena et al., 2002; Spooner et al., 2009). Best practices for vocabulary instruction for English language learners include (a) using the students first language, (b) providing the definition of the target vocabulary word, (c) providing reinforcement, (d) reviewing words taught, and (e) providing explicit instruction (August et al., 2005; Taboada, 2010). While these suggestions are critical components to teaching vocabulary to English language learners it is unclear on how to increase vocabulary skills (i.e., expressive) for English language learners with ID.

For students with moderate to severe ID there has been a plethora of research specifically on sight vocabulary word instruction (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006). Browder and Xin (1998) conducted a meta-analysis from 1980 though 1997 and found a total of 48 studies related to sight word instruction for students with moderate to severe ID. Results of the meta-analysis found that sight vocabulary word instruction has been successful and effective across a variety of individuals with moderate to severe ID. The article also noted effective procedures used to teach sight words. These procedures include group instruction, feedback, prompting procedures, CTD, and exposure to words in different settings (e.g., community and general education classroom).

One of the benefits of teaching sight vocabulary words is that they serve a functional purpose. They allow students to access their environment and become more

independent (e.g., Lalli & Browder, 1993). The same may be true for expressive vocabulary words. Expressive vocabulary allows students to use spoken words to communicate. By definition an individual with an ID has limited communication (NICHY, 2009). If that same individual is culturally and linguistically diverse, developing oral vocabulary and early literacy skills becomes a challenge. Students who are able to use expressive vocabulary can label pictures and objects, thus communicating possible wants and needs. While there is not a concrete model for teaching early literacy skills, such as expressive vocabulary to this population of students, it is important to develop a balanced literacy approach from the current literature on English language learners and students with moderate to severe ID. In addition, it is essential to include effective methods of instruction.

From the gathered literature mentioned above there are many components that should be used when teaching literacy skills (i.e., vocabulary) to English language learners with moderate to severe ID. First, embedded, direct, or systematic forms of instruction should be used during literacy instruction (August et al., 2005; August & Shanahan, 2006; Browder & Xin, 1998; Gyovai et al., 2009; Justice & Kaderavek, 2004; Kamps et al., 2007; Rohena et al., 2002; Spooner et al., 2009, Taboada, 2010). Second, stories can be used to deliver instruction that is engaging to students while teaching critical emergent literacy skills (Justice & Kaderavek, 2004; Spooner et al., 2009). Third, vocabulary instruction should be taught early on and emphasized throughout the student's life (August & Shanahan, 2006). Next, technology can be used to increase acquisition of literacy skills such as vocabulary (NRP, 2000). Fifth, the student's primary language should be used to support literacy instruction and teach new English concepts (Cline &

Necochea, 2003; Spooner et al., 2009). Sixth, teachers should provide culturally responsive and contextualized instruction when working with culturally and linguistically diverse students (Cline & Necochea, 2003; Spooner et al., 2009). Finally, students should be provided reinforcement (NRP, 2000; Spooner et al., 2009) and with multiple opportunities when learning new literacy concepts (Cline & Necochea, 2003; NRP, 2000).

Shared Stories as a Way to Teach Vocabulary

A possible solution for teaching English language learners with moderate to severe ID important literacy skills, such as oral vocabulary, may lie in the use of shared stories, also known as read alouds, shared storybook readings, and dialogic reading. Currently, there are several researchers (e.g., Beauchat et al., 2009; Hickman, Pollard-Durodola, & Vaughn, 2004; Neugebauer & Currie-Rubin, 2009; Santoro, Chard, Howard, & S. Baker 2008) who suggest that shared stories is a beneficial instructional intervention to teach new and important vocabulary to young children, including students with disabilities and those who are considered English language learners. According to Beauchat et al. (2009) shared stories are "instances when an adult reads to a child or children, pausing to engage children in discussion about the text" (p. 27). Shared stories are meant to expand vocabulary knowledge while simultaneously increasing comprehension and oral language.

Ezell and Justice (2005) suggest that shared stories play a critical role in the development of language and early literacy skills of young students. Research has shown that students who participate in shared reading activities tend to have higher scores on decoding, comprehension, and vocabulary measures (Coyne et al., 2004; Justice, 2002;

Justice, Meier, & Walpole, 2005; Senechal, Thomas, & Monker, 1995; Vacca et al., 2006; Whitehurst et al., 1994). Additionally, researchers have indicated that shared story reading can increase expressive vocabulary (Westerlund & Lagerberg, 2008). In addition, *What Works Clearinghouse* has identified interactive shared book reading as having potentially positive effects on early reading and writing and mixed effects for oral language (Institute of Educational Sciences, 2007). Shared stories do not only provide academic benefits but they seem to be a practical way for teachers to engage students in learning new vocabulary words. For example, books used for shared stories can (a) be based on student interests; (b) modified to make the story more comprehendible, thus increasing opportunities for students to participate during instruction; and (c) books can be adapted to fit the individual needs of the student, especially if the student has a disability (Browder, Mims, et al., 2008; Spooner et al, 2009). In spite of the inherent benefits that shared stories may have most of the current research has been conducted on typically developing children. There are however a small number of studies that have looked at how shared stories can benefit English language learners at risk or who have an ID when teaching vocabulary (e.g., Coyne et al., 2004; Crowe, Norris, & Hoffman, 2003; Justice, Meier, et al., 2005; Soto & Dukhovny, 2008).

Shared stories for English language learners. Relatively little is known about how to use shared story interventions for English language learners and even less is known about how to use them for English language learners with moderate to severe ID. A study by Ulanoff and Pucci (1999) sought to determine how to increase second language vocabulary (i.e., English) using shared stories fused with two bilingual methodologies (i.e., concurrent translation and preview-review). A total of 60 English language learners

from three third grade classrooms were chosen for the study. Classrooms were randomly assigned to the control group (n = 16), concurrent translation (n = 21), and the preview-review (n = 23). A pretest posttest group design was used for the study. Students were tested on 20 English vocabulary words. In the first group, the control group, students were read a story in English but were not provided with any explanation of the story or the key vocabulary. In the second group, concurrent translation, students were read the same story in English. The story was then translated in the students' native language (i.e., Spanish). Finally in the third group, preview-review, students were read a story in English and were provided with pre-instruction on difficult vocabulary words in Spanish. The story was then read to the group in English. Afterwards, the story was reviewed in Spanish to emphasize critical vocabulary words and points in the story. At the end of the study all students received a posttest on the same 20 vocabulary words. Results from the study found that students in the preview-review group made significant gains (57% increase) from pretest to posttest. Results from the study also show that students in the control group scored better on the posttest compared to students in the concurrent translation group. These results suggest that students in the concurrent translation group focus more on the dominant language translation compared to the second language being taught, possibly leading to less vocabulary acquisition in a second language. Students in the preview-review group may have outperformed other groups due to the support of primary language as a way to facilitate vocabulary instruction through the use of shared story.

Next, Silverman conducted two studies in 2007 that focused on vocabulary instruction for English language learners and English-only students. The first study

(2007a) compared three approaches to vocabulary instruction with the use of read alouds. The approaches were (a) contextual instruction (connecting words to books and a child's personal experiences, (b) analytic instruction (adds onto contextual instruction by providing meaning of target vocabulary in a different context), and (c) anchored instruction (supports analytical instruction while emphasizing word sounds and letters). All three approaches provided students with explicit definitions of target vocabulary. A pretest posttest group design was used to measure vocabulary gains using a researcher vocabulary assessment (RVA) developed by the investigator. The RVA was modeled after the *Test of Oral Language Development* P: 3 (TOLD; Newcomer & Hammill, 1997). The RVA consisted of a picture and oral (i.e., expressive) subtest. A total of 94 students from six kindergarten classrooms participated in the study. Of these students 38 were classified as English language learners. All three interventions followed the same three-day lesson plan format but differed in its instructional delivery (i.e., contextual, analytic, or anchored instruction). For example, on the first day teachers read a book to students stopping at designated areas to provide instruction on target vocabulary, followed by questions at the end of the story. On the second day, the teacher would read the story aloud and asked questions concerning vocabulary from the book at the end of the story. Lastly, on day three the story was not read. On this day, students were instructed to retell the story in addition to answering questions about the target vocabulary words. Results from the study found that all students in the anchored instructional condition made the most improvements from pretest to posttests on picture (22% increase) and oral vocabulary (30% increase) measures.

Silverman's (2007b) second study sought to determine the effectiveness of a Multidimensional Vocabulary Program (MVP); a storybook read aloud intervention, on the vocabulary development for English language and English only learners. The MVP consisted of methods to increase vocabulary acquisition and accommodate for the needs of English language learners. The MVP comprised 10 components: (a) introduction of words, (b) child-friendly definitions, (c) questions to encourage critical thinking of word meaning, (d) providing target words in other contexts, (e) provide children to act out the meaning of words where appropriate, (f) visual aids, (g) pronouncing words, (h) emphasis on the spelling of a word, (i) compare and contract target vocabulary, and (j) repeat and reinforce target vocabulary. Similar to the first study, the intervention was implemented three days per week. A total of five to 10 words were used per book resulting in a total of 50 target vocabulary words to be taught. A total of 72 students participated in this study. Of these students 44 spoke English only and the remaining 28 were English language learners in kindergarten. Students were chosen from five classrooms. Classroom A, B, and C were mainstream English classrooms. Classroom D was a structured immersion class, and Classroom E was a two-way Spanish English bilingual class. All classrooms received the MVP intervention for a total of 14 weeks. Results from this study showed that both English only and English language learners made significant gains on the picture vocabulary subtest of the RVA. English only students learned an average of 14 target words ($p < .0001$) and English language learners' averaged 19 words ($p < .0001$) from pretest to posttest. On the oral vocabulary measure all students made significant gains from pretest to posttest ($p < .0001$). In addition,

English language learners increased vocabulary knowledge at a faster rate than English only students.

Finally, Silverman and Hines (2009) conducted a study to determine the effects of a shared story intervention augmented with multimedia on the vocabulary development of English language learners and English only learners. The participants in this study included 85 students from pre-kindergarten through the second grade. There were 15 students in pre-kindergarten, 28 in kindergarten, 25 in first grade, and 17 in second grade. Of these students 32% were considered English language learners based on the primary language used in their homes. English language learners in the study consisted of 33% Blacks, 3% Whites, 52% Asians, and 11% Hispanics with an array of different languages including Haitian Creole, Portuguese, Mandarin, and Spanish. A pretest and posttest group design was used for the study. Students were given three assessments; the target vocabulary assessment (TVA), the *Peabody Picture Vocabulary Test-Third Edition* (PPVT-III; Dunn & Dunn, 1997) and a researcher designed science assessment (SCI). Students were randomly assigned to each one of the conditions. Both experimental conditions were conducted in the same format except for the multimedia component. For example, three books were read to students for three days for a total of three weeks (one book per week). On the fourth week teachers would begin a new unit. The multimedia condition differed in that in week three instead of receiving a read aloud students in this condition were shown three different video clips based on the unit topic. Both conditions were scripted. Lesson one consisted of a read aloud, which introduced four vocabulary words. In lesson two, four new vocabulary words were introduced and teachers would read the book and stop in designated places to review words learned from the first lesson.

At the end of lesson two students were asked to repeat the new words and played a vocabulary game. Finally in lesson three, teachers reread the book and reviewed target vocabulary learned in lessons one and two. During the designated stopping points in the book students were asked to give examples of the target vocabulary and provide the word in a different context. Instead of reviewing a book for lesson three the multimedia condition reviewed a video clip pertaining to the book that was read for the week. Students would first watch the video in its entirety and then the teacher would play the video again stopping at certain points to discuss the vocabulary being taught. Results from this study found that significant gains were made for English language learners across all measurements (TVA; PPVT-III; SCI) from pretest to posttests, suggesting the importance of including forms of multimedia to enhance vocabulary acquisition through the use of shared stories.

Shared stories for students at risk or with disabilities. A brief review of the literature yielded several studies that have used shared stories as a means to promote vocabulary development for students at risk or with high and low incidence disabilities. For example, Crowe et al., (2003) examined the effects of an interactive storybook reading intervention (Complete Reading Cycle, CRC) on the active verbal participation, story initiations, and the number of words produced by students. A multiple probe across six participants with language impairments was used. The CRC comprised four components: (a) attentional vocative- included any verbal or nonverbal attention to the book (e.g., pictures, events, text), (b) query- act of communication towards requesting information, (c) response- child responds to the query, and (d) feedback- any comment that served to acknowledge response. Results indicated that all six participants made

increases from baseline to intervention on the number of words produced and four out of the five students who completed the study produced more total words during the follow up phase compared to baseline sessions.

In another study, Coyne et al. (2004) examined the effects of a storybook intervention on kindergarten students who were identified as being at risk or having reading difficulties. The study used a randomized control group design. A total of 64 students participated, 34 students received the storybook intervention and 30 acted as the control group (i.e., *Open Court*). A researcher-developed pretest and posttest was designed to measure vocabulary growth made throughout the course of the intervention. Results found a significant difference ($p < .001$) on vocabulary words that were taught during the intervention for the experimental group. Students who were in the storybook intervention made greater gains on vocabulary knowledge compared to students in the control group.

