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Dialogic Reading: Language and Preliteracy Outcomes for Young Children with Disabilities

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This dissertation, DIALOGIC READING: LANGUAGE AND PRELITERACY OUTCOMES FOR YOUNG CHILDREN WITH DISABILITIES, by JACQUELINE A TOWSON, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree, Doctor of Philosophy, in the College of Education and Human Development, Georgia State University.

The Dissertation Advisory Committee and the student's Department Chairperson, as representatives of the faculty, certify that this dissertation has met all standards of excellence and scholarship as determined by the faculty.

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DIALOGIC READING: LANGUAGE AND PRELITERACY OUTCOMES
FOR YOUNG CHILDREN WITH DISABILITIES

by

JACQUELINE TOWSON

Under the Direction of Peggy A. Gallagher, Ph.D.

ABSTRACT

Dialogic reading is an evidence-based practice for preschool children who are typically

developing or at-risk (WWC, 2007). However, there is limited research to evaluate if dialogic

reading has similar positive effects on the language and preliteracy skills of preschool children

with disabilities (WWC, 2010). This quasi-experimental study examined the effects of dialogic

reading, with the incorporation of pause time, on the language and preliteracy skills of 42

preschool children with disabilities within 5 inclusive and 7 self-contained preschool classrooms.

Following random assignment of students at the level of the classrooms, participants were

equally distributed into an intervention (*n*=21) and a comparison group (*n*=21). The intervention

consisted of dialogic reading, with the incorporation of pause time, based on the *Read Together,*

Talk Together (RTTT; Pearson Early Learning, 2006) program kit. The targeted outcomes were

receptive language skills, expressive language skills, and preliteracy skills. Children received

either dialogic reading or typical storybook reading for 10 to 15 minutes per day, three days per week, for six weeks (i.e., 18 sessions in total) in small groups. The *Peabody Picture Vocabulary Test-4th Edition* (PPVT-4; Dunn & Dunn, 2007), *Expressive One-Word Picture Vocabulary Test-4th Edition* (EOWPVT-4; Martin & Brownell, 2011), *Get Ready to Read!-Revised* (GRTR-R; Whitehurst & Lonigan, 2010), and the 'Which One Doesn't Belong' and Picture Naming subtests of the Individual Growth and Development Indicators of Early Literacy (IGDIs-EL; McConnell, Bradfield, Wackerle-Hollman, & Rodriquez, 2012) were used as pre and posttest assessments. A researcher developed near transfer test of receptive and expressive vocabulary words was also administered pre and post intervention to determine if words specifically targeted during the intervention were learned. These standardized and researcher developed measures were analyzed with one-way ANCOVAs, using pretest scores and age as covariates to determine within and between group differences. The Johnson-Neyman procedure was utilized as necessary when violations of heterogeneity of slopes occurred. Following the intervention period, children in the intervention group scored significantly higher on the receptive and expressive near transfer vocabulary assessments. This occurred both for words that were specifically targeted during dialogic reading, as well as additional vocabulary words in the storybook.

INDEX WORDS: Dialogic Reading, Shared Interactive Reading, Preschool, Disabilities

DIALOGIC READING: LANGUAGE AND PRELITERACY OUTCOMES
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STATEMENT OF THE PROBLEM

Introduction

Communication skills in toddlers and preschoolers account for a disproportionate amount of variance in their later academic, social, and work skills (Kaiser, Hancock, Cai, Foster, & Hester, 2000; Kaiser, Cai, Hancock, & Foster, 2002; Warren & Yoder, 1996). Preschool children with disabilities often have significant deficits in their communication skills, including weaknesses in receptive and expressive vocabulary skills and overall communication and oral language deficits (Shevell et al., 2003). These weaknesses can lead to persistent deficits in reading, writing, and preliteracy skills (Marvin, 1994; NICHD, 2005). Researchers have found that providing early communication and language interventions to young children with disabilities can be effective, particularly when the interventions occur early in life, have a strong empirical base, and take place in natural and inclusive settings (Hemmeter & Kaiser, 1994; Odom & Wolery, 2003; Warren & Yoder, 1996). Since communication skills in general, and engagement with print and language specifically, are critical for children with disabilities, it is important to provide interventions to teachers and parents that are both effective and occur naturally within the daily routine (Carlson, Bitterman, & Jenkins, 2012; Koppenhaver, Hendrix, & Williams, 2007; Marvin, 1994; Warren & Yoder, 1996). Interventions that center around shared book reading have been found to positively effect the communication and language skills in children with both typical development and those with disabilities (Mol, Bus, & de Jong, 2009; WWC, 2015).

Significance of the Problem

Approximately 5% to 10% of children age 5 years and under experience developmental delays, with 1% to 3% with global or significant developmental delay (Shevell et al., 2003). This equates to approximately 40,000 to 120,000 of the 4 million annual births in the United States and Canada. Children with global or significant developmental delays are defined by performance on a standardized norm-referenced test more than two standard deviations below the mean in one domain (i.e., cognition, speech-language/communication, gross/fine motor, activities of daily living, and social/personal) or one and a half standard deviations below the mean in two or more domains (Shevell et al., 2003). The etiology of a significant developmental delay can come from several sources, such as Down Syndrome, Autism Spectrum Disorder (ASD), Cerebral Palsy, or early environmental deprivation, and is usually used for children less than 5 years of age (Shevell et al., 2003).