In a third study, Justice, Meier, et al. (2005) examined the impact of a shared story intervention on vocabulary acquisition and learning new words through repeated exposure. In addition, the authors sought to identify how students would differ to the treatment based on their prior vocabulary knowledge before the intervention. A pretest posttest group experimental design was used. Participants were randomly chosen from six kindergarten classrooms from two different urban schools. Fifty-seven students were randomly assigned to the treatment ($n = 29$; shared story intervention) and to the comparison ($n = 28$; regular kindergarten curriculum) group. Students were further subcategorized into high ($n = 31$) and low ($n = 26$) vocabulary skills based on the PPVT-III (Dunn & Dunn, 1997). A total of 60 vocabulary words consisting of nouns, verbs, and

adjectives were used for the study. Words for the treatment condition were divided into six words across 10 storybooks. Of these 30 were assigned to an elaboration condition and the remainder were assigned to a non-elaboration condition. Elaborated words were explicitly defined and were used in a different context. Results from the study indicated that all students in the treatment groups made gains on their posttest scores on both elaborated and non-elaborated words. Significant gains were made on elaborated words taught for the treatment group compared to the control. Students who had more vocabulary knowledge prior to the intervention made greater gains in word learning compared to the low-vocabulary group.

Finally, Soto and Dukhovny (2008) determined the effects of a shared storybook reading intervention on the acquisition of expressive vocabulary for a 7-year-old girl with Perisylvian Syndrome (i.e., motor and language impairments). The participant was in the second grade and participated in a general education classroom for most of the day. She attended a resource classroom for one hour a day to receive training on how to use an alternative and augmentative communication (AAC) device. The student had few vocalizations, used a modified form of sign language, and primarily depended on gestures. A multiple probe single subject design was used to analyze the number of expressive vocabulary used by the student as a result of the intervention. During baseline the researcher read a book aloud to the student and then asked open-ended questions about the characters and events in the story in an attempt to encourage the student to retell the story. In an effort to increase expressive word learning the intervention consisted of three levels (a) pre-reading, (b) shared reading, and (c) post-reading. Each intervention session focused on one level (e.g., Monday was pre-reading and Tuesday

was shared reading). Pre-reading included pre-teaching the target vocabulary words to the student. Definitions were provided and were used in sentences. Sentences using the target vocabulary word were recorded on an AAC device where the student was then encouraged to imitate reading the sentence using the voice output device. Next, the interventionist provided a shared reading to the student and used language elicitation strategies (e.g., print references, cloze procedures, elaboration of correct language usage, providing binary choices, and comprehension questions) in an effort to engaging the student while encouraging verbal participation. Finally, during the post-reading level the interventionist reread the story and emphasized target vocabulary within the storybook. The interventionist then asked open-ended questions that encouraged the student to use target vocabulary that was taught throughout the intervention. A visual inspection of the data presented by the researchers showed that the student made gains from baseline to intervention on the number of total words she used during the intervention increasing her expressive vocabulary usage.

The reviewed studies further suggest the potential positive impact that shared stories can have on teaching vocabulary to students with ID. They also provide implications on how to do so for English language learners with moderate or severe ID. Yet, these studies lack an instructional approach determining the appropriate instructional language that should be used when presenting shared stories as a way to teach English vocabulary. Determining the appropriate language of instruction will not only impact and improve vocabulary instruction but overall literacy development for these students.

Language of Instruction for English Language Learners

For many years, practitioners, researchers, and political communities have debated the appropriate language of instruction for teaching literacy to English language learners. Unfortunately, educational policy on language of instruction has been greatly influenced by politics rather than research (Cummins, 2000; Garcia & C. Baker, 1995). Currently, it seems as though researchers support the use of bilingual education as opposed to English immersion methods (August & Hakuta, 1997; Greene, 1997; Slavin & Cheung, 2005; Willing, 1985; Wong-Fillmore & Valdez, 1986). Bilingual education provides a specific amount of time during the school day devoted to providing reading instruction in a student's native language. On the other hand, students placed in English immersion classrooms are expected to learn English immediately and their native language is seldom used during the course of literacy instruction (Slavin & Cheung, 2005). Understanding how language of instruction impacts literacy development for English language learners, specifically English language learners with ID is critical in order to develop effective literacy interventions.

Language of instruction outcomes for English language learners. Slavin and Cheung (2005) conducted a best-evidence synthesis (Slavin, 1986) on research comparing English immersion and bilingual reading programs and their effects on the English literacy outcomes for English language learners. In order to meet the inclusion criteria for the best evidence synthesis, studies reviewed had to (a) compare children being taught in bilingual and English immersion classrooms, (b) use random assignment (c) participants had to be English language learners in elementary or secondary schools in English speaking countries, (d) dependent variables provided quantitative measures of

English literacy outcomes, and (d) the duration of treatment lasted at least one school year. Effect sizes were also computed where possible for each study that met the criteria.

In addition to their thorough review of existing literature the authors also reviewed past meta-analyses by Willig (1987), Rossell and C. Baker (1996) and Green (1997). Results from their synthesis found 17 qualifying studies. Out of these 17 studies 12 had effects that favored the use of bilingual education. The remaining five found no differences between English immersion and bilingual education; however, none of the studies found significant effects favoring English immersion. Most studies focused primarily on elementary aged students. Out of these studies nine of the 13 favored bilingual forms of instruction as a way to increase English literacy. For the 13 studies supporting bilingual education there was an overall median effect size of +. 45.

Language of instruction outcomes for English language learners with ID. While the literature reflects the importance of utilizing the primary language of English language learners when teaching English literacy there is little research to guide the linguistic instructional approach for English language learners with moderate to severe ID (e.g., Spooner et al., 2009). Duran and Hiery (1986) found that Hispanic English language learners with moderate ID were able to perform vocational tasks better when instruction was provided in Spanish; however, literacy was not the main focus of this study. Despite this, Duran and Hiery's (1986) study is foundational in that it serves as one of the first to work with this specific population providing insight on the value of primary language of instruction.

Contrary to Duran and Hiery (1986), Rohena et al. (2002) found that when teaching sight words, language of instruction did not play a critical role in vocabulary

acquisition. In this study a multiple probe with a parallel treatment design was used to compare Spanish and English CTD to teach community sight words. The participants were four Puerto Rican middle school students who were English language learners with an ID. Results from this study found little difference in sight word acquisition when instruction was provided in Spanish or English for three out of the four students. While one student demonstrated better sight word gains when instruction was provided in Spanish.

A study by Spooner et al. (2009) suggested that primary language of instruction (i.e., Spanish) might be beneficial in teaching emergent literacy skills for an elementary Hispanic English language learners with a moderate ID. In addition, Rivera et al. (2010) found that primary language of instruction was effective when teaching English expressive vocabulary. The study used an alternating treatments design to compare a Spanish and English computerized model-lead-test intervention to teach English vocabulary words to three Hispanic English language learners with a moderate ID. Participants were chosen from three elementary schools and received the majority of their instruction in a self-contained classroom (i.e., second grade, fourth grade, and fifth grade). A pretest of 100 picture vocabulary words was given to each student. Pictures that students were able to verbally identify in Spanish or English were discarded. The remaining words were kept for the intervention. A total of 50 words (i.e., 25 in the Spanish model-lead test condition and 25 in the English model-lead test) were taught to students over a course of five weeks. Results from this study found that two out of the three students acquired more English expressive vocabulary words in the Spanish intervention compared to the English only condition. In addition, both students acquired

English vocabulary at a faster rate. No difference was found in either condition for the third student.

These studies indicate that primary language support is a critical component when providing academic instruction to English language learners, at risk, or with disabilities. In addition, these studies suggest that providing primary language support may be the bridge that leads to increasing English vocabulary when using interventions such as shared stories for these learners; however, many of the reviewed studies lack a specific systematic instructional approach for teaching vocabulary using language of instruction and shared story interventions for this population. Determining a clear systematic strategy may lead to faster acquisition of words making vocabulary instruction more efficient for this population.

Systematic Instruction

Systematic instructional strategies have been successfully used for individuals with moderate to severe ID since 1949 (e.g., Fuller, 1949). Ault, Wolery, Doyle, and Gast (1989) conducted a literature review and found 31 studies that compared at least two systematic instructional strategies used to teach students with moderate to severe ID. The purpose of the review was to summarize the effectiveness and efficacy of the strategies used to teach skills to participants. The review focused on error manipulation strategies (trial and error, error correction), response prompting strategies (system of least to most prompts, CTD, progressive time delay), naturalistic teaching strategies (mand-model, naturalistic time delay, incidental teaching), and stimulus modification strategies (stimulus shaping, stimulus fading). Results from the literature review found that all instructional strategies were effective when teaching a new skill to students with

moderate to severe ID. While all strategies were deemed effective the authors indicated that certain strategies were more effective than others. For example, progressive and CTD were more efficient compared to system of least to most prompts when taking into consideration the number of sessions, trials, errors made, and the amount of instructional time used.

More recently, numerous literature reviews (Browder et al., 2009; Browder, Spooner, Ahlgrim-Delzell, Harris, & Wakeman, 2008; Spooner, Knight, Browder, B. Jimenez, & DiBiase, in press; Spooner, Knight, Browder, & Smith, 2010) have identified the importance of systematic instruction in a variety of academic content areas. For example, Browder, Spooner, et al. (2008) conducted a meta-analysis on teaching mathematics to students with ID. The literature review reported 19 studies that met the criteria for having high quality indicators for research design. All of the studies examined used systematic instructional strategies, suggesting that systematic instruction can be used to teach math concepts to students with significant intellectual disabilities. In 2010, Spooner, Knight, Browder, B. Jimenez, et al. (in press) conducted a literature review investigating how science content was taught to students with severe ID. A total of 17 studies were found. Systematic instruction was found to be the most widely used instructional method for effectively teaching science content to students with severe ID. Finally, Browder et al. (2009) and Spooner et al. (2010) found that systematic instruction, specifically in the form of time delay with prompting, is an effective method for teaching sight words to students with moderate and severe ID.

Time delay. Time delay has been an effective prompting strategy within systematic instruction that has worked in teaching several tasks to a variety of students

(e.g., discrete responses, chained tasks; Browder et al., 2009). It is a procedure that allows for the transfer of stimulus control by gradually increasing the time intervals between the natural stimulus and the controlling prompt (i.e., progressive time delay). When using CTD several trials using a 0-second delay (i.e., the simultaneous presentation of the natural stimulus and the controlling prompt) are first presented to the student. Afterwards, a time delay (e.g., 4-seconds, 5-seconds) is inserted between the presentation of the natural stimulus and the controlling prompt (Cooper et al., 2007).

For years researchers have used time delay strategies with positive results (Snell & Gast, 1981, Browder et al., 2009). The use of time delay, also known in the past as errorless fading procedure or delay procedure, is deeply rooted in behavior analysis. Its use originated in animal laboratories (Terrace, 1963ab) and was later applied to teach a variety of skills to human participants (e.g., Sidman & Stoddard, 1967; Striefel, Bryan, & Atkins, 1974; Striefel, Wetherby, & Karlan, 1976; Touchette, 1971). In a classic study published in 1971, Touchette may have been the first to operationalize the delay procedure (i.e., time delay) and used it to train three students with an intellectual disability to discriminate between objects. The purpose of this study was to determine the amount of time it took for the transfer of stimulus control to take place. Touchette taught participants to respond to a red key *vs*. a white key and then to respond to superimposed black figures on the lighted key. A progressive time delay (i.e., increases of .5-seconds every trail without errors) was inserted between the presentation of the stimulus and a controlling prompt. During each session the time delay was increased until the transfer of stimulus control could be established (i.e., when participants were able to respond to the black figures before the key turned red).

Later, Johnson (1977) and Halle, Marshall, and Spradlin (1979) may have been amongst the first to modify Touchette's use of a progressive delay to CTD (Snell & Gast, 1981). Johnson (1977) successfully taught students to discriminate between a series of pictures and figures using a 4-second CTD. Halle et al., (1979) taught three students with severe ID to ask for a tray of food using a 15-second CTD. Results from both studies found that using CTD yielded near errorless learning providing evidence that CTD was as effective as a progressive time delay when trying to transfer stimulus control.

More recently, reviews by Wolery et al. (1992) and Schuster et al. (1998) together analyzed 56 studies involving the use of CTD. Wolery et al. analyzed 36 studies to determine the effectiveness of CTD for teaching discrete responses to students with ID. While Schuster et al. reviewed 20 studies to determine the effectiveness of CTD instruction in teaching chained tasks. Results from both studies found that CTD was an effective instructional strategy and worked well with a variety of students and group arrangements.

Browder et al. (2009) conducted a literature review extending from 1975 through 2007 on the use of time delay to teach picture and sight words to students with ID. The purpose of the review was to determine if time delay was an evidenced based practice. Thirty single subject experiments were analyzed. The authors concluded that time delay is an evidence based practice when used to teach early literacy skills such as word recognition for students with moderate ID. Despite this data, relatively little is known on how time delay, more specifically CTD, works for English language learners with a moderate ID. It seems that there is currently one study that provides promise in the use of CTD for this group of students. Rohena et al. (2002) conducted a study using CTD to

teach English sight vocabulary words to four English language learners with a moderate ID. Results from the study found that CTD was an effective instructional procedure to teach English sight words but warranted future research on this matter.

Incorporating Computer Technology in the Classroom

According to the NRP (2000) an effective supplemental approach to teach vocabulary to students is through the use of assistive computer technology, as it enhances vocabulary acquisition. Special education has been an advocate for the use of assistive technological devices since the mid 1970s; however, during the course of the past 10 years there has been an increased focus on using computer-assisted instruction as a way to teach a variety of academic skills to students. For example, the use of SMART Boards (e.g., Mechling, Gast, & Krupa, 2007; Mechling, Gast, & Thompson, 2008) and programs such as Microsoft© PowerPoint™ (2008; e.g., Parette, Hourcade, Boeckmann, & Blum, 2008; Wood, Mackiewicz, Van Norman, & Cooke, 2007; Wood, Mustain, & Cooke, 2010) have been used to teach vocabulary to a variety of students including English language learners and students with moderate ID.

In a recent literature review conducted by Spooner et al. (2010), assistive computer technology was found to be an evidenced based practice for teaching a variety of academic skills across academic content areas (i.e., literacy and mathematics) for students with severe ID. The researchers identified seven quality studies of which assistive/computer based technology was used by six different research teams, in six different regions, with a total of 28 participants meeting the criteria for an evidenced based practice in single subject methodology by Horner et al. (2005).

Computer technology and vocabulary instruction. From 2002-2008 Linda Mechling and her colleagues conducted a series of studies on the use of multimedia technology and its effects on sight word acquisition for students with mild to moderate ID. For example, Mechling, Gast, and Langone (2002) investigated the effects of computer-based video instruction to teach sight words found on grocery store isles. A multiple probe design replicated across four students with moderate ID (ages 9-17), across three sets of words, was used to assess the effectiveness of the computerized intervention. Video recordings and still images of grocery stores were taken and then uploaded onto a laptop. Instruction was presented using total task sequence with a system of least prompts. Students were given a grocery list (i.e., containing sight words) and were to navigate through the computerized instruction until all items on the list were located. Results from the study found that students were able to generalize written words and pictures presented through the intervention to real grocery stores. Students also showed increases in correct responses in natural settings due to the computerized instruction.

In a second study, Mechling and Gast (2003) conducted a similar experiment. Procedures were similar to those used in the Mechling et al. (2002) except that an expanded nine item list of words not available on grocery aisle signs were presented to students, requiring students to learn words within a computer simulated environment before attempting to generalize them to real grocery store aisle signs. A multiple probe design across three sets of word pairs, replicated across three students (ages 12-18), was used to evaluate the multimedia intervention, which included a CTD procedure, and its effects on students' ability to generalize target vocabulary to grocery stores. Results from

the study found that students made consistent progress from baseline to intervention indicating that the multimedia intervention in conjunction with the CTD procedure was an effective way to teach grocery sight words. A generalization pretest and posttest were administered to all three students. A mean score for pretests across all students was 7.4%, whereas posttest results yielded a mean score of 77.8% across students.

A third study by Mechling (2004) determined to identify the effectiveness of multimedia computer based instruction (CBI) with a CTD procedure to increase grocery shopping word fluency. Mechling used a multiple probe design across three students (ages 13-19) with a moderate ID to evaluate the effectiveness of the multimedia CBI to teach students to read and locate items in a grocery store. Similar to previous studies (e.g., Mechling et al., 2002; Mechling & Gast, 2003), video recordings, still pictures, and Hyperstudio (Roger Wagner Publishing Inc., 1997; i.e., a computer application) were used to create the multimedia CBI, which was presented on a computer laptop. Results from the study found that all students were able to locate more grocery items by reading more words compared to baseline. Additionally, students were able to increase their shopping fluency by decreasing the amount of time it took to locate items on their grocery list in generalized settings.

In a fourth study Mechling et al. (2007) examined the effects of the use of SMART Board technology and a 3-second CTD procedure to teach sight word reading to three students (ages 19-20) with moderate ID. A multiple probe design across three word sets and students was used to determine if students could: (a) read target vocabulary words (b) match vocabulary to pictures, (c) read other students target vocabulary through observational learning, and (d) match photos to observational vocabulary. Words and

pictures were created using Microsoft© PowerPoint™ (2008) slides and projected on the interactive SMART Board, which helped to facilitate small group instruction. Results from the study concluded that the computer-assisted instruction was effective for students and increased their grocery sight word reading. Additionally, the study was the first to display the benefits of using SMART Board technology as a means of providing group instruction for this population of students. According to Mechling et al. (2007) most computer-assisted instruction has been conducted on a one-on-one basis.

Next, Mechling et al. (2008) sought to determine the comparative effects of SMART Board technology vs. flash card instruction, with a 3-second CTD procedure, on sight word recognition and observational learning. An adapted alternating treatments design across two conditions, replicated with three students (ages 19-21), was used to compare the differences between both interventions. As with the previous study (i.e., Mechling et al., 2007), the SMART Board intervention used Microsoft© PowerPoint™ (2008) slides to create digital flash cards of the target words that were then displayed on the SMART Board. The second intervention relied on traditional flash cards displaying target vocabulary. Results from the study showed that both interventions were effective and varied little in student outcomes; however, SMART Board technology produced better student outcomes in observational learning of non-target words.

In an additional study, Lee and Vail (2005) conducted an experiment to determine the effects of a computer program to teach sight words to four elementary aged students with developmental disabilities. One student, received special education services 30 minutes a day and the other three received services in self-contained settings. A multiple-probe across four word sets was used for the study. Replication was demonstrated with

four students to determine the effects of the computer based intervention program, Word Wizard, for teaching sight words. The dependent measure was the percentage of correct responses during probe sessions. Word Wizard was a program that utilized video, text, sounds, and animations. The program also had embedded within it CTD. Results showed that the computer assisted instructional program was effective in teaching sight words to all four students. Additionally, students demonstrated the ability to generalize their vocabulary knowledge across materials.

Finally Rivera et al. (2010), discussed earlier, incorporated the use of Microsoft© PowerPoint™ (2011) software when teaching English vocabulary to English language learners with moderate ID. Vocabulary taught was presented with the use of PowerPoint™ slides and then presented to students through a laptop computer. Rivera et al. (2010) found that using PowerPoint™ engaged students in the lesson, was easy for students to manipulate, and was cost effective. Students showed an increase in English vocabulary words learned through the use of direct instruction coupled with PowerPoint™ vocabulary presentation. Despite the emerging literature on the use of computer based instruction more research needs to be conducted on the use of such technology and its effects on vocabulary acquisition for English language learners with ID. Currently, it seems that most of the literature based on using Microsoft© PowerPoint™ during classroom instruction is non-experimental (e.g., Blum, Parette, & Watts; 2009; Coleman, 2009; Parette, Blum, Boeckmann, & Watts, 2009; Parette et al., 2008).

Summary of Research Foundation for the Current Study

Since the introduction of NCLB, (2002), there has been an increase in awareness in the education of English language learners and for students with disabilities. There has been a paradigm shift focusing on teaching academic skills such as literacy to these populations; however, there remains a significant challenge in the education of students with moderate to severe ID who also are classified as English language learners (Mueller, Singer, Carranza, 2006; Spooner et al., 2009). Over the past 20 years the number of English language learners has increased (McCarthy et al., 2005) meaning that the number of English language learners with ID has also. Yet, there remains a paucity of literacy research for this specific population (Rohena et al., 2002; Rivera et al., 2010; Spooner et al., 2009). Even though little research exists on how to teach vocabulary to this specific population the literature on vocabulary instruction provides insight on how to proceed.

Shared stories have been used for a variety of students including English language learners, students with disabilities, and typically developing students. The benefits of shared story interventions include the following: (a) books can be easily adapted, (b) students are provided with repeated exposure to targeted words (Browder, Mims, et al., 2008), (c) dialogic interactions between student and teacher naturally occur, (d) students make gains in oral language (Silverman, 2007ab; Silverman & Hines 2009), and (e) stories can be culturally and contextually tailored for students from diverse backgrounds (Spooner et al., 2009).

Using shared stories, as a vocabulary intervention, has been effective for a variety of students. Vocabulary acquisition is an important skill needed for oral language, writing, and reading comprehension (Lervag & Aukrust, 2010; NRP, 2000; Taboada,

2010). These components are critical in the development of overall literacy skills in spite of language and disability. Vocabulary (i.e., expressive) also serves a functional purpose allowing for students with disabilities the ability to interact with their peers and family members inside their homes, classrooms, and their communities. Giving English language learners with disabilities the ability to express their wants and needs may lead to better inclusive practices, better academic achievements, and fewer behavioral problems.

In order to enhance the teaching of vocabulary words through the use of shared stories it may be best practice to include systematic forms of instruction (i.e., CTD) primary language support, and technology. According to Browder et al. (2009) time delay works well for teaching vocabulary to students with moderate to severe ID. Additionally, Rohena et al. (2002) provides evidence that CTD is also effective for teaching English sight vocabulary words to English language learners with moderate ID. When teaching vocabulary, using a student's primary language enhances the understanding of what is being taught and may lead to better outcomes. In addition, the NRP (2000) suggests that when providing vocabulary instruction the use of technology increases student engagement and vocabulary acquisition. Combining these elements (i.e., shared stories, vocabulary instruction, primary language of instruction, CTD, and technology) may lead to a new literacy instructional model for teaching English vocabulary to English language learners with ID.

Potential Contribution of the Current Study

This study provides several contributions to special education. Several researchers in education have concluded that shared stories are an excellent way to teach vocabulary and other literacy skills to a variety of students. This study will be the first to use a

multimedia (i.e., PowerPoint™) shared story intervention to teach English vocabulary to English language learners with a moderate ID. Second, this study will expand the literature base on the use of CTD and provide further understanding of its effects on teaching vocabulary to culturally and linguistically diverse students. Third, the study seeks to add to the work of Rivera et al. (2010) and Rohena et al., (2002) in determining what language of instruction (Spanish or English) should be used when teaching English vocabulary to Hispanic English language learners with moderate ID. Components of effective literacy practices (e.g., time delay, shared stories, language, technology) have been used successfully to teach vocabulary to a wide range of students. The current study seeks to utilize these components and along with suggestions made by Cline and Necochea (2003) and Justice and Kaderavek (2004) to compare the effects of an English and a Spanish Multimedia Shared Story (MSS) on the vocabulary acquisition of English language learners with moderate ID.

CHAPTER 3: METHOD

Introduction

The focus of this study was to compare two linguistic shared story interventions and determine which would lead to increases in English vocabulary words for English language learners with a moderate ID. The primary independent variables were an English and Spanish MSS instructional package (i.e., CTD, error corrections, reinforcement). The main dependent measure was the number of English vocabulary words correctly identified as a direct result of both shared story packages. An alternating treatments design was used.

Participants

Researcher. The researcher, a third year doctoral student with three years of experience teaching students with autism and students with ID, served as the interventionist for the study. The researcher is of Puerto Rican heritage and bilingual, speaking Spanish and English.

Student participants. The participants were two Mexixan students with moderate ID. To be eligible of for the study students had to meet the following criteria: (a) be of Hispanic origin, (b) be in grades K-5, (c) have an I.Q. of 55 or below, (d) be classified as an English language learner or identified, by the classroom teacher, as using Spanish as the primary language at home, (e) receive special education services, (f) have limited vocabulary knowledge as identified by the classroom teacher, and (g) have clear verbal speech (i.e., the researcher was able to understand them when they spoke).

Myra was a 9-year-old third grader born in the United States. Her parents had immigrated to the United States from Mexico prior to her birth. Spanish was the primary language spoken at home. Myra was identified as having a moderate ID (i.e., IQ of 52 according to the *Wechsler Intelligence Scale for Children-Third Edition*, WISC-III; Wechsler, 1991) and was placed in a self-contained special education classroom, where instruction was provided in English. Myra was bilingual and spoke Spanish and English.

Juan was a 9-year-old third grader born in the United States. When Juan was an infant his family moved to Mexico and returned to the United States in 2007 before Juan began kindergarten. According to school records Juan was identified as an English language learner with a moderate ID (i.e., IQ score of 41 according to the *Batería III Woodcock-Muñoz*; Muñoz -Sandoval, Woodcock, McGrew, Mather, & Schrank, 1995) and was also placed in a self-contained special education classroom where instruction was provided in English. Spanish was the primary language spoken at home and Juan was also bilingual (i.e., spoke Spanish and English).

Both students received 90 minutes of literacy instruction as mandated by the school district and participated in what the school called "specials" (i.e., inclusive non-academic courses such as physical education, music, art). Students were also provided literacy lessons using teacher adapted shared stories and the *Early Literacy Skills Builder* (Browder, Gibbs, Ahlgrim-Delzell, & Courtade, 2007), a literacy curriculum designed specifically for students with moderate to severe ID.

Setting

The study took place in an urban K-5 elementary school in the southeastern United States. The school population totaled 556 students. Of these students 49% were

female, 51% were male, 53% were African American, 24% were White, 12% were Hispanic, 11.8% had disabilities, 7.5% had limited proficiency in English, and 72.2% of these students were on free or reduced lunch. Student participants were in the same self-contained classroom where the intervention took place. The classroom consisted of one teacher, one paraprofessional, and five other students with a moderate ID. The classroom teacher provided an area within the classroom for the researcher to conduct the intervention. Each instructional session for the intervention lasted approximately 6-11 minutes per student for two weeks.

Materials

Materials used included three English and Spanish multimedia books. The researcher created, translated, and adapted all digital books used for the MSS interventions. A pool of untaught vocabulary words (i.e., nouns) was created based on pre-assessment data. Nouns that students incorrectly identified during the pre-assessment were grouped into themes, which then guided the interventionist in the development of books. For example, after a pre-assessment was given, if a student missed the words rain, coat, cloud, boots, and umbrella, a MSS based on the theme of "weather" would have been created.

The MSS were created and adapted using Microsoft© PowerPoint™ (2011), as shown in Appendix A, on a 13-inch laptop computer. Text and pictures were placed into slides. Key words taught within the MSS were underlined and placed in bold font to increase its salience. Sound effects were included within the MSS to increase student engagement. For example, if a book's theme were on "weather" sound effects that include thunderstorms and rain would have been embedded within the story. In addition,

a musical chime was embedded into slides that included the target vocabulary word taught. The musical chime served as a stimulus prompt for the student to look for the "special word" as the story was being read. When a "special word" was introduced for the first time an instructional slide followed. The instructional slide included a picture representing the target vocabulary word and the vocabulary text written in bold font underneath the picture. The interventionist pointed to the picture of the vocabulary word and proceeded with a 0-second delay to teach the target vocabulary. At the end of the MSS, 10 slides containing the five target vocabulary pictures were presented in random order and students were asked, "What is this?" Students were then expected to orally provide the correct answer in English. All target words in both the English and Spanish MSS interventions were presented in English. English and Spanish MSS were created using the same formats; however, the only difference between each intervention was the language in which the materials were written in and their linguistic presentation (see Appendix A)

Finally, ScreenFlow© (Telestream® Inc., 2011), a screen casting application for Apple© computers, was used to collect interrater and procedural fidelity. ScreenFlow© allows for the simultaneous recording of the participants and what they are seeing on the screen of a computer. The files created from this application were converted into video files, which were viewed later for interrater and procedural data collection.

Research Design

A single subject alternating treatments with an initial baseline (Cooper et al., 2007; Gast, 2010) was used to analyze the comparative effects of an English *vs*. Spanish MSS with a CTD procedure to teach English vocabulary. The design allows for a fast

alternation between two treatment conditions across a group of participants using random assignment. According to Gast (2010) an alternating treatment examines the differential effects between two treatments and is useful when treatment conditions can be changed quickly, can be easily discriminated by the participants, and the effect of a treatment condition can be rapidly observed.

The interventionist alternated treatment conditions in a randomized predetermined format for each participant. A coin was flipped to determine the presentation order of the shared story interventions. Spanish and English shared story interventions were assigned to either heads or tails of a coin. Intervention sessions were alternated; however, a condition could not be presented three times in a row. For example, once the Spanish intervention was selected twice the English intervention was automatically selected (e.g., AB, BA, AB, AB, BA, BA, AB). In addition, the vocabulary words were counterbalanced across the intervention. For example, if the words milk, cow, chicken, and farm were used in an English shared story for Juan then those words would be used in a Spanish shared story for Myra.

Dependent Variables

The primary dependent variable was the cumulative number of correct English vocabulary words learned from the English and Spanish MSS interventions. Students were taught a total of 30 nouns, 15 nouns in each treatment condition that were counterbalanced (controls for internal validity), to determine which condition would yield faster acquisition of English vocabulary. The second dependent variable was the number of English vocabulary words maintained across time for both interventions. The final

dependent variable was the percentage of words successfully generalized. A pretest and posttest measure was used to assess generalization.

Data Collection Procedures

Data collection. English and Spanish MSS were conducted in an alternating manner and were randomly predetermined for each student. The interventionist scored student responses during all probe sessions. Five baseline data points (i.e., for each condition) were collected and were examined for stability. After the last baseline probe was administered, the first intervention session proceeded that same day. At the start of the second intervention session, probe data were taken and would continue to be taken in the same format until the end of the intervention. A day after the intervention was complete a generalization posttest was administered. Afterwards, five maintenance probes were conducted for once a week for five weeks after the generalization posttest was complete to demonstrate and compare the number of target vocabulary words maintained over time from both conditions (see Appendix B).

Interrater reliability. In order to determine interrater reliability a second observer scored student responses for at least 33% of all probes across all phases of the study (i.e., baseline, intervention, maintenance). The second observer (i.e., a special education doctoral student) was trained by the interventionist to collect interrater reliability data using the data collection form as shown in Appendix B. Vocabulary words were scored as correct (+) or incorrect (-). Agreement was counted if both the interventionist and second observer scored the vocabulary as correct (+). A disagreement was counted if there was a discrepancy between scores. Interrater reliability was calculated by taking the number of agreements and dividing it by the number of agreements plus disagreements

and multiplying it by 100. An acceptable criterion for interrrater reliability was set for 90% or above. If the criterion was not met the interventionist was to discuss with the second observer any variance between observations to better provide consistency in future interreliablity checks and provide retraining if necessary. In addition, another reliability check would need to be conducted.

Procedural fidelity. The second observer (i.e., same special education doctoral student) also collected procedural fidelity by scoring the number of steps completed correctly during the presentation of the intervention, according to the Fidelity Checklist. Procedural fidelity was recorded for a minimum of 33% of intervention probes (i.e., two sessions for each intervention). The number of items correctly presented was divided by the total number of items and multiplied by 100 to calculate a procedural fidelity score (see Appendix C).

Procedures

Pre-assessment. A pre-assessment, created by the interventionist, containing 100 English nouns was administered to students prior to baseline. The pre-assessment was conducted using Microsoft© PowerPoint™ (2011) slides on a laptop. Students were shown a picture representing the target vocabulary and the written vocabulary word underneath the picture. Students were then asked in English and in Spanish, "What is this?" (¿Que es esto?). Words that students were able to correctly identify in English or Spanish were discarded. From this assessment 30 words were selected, 15 for each intervention further divided into five for each book. Once 30 words were selected (see Appendix B) they were divided into themes and then randomly dispersed into the English or Spanish MSS conditions. In order to keep the interventions the same for both students

the interventionist selected the same exact words students answered incorrectly during the pre-assessment.

Baseline. During baseline, students were shown all 30-target vocabulary words chosen from the pre-assessment. The interventionist presented students with a PowerPoint™ slide containing a picture and the word on a laptop. Students were asked, "What is this?" (¿Que es esto?) and were given 4-seconds to respond. If they were unable to provide a non-prompted correct English oral response, within the allotted time (i.e., 4-second delay), the interventionist marked the word as incorrect and moved onto the next slide/word. Baseline procedures were the same for all words used in English and Spanish conditions. Baseline conditions were conducted in an alternating fashion for five data points. During this phase instruction and error corrections were not provided.

Pre-teaching. Before the MSS began, the interventionist engaged students in a pre-teaching phase. During this phase the interventionist presented a slide containing all vocabulary words that were to be taught during the MSS. The interventionist read the target vocabulary and asked students to repeat the words after him. Afterwards, the same slide (i.e., Spanish Preview) was presented a second time. During the second presentation the interventionist reviewed and identified the pictures in Spanish.

English MSS and vocabulary instruction. After pre-teaching, students were given an opportunity to predict what the story was going to be about. The interventionist presented the title of the story and asked students, "What do you think the story is going to be about." Students then were given a chance to provide their opinion and afterwards the interventionist proceeded to reading the MSS. Pictures and the target vocabulary were embedded in their respective stories. When a target vocabulary word would appear in a

PowerPoint™ slide a musical chime would play, indicating that there was a "target vocabulary word" within the text. Next the instructional slide, which included a picture of the target vocabulary word and the written word in bold font, was presented. The interventionist identified the picture to the student and proceeded to teach the vocabulary using two 0-second delay rounds. During this phase the controlling prompt was the verbal model of the target vocabulary provided by the interventionist. For example, the interventionist would tell the student, "This word is rain. Say it with me. *Rain*. Say it with me again. *Rain*." After the instructional slide the interventionist continued reading the story and taught the remainder of the words in the same format for the 0-second delay rounds.

At the end of the first reading the interventionist presented the five picture vocabulary words in separate slides with the vocabulary word written underneath the picture. One picture vocabulary word was presented one slide at a time. During this phase two 4-second CTD rounds were used. Before instruction, the interventionist provided students with the following directions, "I will point to a picture and I want you to tell me the name of the picture. If you don't know what it is do not guess. Let me know and I will help you." In the first round, students were presented with slides and were given 4-seconds to provide the correct oral response before the delivery of the controlling prompt. If students were unable to respond within 4-seconds the interventionist provided the controlling prompt (i.e., verbal model of the word) and an error correction was introduced (i.e., two 0-second delay rounds) before moving on to the next slide. Words answered incorrectly during the first CTD round were revisited and students were given another opportunity to provide a correct response within 4-seconds. If, students were still unable

to answer correctly the interventionist provided the controlling prompt and proceeded to the second CTD round. During the second round, students were presented with five slides containing all five-vocabulary words. Pictures in each slide were shuffled during the progression of slides. Students were given 4-seconds to provide a correct answer. In this round, if students incorrectly identified a word, the controlling prompt was given and two 0-second delays were administered.

At the end of the second CTD round the interventionist provided a re-read of the story. This part of the intervention included a third 4-second CTD round in the form of a cloze assessment. Target words were deleted from the story. The interventionist read the story and stopped at designated areas embedded in the story to determine if students could provide the correct answer within 4-seconds. If students could not provide an answer the interventionist prompted the student to look at the picture vocabulary embedded in the story and asked, "What is this?" If no answer or the student provided the incorrect answer, the interventionist provided the controlling prompt and preceded with two zero second delay rounds. The remainder of the cloze activity followed the same format. When the lesson was completed students were given an opportunity to determine if their prediction was correct and engage in informal questions or discussion pertaining to the storybook (see Appendix C).

Reinforcers. Reinforcers were provided immediately to students; upon receiving only correct independent answers during the intervention Reinforcers included verbal (e.g., great job, fantastic) and physical praise (e.g., high five, pat on the back).

Probe. After the first instructional session, before the presentation of the intervention, PowerPoint™ slides containing all vocabulary (i.e., probe) were presented

to students in random order. Students were then asked to orally identify each picture. During probe sessions students were given 4-seconds to provide a correct oral response. Only correct non-prompted responses were counted and graphed.

Spanish MSS and vocabulary instruction. The procedures used for the English MSS were the same for the Spanish MSS. The difference between the English and Spanish interventions was that in the Spanish MSS stories were written and all instruction was provided in Spanish. It is important to note that the interventions sought to teach English vocabulary; therefore all target vocabulary presented in the English and Spanish MSS were in English.

Generalization. To measure for generalization, students were assessed using 15 different pictures, per intervention, that matched vocabulary chosen for each individual student. These words were selected from the original group of words that students had answered incorrectly during the pre-assessment. The generalization assessments were presented in the same fashion and format as the probe (i.e., PowerPoint™ slides). Student responses were scored as either correct (+) or incorrect (-) and reinforcement was not provided during assessments. The generalization assessment was measured as the percentage of picture vocabulary identified correctly by students.

Maintenance. Given the importance and lack of response maintenance data collected for students with moderate to severe ID (e.g., Browder & Xin, 1998; Horner, Williams, & Knobbe, 1985; Rivera et al., 2010; Rohena et al., 2002; Spooner et al., 2009), maintenance data, for this study, were collected once a week for five weeks after the intervention. During maintenance, students were presented with the original picture

vocabulary used during the intervention (i.e., probe). The same procedures used for probe sessions were administered during the maintenance phase.

Social validity. Social validity was measured by administering a questionnaire that included a combination of an open-ended question and closed items (i.e., 5-point Likert scale rating). The questionnaire was designed to assess teacher's perceptions on the oral English vocabulary development of students during the course of both treatment conditions. The purpose of the questionnaire was to determine the social significance of the dependent variable (Cooper et al., 2007; Wolf, 1978). In addition, the questionnaire sought to determine the practicality and cost effectiveness of the interventions as considered by teachers (see Appendix D).

Data Analysis

Data collected were analyzed by visually inspecting the graphed probes collected throughout the study (Horner et al., 2005; Johnston & Pennypacker, 1980; Parsonson & Baer, 1978; Tawney & Gast, 1984). A visual inspection of the graphed data were used to identify a separation between data paths, a change in slope, trend, and in variability to determine the comparative effects of both interventions on the dependent variables. In addition, it is important to note that data were collected cumulatively (Cooper et al., 2007; Hicks, Stevenson, Wood, Cooke, & Mims, 2010; Johnston & Pennypacker, 1980; Skinner, 1963, 1966; Wood et al., 2010) to better display a meaningful change in slope, providing a clear indication as to which treatment allowed for faster acquisition of vocabulary words taught. Prediction, replication, and verification of the targeted effects are represented within each student graph. A mastery criterion was not set for the intervention. Instead all students received two sessions per book across both linguistic

conditions. The purpose of the study was not to investigate mastery of words but rather how quickly students could acquire English vocabulary when presented with the English and Spanish MSS interventions.

Threats to Validity

Internal validity. Threats of internal validity related to history (i.e. outside events effecting the dependent variable) were controlled through the use of an alternating treatments design utilizing a baseline. In addition, a list of the targeted vocabulary words that were taught was shared with the special education teacher. The teacher was asked to refrain from teaching the targeted words during the school day. Conducting the intervention with more than one participant controlled for maturation. To help control for the effects of testing, each phase (i.e., new words within a new book) within the treatment conditions was limited to two data points. A second observer collected 33% procedural and interrater reliability to control for instrumentation. Finally, replicating the experiment with a second student controlled for mortality.

External validity. External validity can be difficult to control for in single subject research. According to Horner et al. (2005) external validity in single subject research can be "enhanced through replication of the effects across different participants, different conditions, and/or different measures of the dependent variable" (p. 171). In this study external validity was controlled for by replicating the effects of the dependent variable with two students and by providing operational descriptions of the participants, materials that were used, and the location in which the study was conducted.

CHAPTER 4: RESULTS

Presented below are the findings of the study. Interrater reliability and procedural fidelity are presented first, followed by a detailed description of results for each research question.

Interrater Reliability and Procedural Fidelity

Interrater Reliability

ScreenFlow© (Telestream ® Inc., 2011), a computer video recording application, was used to collect interrater reliabiltity. A second observer scored 40% of English and Spanish MSS baseline, 33% of English and Spanish MSS intervention probes, and 40% maintenance probes per student. Interrater reliability scores for baseline and intervention data across students ranged from 96% to 100% with a mean of 99% for the English MSS. For the Spanish MSS, interrater reliability scores ranged from 96% to 100% with a mean of 99%.

Juan English and Spanish MSS. Interrater reliability for Juan across phases (i.e., baseline, intervention, maintenance) for the English MSS was 100%. Interrater reliability scores across all phases for the Spanish MSS was also 100%.

Myra English and Spanish MSS. Interrater reliability scores for Myra across phases (i.e., baseline, intervention, maintenance) ranged from 96% to 100% for vocabulary taught from the English MSS with a mean of 99%. Scores during baseline ranged from 96% to 100%, with a mean of 99%. During intervention, interrater reliability

ranged from 96% to 100% with a mean of 99%. Finally during maintenance, scores were 100%.

Procedural Fidelity

Procedural fidelity data were collected for a minimum of 33% of intervention sessions and were distributed evenly across conditions and students. Student responses were videotaped using ScreenFlow© and reviewed by a second observer. Procedural fidelity for Juan during the English MSS was 100%. Procedural fidelity for Juan during the Spanish MSS was 100%. For Myra, procedural fidelity for the English MSS intervention was 100%. Additionally, Myra's procedural fidelity scores for the Spanish MSS intervention was 100%.

Dependent Variables

Research Question 1: What are the comparative effects of a Spanish and English shared story intervention on oral vocabulary acquisition for English language learners with a moderate ID?

Research Question 2: Which linguistic instructional condition (Spanish or English shared story) will lead to faster acquisition of English vocabulary words?

Figure 1 and 2 represent the cumulative number of English vocabulary words correctly identified by students during English and Spanish multimedia interventions. The graphs display baseline and intervention data. Data collected from the interventions provide mixed results on the comparative effects of English and Spanish MSS and indicates that the selection of linguistic instruction may need to be based on individual student needs.

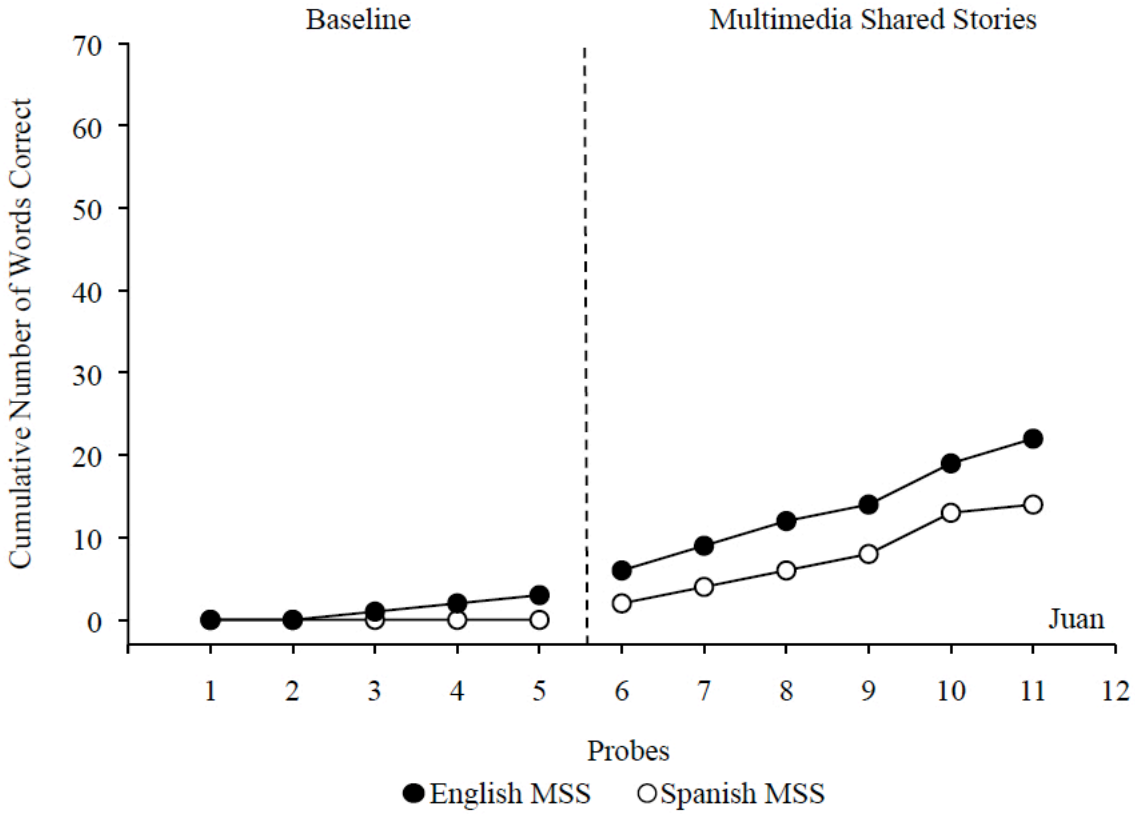

Figure 1. English MSS = English multimedia shared story, Spanish MSS = Spanish multimedia shared story. Juan's results across shared story interventions.

Juan English MSS intervention. During baseline, Juan's scores for vocabulary used in the English MSS showed a slight increasing trend with scores ranging from 0 to 3, with a mean of 1.2. During intervention, scores ranged from 6 to 22, with a mean of 13.6.

Juan Spanish MSS intervention. During baseline, Juan's scores for vocabulary used in the Spanish MSS were stable; a score of zero was recorded for all five-baseline probes. During intervention, scores ranged from 2 to 14, with a mean of 7.8.

For Juan the difference between conditions (M = 13.6, M = 7.8) was 5.8 words correct in favor of the English MSS intervention. There is a clear separation in data paths between the English and Spanish MSS interventions indicating that English instruction was superior to Spanish instruction for Juan. Results from the graph further indicate that

there is a steeper slope for the English shared story intervention, providing evidence that the intervention allowed Juan to acquire more English vocabulary at a faster rate as compared to the Spanish MSS intervention.

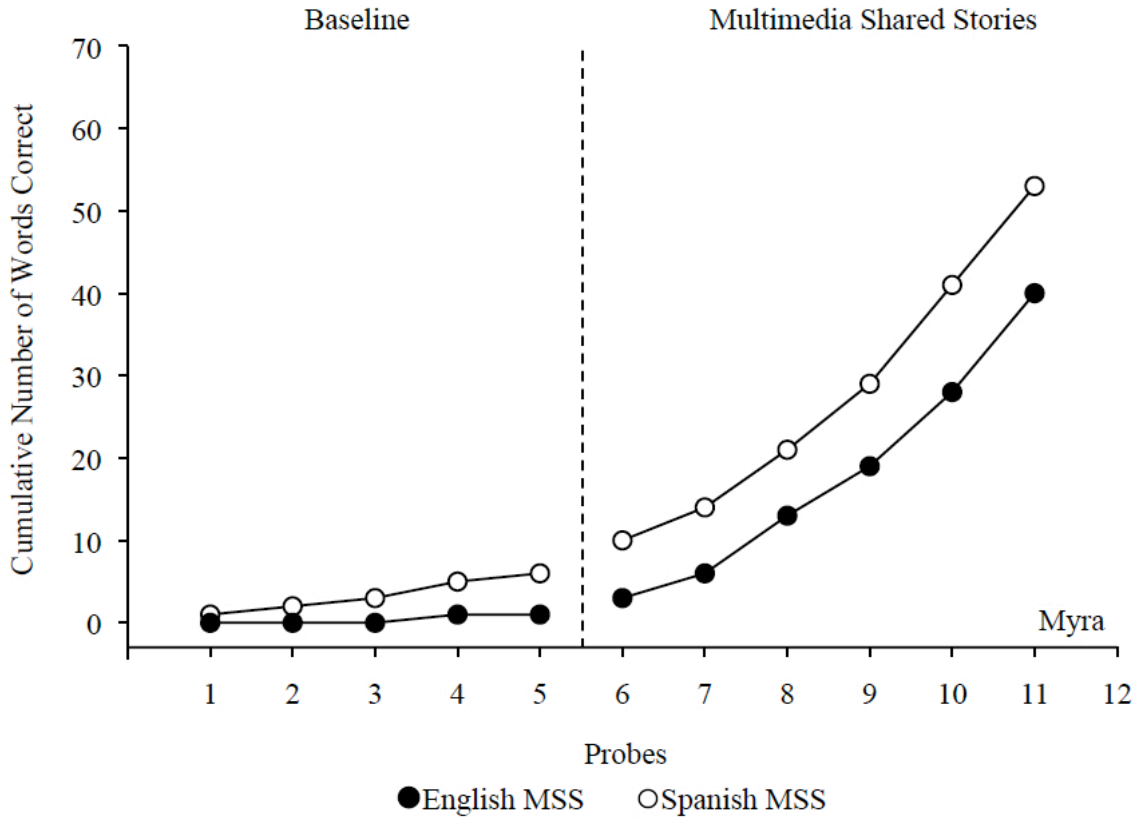

Figure 2. English MSS = English multimedia shared story, Spanish MSS = Spanish multimedia shared story. Myra's results across shared story interventions.

Myra English MSS intervention. During baseline, Myra's scores for vocabulary used in the English MSS were stable with scores ranging from 0 to 1, with a mean of .4. During intervention, Myra's scores ranged from 3 to 40, with a mean of 18.1.

Myra Spanish MSS intervention. During baseline, Myra's scores for vocabulary used in the Spanish MSS showed a slight increasing trend with scores ranging from 1 to 6, with a mean of 3.4. During intervention, scores ranged from 10 to 53, with a mean of 28.

For Myra, the difference between conditions ($M = 28$, $M = 18.1$) was 9.9 words correct in favor of the Spanish MSS intervention. There is a clear separation in data paths between the English and Spanish MSS interventions indicating that, unlike Juan, Spanish instruction was superior to English instruction for Myra. Results from the graph further indicate that there was a steeper slope for the Spanish shared story intervention, providing evidence that the intervention allowed Myra to acquire more English vocabulary at a faster rate as compared to the English MSS intervention.

Research Question 3: What are the comparative effects of each shared story intervention on English vocabulary generalization outcomes?

Figure 3 represents the number of words students correctly identified from pretest and posttest generalization measures. To assess generalization, pictures of words different from those used during intervention were presented to students before and after baseline to provide a measure of vocabulary growth. Pictures were presented to students in the same fashion as the probe (i.e., slides presented on a laptop computer). Students were shown the picture and asked, “What is this?” (¿Que es esto?). Students were given 4-seconds to provide the correct oral response. If students were unable to make the correct response the interventionist did not provide an error correction and proceeded to the next picture.

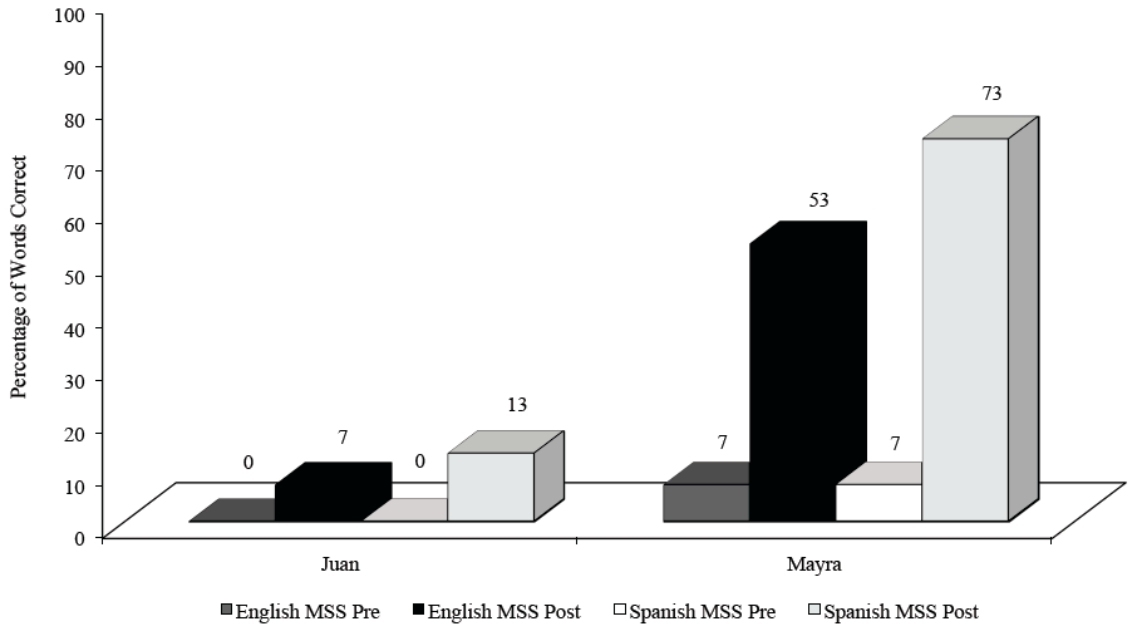

Figure 3. MSS = multimedia shared story. Student's percentage scores for generalization pretest and posttests.

Juan. Generalization pretest scores for Juan were 0% for vocabulary words presented in both English and Spanish MSS interventions. Juan's generalization posttest score for vocabulary words presented in Spanish MSS was 7% with a mean growth of 3.5%, between pretest and posttest. Juan's generalization posttest score for vocabulary words presented in English MSS was 13% with a mean growth of 6.5%, between pre and post assessments.

Myra. Generalization pretest scores for Myra were 7% for vocabulary words presented in both English MSS and Spanish MSS interventions. Myra's generalization posttest score for vocabulary words presented in Spanish MSS was 73% with a mean growth of 40%, between pretest and posttest. Myra's generalization posttest score for vocabulary words presented in English MSS was 53% with a mean growth of 30%, between pre and post assessments.

Research Question 4: What are the comparative effects of each shared story intervention on the maintenance of English vocabulary words over time?

Maintenance data were collected once a week for five weeks to determine the number of words students would be able to recall after the interventions. Students were presented the intervention probe (i.e., picture slides presented on a laptop) and were not given prompts or additional instruction during maintenance sessions. Students were presented with picture vocabulary and asked, "What is this?" (¿Que es esto?). Only correct responses provided within 4-seconds were counted and marked as correct. Table 1 represents that maintenance data collected for students across five weeks.

Table 1

Maintenance Data for Juan and Myra

	Weeks From Instruction									
	1		*2*		*3*		*4*		*5*	
	EM	SM	EM	SM	EM	SM	EM	SM	EM	SM
Participants										
Juan	3	1	4	2	3	2	3	2	3	2
Myra	11	12	10	11	10	11	10	11	10	11

Note. EM = English multimedia shared story; SM = Spanish multimedia shared story.

Juan English and Spanish MSS maintenance. During maintenance, Juan's scores (i.e., number of words correct) across interventions ranged from 1 to 4, with a mean of 2.3. For the English MSS Juan's scores ranged from 3 to 4 with a mean of 3.2. Finally, for the Spanish MSS ranged from 1 to 2 with a mean of 1.8.

Myra English and Spanish MSS maintenance. During maintenance, Myra's scores (i.e., number of words correct) across interventions ranged from 10 to 12, with a mean of

10.7. For the English MSS Myra's scores ranged from 10 to 11 with a mean of 10.2. Finally, her Spanish MSS scores ranged from 11 to 12 with a mean of 11.2.

Social Validity

Research Question 5: How do teachers view the use of MSS and the use of primary language instruction as way to promote English vocabulary acquisition?

Both the classroom teacher and paraprofessional responded to nine questions related to the social validity of the interventions. Response options for eight of the questions ranged from Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1). The ninth question was open ended and asked teachers to describe barriers they face when teaching vocabulary to English language learners with ID and how they felt the intervention helped or did not help with these challenges. On average teachers reported that English vocabulary is a priority skill for English language learners with ID ($M = 4$). Teachers felt that the adaptive MSS used for the study were appropriate for students ($M = 4.5$). On average teachers had mixed opinions about providing primary language support to facilitate vocabulary learning for their students ($M = 3.5$). Teachers disagreed that English should be the only language to support vocabulary learning ($M = 2$). On average teachers believed that the materials could be easily incorporated within their teaching routine ($M = 4.5$). Teachers noticed slight improvements in oral expressive vocabulary immediately after the intervention both within the classroom and in other activities ($M = 3$, $M = 3$). On average teachers reported, that provided the resources; they would use MSS in the future ($M = 4$). Overall, teachers expressed several barriers when trying to teach English language learners English vocabulary. Some concerns they mentioned were the lack of appropriate linguistic materials for students and the inability

to effectively collaborate with parents and ensure that what is being taught in the classroom were being reinforced at home. Teachers expressed positive benefits of the intervention. They felt that the intervention was an effective way to teach vocabulary, could be used to supplement literacy instruction during the course of the year, should be used on a daily basis, and would be simple to implement. Finally, teachers reported that they would like similar interventions developed in a computer application that students could use independently during their own computer time at school and/or at their homes.

CHAPTER 5: DISCUSSION

The purpose of this study was to evaluate the comparative effects of two linguistic (i.e., English and Spanish) MSS interventions with a CTD procedure on the acquisition of oral English vocabulary (i.e., primary dependent variable) for English language learners with a moderate ID. The following research questions guided the investigation:

1. What are the comparative effects of an English and Spanish shared story intervention on oral vocabulary acquisition for English language learners with a moderate ID?
2. Which linguistic instructional condition (English or Spanish shared story) will lead to faster acquisition of English vocabulary words?
3. What are the comparative effects of each shared story intervention on English vocabulary generalization outcomes?
4. What are the comparative effects of each shared story intervention on the maintenance of English vocabulary words over time?
5. How do teachers view the use of MSS and the use of primary language instruction as way to promote English vocabulary acquisition?

An alternating treatments design with an initial baseline condition (Cooper et al., 2007) was used to evaluate the comparative effects and rate of English vocabulary acquisition between both interventions. Data were collected cumulatively to provide a clear trajectory of the data paths. According to Skinner (1963, 1966) the advantage of using cumulative recording is that it allows for changes in data to be more conspicuous.

"The slope of a cumulative curve in real time represents a meaningful state of behavior" (Skinner, 1966, p. 216). Skinner also adds that the "rate of responding and changes in rate can be directly observed, especially when represented in cumulative records" (Skinner, 1963, p. 508). General results from the study for Juan indicated a separation in data paths, as well as a steeper slope for the English MSS intervention, while data for Myra showed contrasting results favoring the Spanish MSS intervention. Results of the primary dependent variables (i.e., research questions 1 and 2) will be discussed and analyzed according to their relationship to an early literacy framework, shared stories, language of instruction, time delay, and technology. In addition, limitations and recommendations for future research, as well as implications for future practice will be discussed and presented in this chapter.

Effects of Intervention on Dependent Variables

Research Question 1: What are the comparative effects of an English and Spanish shared story intervention on oral vocabulary acquisition for English language learners with a moderate ID?

Research Question 2: Which linguistic instructional condition (English or Spanish shared story) will lead to faster acquisition of English vocabulary words?

Findings from this study provided positive effects but mixed results for both MSS interventions. All participants made gains in English vocabulary acquisition from baseline to intervention for each intervention, providing evidence that despite language of instruction gains in English vocabulary acquisition were possible for both students. As depicted in the graphs (Figures 1 and 2) the slope of the data is increasingly steeper from baseline to intervention for each MSS. Despite this data, it is interesting to note that

Juan's results favored English instruction over Spanish instruction. The opposite was true for Myra. Her data show that Spanish instruction was superior to English instruction. Visual analyses of the graphs display almost an immediate separation in data paths indicating one intervention's strength over another for both students. Results show Juan acquired more English vocabulary through the use of the English MSS intervention while Myra did so within the Spanish MSS intervention.

These findings provide critical insight in the instruction of English language learners with moderate ID. First, data from this study suggests that perhaps infusing Justice and Kaderavek's (2004) bottom-up explicit approach with components of Cline and Necochea's (2003) SDAIE, may act as an effective vocabulary instructional framework for this population. These approaches may indicate a relationship amongst components that may be needed to provide effective vocabulary instruction for English language learners with moderate ID. The MSS included systematic/explicit instruction provided directly from the interventionist, direct opportunities to learn target skills, used visuals, interactive instruction, incorporated primary language support, was respectful to the student's heritage, and provided multiple opportunities/examples (access points) to learn target vocabulary. Taking these components into consideration prior to the construction of the MSS interventions, helped to create a balanced vocabulary instructional approach for these students. While the components needed to establish a vocabulary instructional framework were not directly investigated, results from the study may suggest its positive influence on outcomes (see Figure 4).

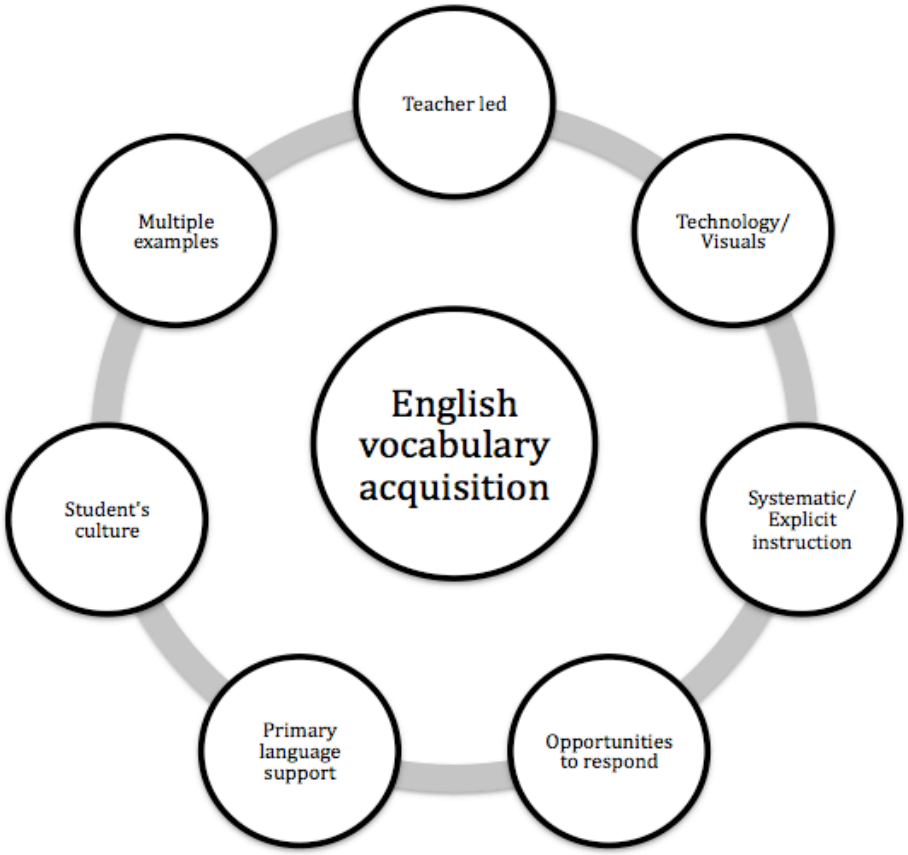

Figure 4. Framework for teaching English vocabulary to English language learners with moderate ID.

Second, the results of this study are consistent with findings in the literature that support the use of shared stories as a method to teach vocabulary to English language learners (e.g., Silverman, 2007ab, Silverman & Hines, 2009; Ulanoff & Pucci, 2009). In addition, the results are also consistent with literature that supports the use of shared stories as a way to teach vocabulary to students with disabilities (Coyne et al., 2004; Justice, Meier et al., 2005; Soto & Dukhovny, 2008; Spooner et al., 2009). This study contributes to the literature as the specific focus was on expressive oral vocabulary for English language learners with moderate ID, building off of the work of Rivera et al. (2010). While the results of the study support the use of shared stories to teach vocabulary words, it is important to consider that most of the studies referenced provide

varying formats for the shared story experience. Perhaps the most common form of a shared story throughout the literature is dialogic reading (e.g., Arnold, Lonigan, Whitehurst, & Epstein, 1994). The premise of the shared story in the reviewed literature is the same; an interventionist (typically an adult) reads a story aloud to a student or a group of students and a discussion and interaction between reader, listener, and text takes place. The interventions created for this study incorporated these components but did not provide the shared story in the traditional sense (i.e., physical books). In contrast to the literature on shared story interventions, shared stories for this intervention focused on the construction of digital books that provided a multimedia experience (e.g., slides, transitions, sound effects, laptop presentation). According to the NRP (2000) vocabulary instruction should be multifaceted, instruction should seek to engage students, and instruction should incorporate the use of technology. The MSS integrates these components and allows for a versatile presentation of vocabulary instruction.

Next, the current study provides insight on language of instruction for English language learners with moderate ID. According to the literature on language of instruction for culturally and linguistically diverse students (August & Hakuta, 1997; Cummins, 2000; Garcia & C. Baker, 1995; Slavin & Cheung, 2005) there has been differing opinions on how these students should be provided academic instruction (i.e., English, native language); however, the mentioned literature above has primarily favored the incorporation of primary language instruction (e.g., bilingual instruction). As for Hispanic English language learners with moderate ID, suggestions from the literature are mixed. The results from the current study provide mixed outcomes compared to Rohena et al. (2002) and Rivera et al. (2010). Rohena et al. found no difference in language of

instruction when teaching sight words to three Hispanic middle school English language learners with a moderate ID. The fourth student, in the study, favored Spanish instruction over English instruction. In contrast, Rivera et al. found that two Hispanic elementary English language learners favored Spanish instruction, while one student favored neither language making equal gains in vocabulary acquisition. Results from this study found that Juan benefited most from English instruction while Myra benefited most from Spanish instruction. Conflicting results from previous studies may or may not have to do with language of instruction but the type of instructional pedagogy provided. For example, all three studies provide mixed outcomes for language of instruction but each study had varying interventions. Rohena et al. (2002) used CTD; Rivera et al. (2010) used explicit instruction, more specifically model-lead-test; and the current study used a MSS with a CTD procedure. As a direct result it is difficult to adequately compare the outcomes of these studies solely based on language of instruction; however, what can be inferred is that primary language of instruction should be provided to students based on individual needs. Even though each study varied in their approaches to teach vocabulary, there was a minimum of one student that excelled in acquiring English vocabulary when instruction was provided in their native language (i.e., Spanish). This provides some evidence that language of instruction for English language learners with moderate ID is a critical element in their overall literacy experience.

Fourth, this study extends the research on the use of CTD as a way to teach vocabulary (e.g., Browder et al., 2009). Additionally, in supporting the work of Rohena et al. (2002), this study found that the time delay instructional procedure was effective for teaching English vocabulary to English language learners with moderate ID. The study

also supports the work of Mechling et al. (2007) and Mechling et al. (2008) in the effectiveness of CTD when used in combination with computer technology. It is important to note that while a 4-second CTD was explicitly used to teach vocabulary to students, the CTD procedure was a part of a larger instructional package (i.e., MSS). A 4-second CTD was used to systematically teach English vocabulary to all participants within the MSS; however, the shared story experience adds to the learning of words by incorporating additional information about the vocabulary (e.g., definitions, words used in a variety of contexts). At any point during the story students were able to stop and discuss words they were unfamiliar with. For example, during an English MSS session Juan learned the word *Farm*. A sound effect consisting of cows and chickens, embedded in the slide, sounded off leading to discussion, led by Juan, about various animals that live on farms. This discussion and others that occurred during the MSS provided additional opportunities for learning target vocabulary, possibly leading to better outcomes during probe sessions.

Finally, the use of technology was a pivotal piece of the intervention. During the past decade there has been escalating advancements in technology used within special and general education classrooms (e.g., laptops, computer tablets, digital books, SMART Boards, Microsoft© PowerPoint™). This study supports the use of MSS (i.e., digital story books) as a platform to engage and instruct students with ID. More specifically, it supports the work of Mechling et al. (2007), Mechling et al. (2008) and Rivera et al. (2010), which provided positive results in using Microsoft© PowerPoint™ (2008, 2011), as a tool for teaching vocabulary to students with moderate ID. The uses of PowerPoint™ in the studies reviewed were beneficial in several ways. First, they were interactive,

engaging students and making them active participants in their learning. Second, while not investigated in this study, the use of an MSS coupled with technology may lend itself to the possibility of group instruction due to increased access to materials (e.g., SMART Board). Finally, using MSS could be just as effective as traditional forms of vocabulary instruction (i.e., flashcards).

Research Question 3: What are the comparative effects of each shared story intervention on English vocabulary generalization outcomes?

In determining the extent students were able to provide trained responses to untaught examples, a generalization pre and posttest was administered for all students. Results from the current study found that Juan was only able to generalize 13% of words from the English intervention and 7% of words from the Spanish intervention. Generalization results for Myra were contradictory to Juan's. Myra was able to generalize 53% of words presented from the English intervention and 73% of words from the Spanish intervention. The generalization outcomes from this study were similar to Rohena et al. (2002) and Rivera et al. (2010), in that one student (i.e., Myra) performed well on the generalization posttest of vocabulary words presented during Spanish instruction.

Similar to generalization results from Rivera et al. (2010), Juan on the other hand, did not perform well on the generalization posttest on vocabulary words from either intervention. The data show that Juan learned more vocabulary during the English MSS but was unable to make substantial gains during generalization. The differences between his English and Spanish generalization posttest scores were minimal.

In an attempt to counteract the possibility of students not performing well on generalization measures the interventionist attempted to teach responses to various untrained examples (i.e., photos) during the MSS. During the CTD rounds the same photographs were used to train responses; however, there were various examples of target vocabulary photos embedded within the story. For example during a reading, multiple pictures of the target word *Raincoat* were embedded in a story. When the interventionist would read the sentence containing the word *Raincoat* he would point to the pictures of *Raincoat* in the story. Despite these measures Juan struggled with the generalization posttest. During intervention Juan did make strides in vocabulary acquisition in the English MSS and Spanish MSS but his results were not as robust as Myra's in either intervention. The differences in these generalization outcomes could be due to the severity of Juan's ID. Both students fell in the moderate ID range but Juan's IQ score placed him in the lower end of the spectrum. During instruction, anecdotal records show that Juan needed more error corrections than Myra. Perhaps, Juan would have performed better on generalization outcomes had a general case strategy (Cooper et al., 2007), "…a systematic method for selecting teaching examples that represent the full range of stimulus variations and response requirement in the generalization setting" (p. 628), been employed. For example, if the vocabulary word boot was being taught to Juan the interventionist could have taken photographs of a pair of Juan's boots, boots that other children in school wore, and boots that may be found within shopping stores within his community. These photographs could have been embedded within the intervention to enable Juan to perform better in generalization. Additionally, a benefit of general case strategy is that one can incorporate non-examples to train students when to and when not

to apply a newly learned response (Horner, Eberhard, & Sheehan, 1986). Future research should emphasize ways to provide intensive generalization training to increase positive student vocabulary outcomes.

Research Question 4: What are the comparative effects of each shared story intervention on the maintenance of English vocabulary words over time?

Response maintenance "refers to the extent to which a learner continues to perform the target behavior after a portion or all of the intervention responsible for the behavior's initial appearance in the learner's repertoire has been terminated" (Cooper et al., 2007, p. 615-617). In this study response maintenance was collected for five consecutive weeks after instruction had ended. In contrast to previous work for English language learners with moderate ID (i.e., Rivera et al., 2010; Rohena et al., 2002; Spooner et al., 2009) this study was the first to include maintenance data. Results found minimal differences in words maintained over time as a direct result of the English and Spanish MSS. For Juan, English MSS (M = 3.2) was more effective and possibly resulted in his ability to maintain more vocabulary from the English MSS condition over five weeks compared to the Spanish MSS (M = 1.8). Where as Myra, Spanish MSS (M = 11.2) was more effective and possibly resulted in her ability to maintain more vocabulary from the Spanish MSS condition over five weeks compared to the English MSS (M = 10.2). During the maintenance phase students were presented with the original probe used during the intervention. Students were given 4-seconds to provide the correct answer. Reinforcement was not provided during this phase.

Perhaps maintenance outcomes would have been better for students if a mastery criterion had been set during instruction. For purposes of this study the main dependent

variable was the comparative effects of language of instruction on students' ability to acquire vocabulary. As an added measure the interventionist sought to determine how many of these words, despite a lack of mastery criterion, students would be able to maintain over time. Research needs to consider ways to ensure response maintenance. An important goal of instruction is that students are able to use what they have learned at a later time and have the ability to generalize responses to similar stimuli. According to Horner et al. (1985) "Newly acquired behaviors should become integrated elements of a student's life-style. They should be performed on a regular basis and produce the benefits that typically accrue from functional behaviors" (p. 174-175). Researchers and practitioners need to investigate productive ways to establish maintenance of skills (i.e., vocabulary) over long periods of time to ensure functional and academic success of English language learners with moderate ID.

Discussion of Social Validity Results

Research Question 5: How do teachers view the use of MSS and the use of primary language instruction as way to promote English vocabulary acquisition?

The current study assessed the social validity of both English and Spanish MSS interventions and sought to determine how teachers felt about using primary language of instruction as a way to promote English vocabulary acquisition. The purpose for assessing the social validity of an intervention according to Cooper et al. (2007) is to determine, "…how satisfied they (e.g., parents, teachers, students) are with the relevance and importance of the goals of the program, acceptability of the procedures, and the value of the behavior change outcomes achieved" (p. 238). Social validity questionnaires were provided to the lead teacher and paraprofessional after the intervention was completed.

Prior to administering the social validity questionnaires the interventionist discussed, in detail, the purpose of the study, the interventions, and student outcomes.

Teachers' perception of the effect of the intervention. Overall, teachers felt that the MSS intervention was an effective way to teach vocabulary to English language learners with moderate ID. According to the lead teacher, "…the strength of this intervention is its multisensory approach. It incorporates visuals, sounds, and pictures when introducing new vocabulary words." The lead teacher felt that the intervention increased her student's knowledge of words and their meanings. She also felt that the instruction was beneficial due to its one on one approach and would be most beneficial in increasing oral language if provided for the entire school year. According to the paraprofessional, the shared stories would also benefit other students with ID and recommended that it be incorporated throughout daily literacy lessons. Both the teacher and paraprofessional felt that the intervention would be easy to use and could be easily incorporated in the daily instruction of all their students. The social validity findings are similar to that of Rivera et al. (2010), which found that teachers felt that computer based instruction was practical and an easy way to instruct English language learners with moderate ID.

Teachers' perception of using primary language support during instruction. Teachers overall, felt that primary language support should be provided to English language learners with moderate ID. They also felt that English only instruction should not be the only language used to facilitate the learning of English vocabulary for these students. These social validity results are similar to Spooner et al. (2009) and Rivera et al.

(2010), which indicated that teachers felt that English language learners with moderate ID should be provided with primary language support.

While teachers in the current study indicated that they felt the intervention was effective, easy to use, and cost effective they also expressed many frustrations unrelated to the intervention. For example, teachers indicated their desire for curricula that took into account and incorporated the primary language of their students. They also expressed concern over the gap that exists between English as a second language (ESL) teachers and special educators when providing instruction to culturally and linguistically diverse students with moderate to severe ID. Teachers expressed that they did not know how to effectively collaborate with ESL teachers. These notes are important and reflect the concerns of Mueller et al. (2006). The number of English language learners with moderate to severe ID is increasing across the U.S. and teachers are not adequately prepared to meet the needs of such diverse populations. This increases the need of researchers and practitioners to determine best and evidenced based practices to teach literacy and other academic skills to these students.

Limitations and Recommendations for Future Research

This study has several limitations and recommendations for future research. First, a limiting factor of the study is its ability to generalize results to larger populations of English language learners with moderate ID. The current study evaluated the effects of the intervention on two students. Future research needs to evaluate the effects of similar interventions on larger populations of Hispanic (e.g., Cubans, Mexicans, Puerto Ricans) English language learners with moderate to severe ID. In addition, future research should also consider investigating the effects of similar interventions in other geographic

locations and on other culturally and linguistically diverse students (e.g., Hmong, Chinese). While the main focus of this study was determining the most appropriate language of instruction when teaching English vocabulary to English language learners with moderate ID, it also focused on determining the use of a MSS with a CTD procedure as a way to teach English vocabulary. According to Horner et al. (2005) for a practice (e.g., MSS with a CTD procedure) to be considered evidenced based it must meet certain rigorous experimental criteria. For example, a practice must have a minimum of five single-subject studies (also meeting criteria), they must be peer-reviewed, the studies must be conducted in three different geographic locations by three different researchers, and they must have a minimum total of 20 participants. Research on the use of computer based instruction and shared stories for students with ID is emerging but future research needs to be conduct additional scientific investigations to determine the effects of MSS with a CTD procedure on English vocabulary acquisition for similar students.

A second limitation of this study was the lack of generalization training that students received. The use of a pretest and posttest generalization measure was effective in providing immediate data on students' ability to generalize vocabulary taught but extensive steps should have been taken during interventions to ensure students had the ability to generalize responses to an array of photographs or real life objects (i.e., training sufficient examples; Stokes & Baer, 1977). More specifically, providing a general case strategy, a model based from Direct Instruction principles, (Becker, Engelmann, & Thomas, 1975; O'Neill, 1990) may have been a better solution for ensuring that students would be able to generalize responses to a variety of objects. Third, setting/situational generalization (Cooper et al., 2007) was limited. All instruction took place in the

classroom and while pictures presented to students during the generalization measure were different from those presented during the intervention, the setting and the situation in which the vocabulary were presented did not significantly differ from the intervention (e.g., vocabulary were presented on a laptop in the same location within the classroom). Future research should consider various generalization strategies and providing extensive generalization instruction when teaching oral vocabulary to this population. Granting English language learners these opportunities will help provide some certainty that students will not be under strict stimulus control and that they will have the ability to generalize skills in multiple settings.

A fourth limitation of this study was the lack of a mastery criterion for students during instruction. The primary objective of this study was to determine the comparative effects of two linguistic forms of instruction (English vs. Spanish), using MSS with a CTD, on the rate of acquisition of English vocabulary words; therefore, emphasis was not placed on mastery of words but rather the rate of words students could learn within the 2-week intervention. Due to the research questions and design of the study, a lack of mastery criteria may have impacted generalization and maintenance data for students. It is possible if a mastery criterion had been set for students they may have performed better on generalization and more specifically maintenance of words. For example, three out of four students in Rohena et al. (2002) who met mastery of words, performed better on generalization measures during and after instruction. In this study there were a total of 30 vocabulary words taught (15 English MSS, 15 Spanish MSS), five weeks after the intervention Juan was able to maintain approximately 16% of words. Myra, performed better, but was only able to retain approximately 70% of words. Future research should

set a criterion level of mastery when teaching new vocabulary to English language learners with moderate ID.

A fifth limitation of the current study was the possible influence that the interventionist may have had on student outcomes. The interventionist was of Hispanic decent (i.e., similar to the participants) and qualitative research has suggested that students often feel at ease with teachers of similar ethnic and cultural backgrounds. For example, a qualitative study by Monzó and Rueda (2001) examined the classroom interactions of Hispanic teachers and paraprofessionals with Hispanic students. The researchers found that teachers and paraprofessionals interacted with students in ways the resembled "community based interactions." Additionally, they found that students were more comfortable and more likely to interact with these teachers. Future research should consider training teachers of different cultural and ethnic backgrounds to use a student's primary language and investigate its effects on teaching English vocabulary to similar populations. Future research should also consider conducting ethnographic case studies to further investigate shared or contrasting characteristics between culturally and linguistically diverse students with moderate ID and teachers (i.e., who are culturally and ethnically different from students) to determine potential qualitative data that may contribute to the successful instruction of literacy for this specific population.

Finally, a sixth limitation of the current study was that teacher led instruction was not a part of the intervention. The interventionist, who maintained high scores of procedural fidelity, conducted the intervention. This is consistent with Rivera et al. (2010) and Rohena et al. (2002) where an instructor other than the special educator conducted the intervention. As mentioned earlier, future research should train special

educators to use similar interventions that may involve a student's primary language. Then research should examine how these interventions affect English language learners with moderate ID when a lead teacher, of a different cultural background, provides the instruction. Determining whether or not teachers can apply these strategies in the classroom with high fidelity will be a significant contribution to the field that will also provide critical feedback as to what is needed to provide effective instruction for English language learners with moderate to severe ID.

Implications for Practice

There are several implications for practice based on the results of this study. A visual analysis of the graphs (see Figures 1 & 2) demonstrates a clear change from baseline to intervention indicating the effectiveness of the interventions on English oral vocabulary acquisition for English language learners with moderate ID. This suggests that, depending on individual student needs; primary language, shared stories, technology, and systematic instruction (i.e., CTD) can be fused together to provide effective vocabulary instruction. One of the benefits of using shared stories is that they can be manipulated to meet the needs of individual students. With shared stories teachers are able to use existing literature or create their own books, as was done for the intervention, to create thematic stories that can be formatted to teach a variety of vocabulary.

Second, embedding the CTD procedure requires that teachers understand systematic instruction and basic principles of applied behavior analysis. Research has shown that systematic instruction has been beneficial for teaching a variety of skills in various content areas for students with moderate to severe ID (Browder et al., 2009;

Browder, Spooner, et al., 2008; Schuster et al., 1998; Spooner, Knight, Browder, B. Jimenez et al., in press; Spooner et al., 2010; Spooner et al., 2009; Wolery et al., 1992). Practitioners should develop skills in implementing procedures such as CTD when providing instruction to English language learners with moderate ID and know that these procedures can be used to teach several functional and academic skills.

Third, for practitioners to be successful teachers they need to become familiar with using and incorporating computer technology within the classroom. Many special educators across the U.S. have access to personal computers in their classrooms. Often times these computers come prepackaged with computer applications such as Microsoft© PowerPoint™ (2008, 2011). Teachers should take advantage of such applications and use them as instructional tools for students. PowerPoint™ can be used to create shared stories or can be used to create digital flash cards to teach vocabulary. Teachers can manipulate fonts and find pictures they feel accurately depict certain objects right from the Internet. By using personal computers teachers can save and edit these PowerPoint™ files any time they need, offering them the flexibility of providing individualized instruction that is cost effective (Wood et al., 2007). Fourth, as with Mechling et al. (2007) and Mechling et al. (2008) teachers can use SMART Board technology to project PowerPoint™ slides during instruction. By integrating PowerPoint™ and SMART Board technology teachers can use MSS or digital flash cards and provide group instruction to students.

Fifth, the findings of this study offer a new direction for inclusive practices in ESL classrooms. By incorporating MSS, if ESL teachers have access to SMART Board technology, they can easily provide group instruction (e.g., Mechling et al., 2007; Mechling et al., 2008) in inclusive settings that would be effective for English language

learners with and without disabilities. By using new technologies within the classrooms, collaborating with special educators, and infusing Universal Design for Learning (UDL) principles ESL teachers may be able to effectively extend their instruction to all students in their classrooms. UDL is an approach for teaching that includes multiple means of representation, expression, and engagement (Center for Applied Center Technology, 2011). By using SMART Board technology with PowerPoint™ ESL teachers may be able to provide and support students with disabilities while helping to teach skills in a second language.

Finally, the results of this study, while positive, should be carefully analyzed. This is the first study of its kind to investigate language of instruction with the use of MSS and a CTD procedure. The literature reflects that shared stories is still an emerging practice; CTD has evidence base; and the use of technological advancements such as PowerPoint™, portable computers, and SMART Board technology have potential to reshape instruction in special education classrooms and for a variety of students. Practitioners should examine the results of this study carefully and continue to make individualized decisions (e.g., language of instruction) for English language learners with moderate ID based on student data, the IEP team, formal and informal assessments, and parental input to provide appropriate instruction for these students. Future research is warranted and needed to establish an evidence base for linguistic variations when using MSS with a CTD procedure to teach oral vocabulary to Hispanic English language learners with moderate ID.

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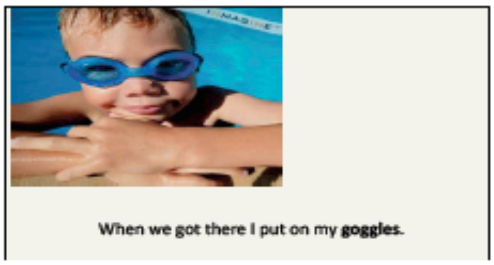
APPENDIX A: INSTRUCTIONAL SLIDES EXAMPLES




I ran as fast as I could into the **ocean** for a swim.

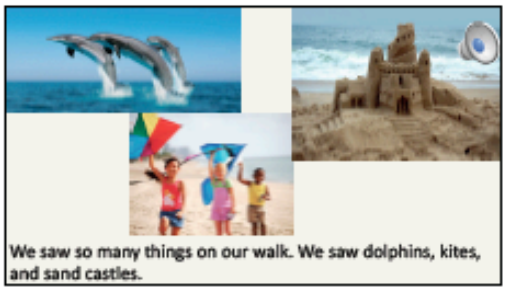

Ocean

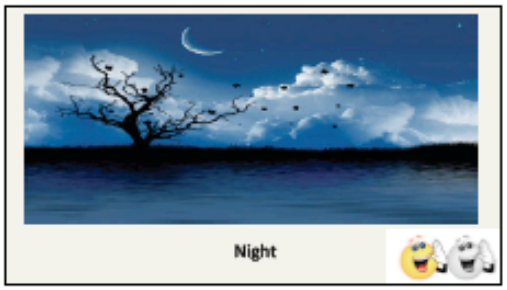

After I finished swimming I laid on the **sand** to warm up.

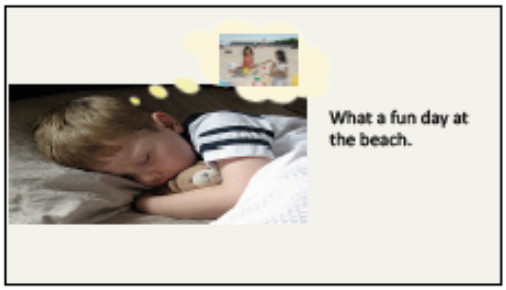

Sand


After resting for a little while I put on my **sandals** and took a walk with my family.


sandals





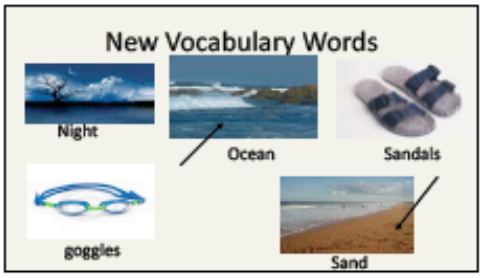


- I will point to the picture
- You will say the name of the picture
- If you don't know the word don't guess, if you need help let me know


Night


Goggles

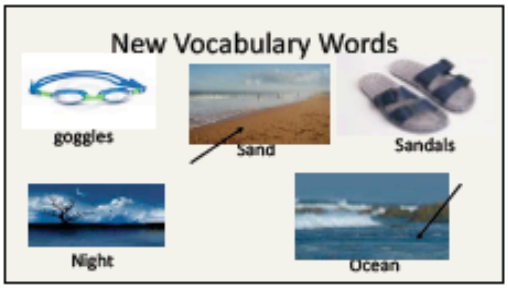

sandals


New Vocabulary Words
Night
Ocean
Sandals
goggles
Sand

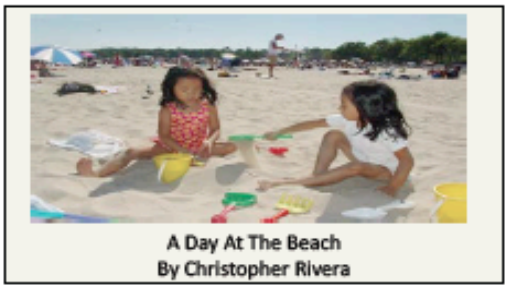

New Vocabulary Words
Night
Ocean
goggles
Sandals
Sand


New Vocabulary Words
goggles
Ocean
Night
Sand
Sandals

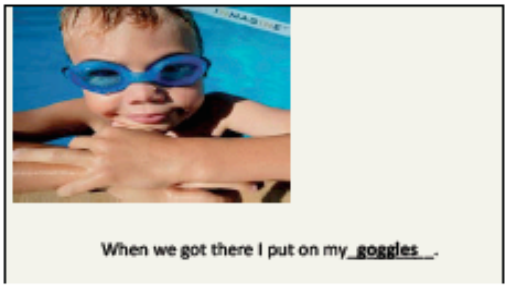

New Vocabulary Words
Night
Sandals
goggles
Ocean
Sand


New Vocabulary Words
goggles
Sand
Sandals
Night
Ocean

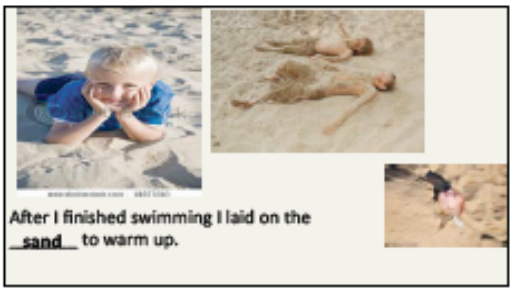

Sand


A Day At The Beach
By Christopher Rivera


On Saturday my family is going to the beach.


When we got there I put on my goggles .

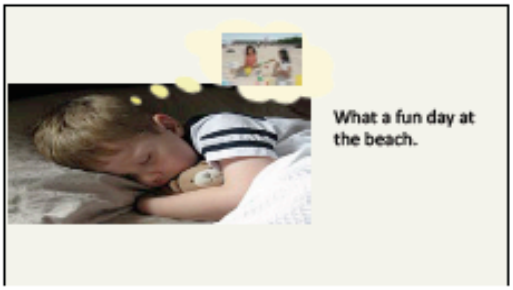

I ran as fast as I could into the
ocean for a swim.


After I finished swimming I laid on the
__sand__ to warm up.


After resting for a little while I put on my __sandals_
and took a walk with my family.


We saw so many things on our walk. We saw dolphins, kites,
and sand castles.


The sun was setting and it before I knew it, the moon
was up and it was___night__ time.


What a fun day at
the beach.

APPENDIX B: DATA COLLECTION FORM FOR BASELINE, INTERVENTION, GENERALIZATION, AND MAINTENANCE

Student: _____

Taken By: _____ IRR:_____ Score:_____

Word	Date:									
English										
Summer		+	-	+	-	+	-	+	-	+	-
Crosswalk		+	-	+	-	+	-	+	-	+	-
Spring		+	-	+	-	+	-	+	-	+	-
Autumn		+	-	+	-	+	-	+	-	+	-
Bush		+	-	+	-	+	-	+	-	+	-
Pepper		+	-	+	-	+	-	+	-	+	-
Roots		+	-	+	-	+	-	+	-	+	-
Tomato		+	-	+	-	+	-	+	-	+	-
Seeds		+	-	+	-	+	-	+	-	+	-
Soil		+	-	+	-	+	-	+	-	+	-
Lightning		+	-	+	-	+	-	+	-	+	-
Danger		+	-	+	-	+	-	+	-	+	-
Smoke		+	-	+	-	+	-	+	-	+	-
Fog		+	-	+	-	+	-	+	-	+	-
Day		+	-	+	-	+	-	+	-	+	-
	Score									
Spanish										

Sweater		+	-	+	-	+	-	+	-	+	-
Clothing Store		+	-	+	-	+	-	+	-	+	-
Rain coat		+	-	+	-	+	-	+	-	+	-
Boots		+	-	+	-	+	-	+	-	+	-
City		+	-	+	-	+	-	+	-	+	-
Grocery store		+	-	+	-	+	-	+	-	+	-
Bakery		+	-	+	-	+	-	+	-	+	-
Soap		+	-	+	-	+	-	+	-	+	-
Beans		+	-	+	-	+	-	+	-	+	-
Peach		+	-	+	-	+	-	+	-	+	-
Ocean		+	-	+	-	+	-	+	-	+	-
Sandals		+	-	+	-	+	-	+	-	+	-
Night		+	-	+	-	+	-	+	-	+	-
Goggles		+	-	+	-	+	-	+	-	+	-
Sand		+	-	+	-	+	-	+	-	+	-
	Score										

APPENDIX C: MULTIMEDIA SHARED STORY PROCEDURAL CHECKLIST

Student 1 2 (English Shared Story 1 2 3) (Spanish Shared Story 1 2 3)

Taken By: _____ Total: _____ IRR:_____ % Fidelity:_____

____1. Asks student to predict what the story is going to be about.

____2. Pre-teach. Introduce "target vocabulary words" that will appear in the story (e.g., "Man, chicken, and cow are our special words in our story today. Make sure you look out for the special words as we read our story.").

____3. Reads the story stopping at designated target words to talk about the target vocabulary words. (e.g., Here is our special word).

____4. Performs two 0-second delay for target vocabulary (e.g., I'm going to point to a word say it with me…)

____5. Repeats 0-second delay for students unable to respond correctly, if needed.

____6. Performs one round of 4-second constant time delay designated instructional slides (i.e., 4 seconds) for target vocabulary (e.g., "What is this?"…).

____7. Follows error procedures, if needed.

___If incorrect repeat words using two 0-second delay

___ Provides additional 4-second constant time delay round

___ If incorrect provides correct answer and moves on.

____8. Provides second round of constant time delay.

___ If incorrect provides correct answer

___ Two zero second delay rounds are administered

___9. Follows the same steps for all target vocabulary words.

___10. Story is reread and student is given a 4-second delay for CLOZE activity.

___11. Follows error procedures, if needed.

___ Provides verbal prompt (Point to picture and asks, “What’s this?”)

___ Provides correct verbal response and proceeds with the activity

___12. At the end of the story the interventionist rechecks if student prediction was correct and allows student to talk about the story if they choose so.

APPENDIX D: SOCIAL VALIDITY QUESTIONNAIRE

Directions: Please read the following statements and circle the response you feel closely describes your opinion. Please write in your opinion for question 9.					
Statements	Responses				
1. Teaching English vocabulary is an important skill for Latino English language learners with an intellectual disability.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2. The adaptive books used for this study were appropriate for my student.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3. I believe that my student should be provided with primary language support (i.e., Spanish) to facilitate the learning of English vocabulary.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4. I believe that my student should be provided with English only language support to facilitate the learning of English vocabulary.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5. The materials used for this study can be easily incorporated within the school day to teach a vocabulary lesson.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
6. I noticed improvements in oral expressive vocabulary within the classroom after the interventions.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7. I noticed improvements in oral expressive vocabulary in other activities after the interventions.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. I would like to use multimedia shared stories in future vocabulary instruction.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. What obstacles or barriers do you face as an educator when trying to teach your students vocabulary? How can this intervention help? How does it not help? Please explain your answer.

_____

_____

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