It is common for children with significant developmental delays to have communication and language deficits. In particular, weaknesses are often noted in the area of expressive language skills, specifically vocabulary and oral language skills. There is evidence that early intervention programs can improve outcomes for children with expressive language delays (Callaghan & Madelaine, 2012; Shevell et al., 2003; Warren & Yoder, 1996). However, possibly due to the fact that early intervention services for preschoolers with disabilities did not become mandated until 1986, there is a lack of empirical evidence involving research based techniques for this population (Gallagher, Steed, & Green, 2014; Horm, Hyson, & Winton, 2013; Odom & Wolery, 2003).

Warren and Yoder (1996) provided three basic premises which have guided the early communication and language intervention strategies developed for preschoolers: (a) a child's

eventual ability to effectively communicate will directly relate to success in school, work and social relationships; (b) early intervention is related to better outcomes; and (c) the quality and quantity of input is critical to a child's development of communication and language. With these guiding principles in mind, the researchers developed milieu teaching. Milieu teaching incorporates shifting the lead to the child, teaching language embedded in developmentally appropriate activities such as book reading, scaffolding language during activities, and using questioning and modeling to elicit desired productions (Hemmeter & Kaiser, 1994; Warren & Yoder, 1996). Enhanced milieu teaching further expanded milieu teaching by adding components of responsive interaction, such as intentional environmental arrangement allowing for more frequent appropriate models of language and more child-centered practices (Hemmeter & Kaiser, 1994). These strategies have been effective in increasing children's spontaneous language use as well as the specifically targeted skills within an intervention context (Hemmeter & Kaiser, 1994).

Shared interactive reading interventions often encompass many of the same strategies in milieu and enhanced milieu teaching, such as child-centeredness, a naturalistic setting, elaborations of children's utterances, active responding, pause time, and evaluation of children's responses (Hemmeter & Kaiser, 1994; Senechal, 1997). Shared interactive reading has a strong research base for children who are typically developing, those at risk, and for children with disabilities (e.g., Colmar, 2011, Mol et al., 2009; Senechal, 1997). It has been used to target both language and preliteracy skills in preschool children with and without disabilities, generally effecting positive change in the specific skills targeted (e.g., Colmar, 2011; Colmar, 2013; Ezell, Justice, & Parsons, 2000; Mol et al., 2009).

Dialogic reading, a specific type of shared interactive reading, has a strong research and practical foundation in increasing the expressive vocabulary and oral language skills for children who are typically developing and those who are considered at-risk (Lonigan & Whitehurst, 1998; Mol et al., 2009; Whitehurst et al., 1988; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst et al., 1999; Zevenbergen, Whitehurst, & Zevenbergen, 2003). However, limited evidence exists for the use of dialogic reading for children with disabilities (Crain-Thorenson & Dale, 1999; Dale, Crain-Thorenson, Notari-Syverson, & Cole, 1996; Fleury, Miramontez, Hudson, & Schwartz, 2013; Hargrave & Senechal, 2000; Katims, 1994).

Dialogic reading shifts the roles of the adult and child during shared interactive reading. Unlike typical shared interactive reading, where the adult is the reader and the child the listener, in dialogic reading, the goal is for the child to become the storyteller and the adult an active listener (Lonigan & Whitehurst, 1998; Zevenbergen & Whitehurst, 2003). Dialogic reading incorporates five types of prompts implemented by adults while reading picture books with children. These have been referred to by the acronym CROWD, which represents the prompt types of Completion, Recall, Open-ended questions, Wh-questions, and Distancing. The prompting system implemented in dialogic reading is symbolized by the acronym PEER, referring to the adult Prompting the child to say something related to the book, Evaluating what the child said, Expanding on that response, and then asking the child to Repeat the expansion (Lonigan & Whitehurst, 1998; Whitehurst, Epstein et al., 1994). The PEER process allows the child to become more familiar with the shared book, as the adult facilitates the child's understanding. In turn, the adult role in reading the book decreases while the child's role increases. Dialogic reading aims to move the child beyond naming objects in the book to

analyzing the content and relating it back to the child's own experiences (Zevenbergen et al., 2003).

Further research is needed to determine the potentially positive effects dialogic reading may have on preschool children with disabilities in the preschool setting. As much of the existing research in this area has taken place in the home setting, it is of great interest to further expand the investigation of dialogic reading to the classroom setting. Dialogic reading could be a significant intervention method with this population, and one that would easily fit into most preschool classrooms where daily storybook reading is a regular occurrence. In the hopes of eventually placing an effective intervention in the hands of classroom teachers, researchers should first implement the intervention to determine the most effective strategies and techniques to ensure positive outcomes.

Research Questions

It is hypothesized that dialogic reading, when implemented in a classroom setting with young children with disabilities, will have positive effects on their receptive and expressive language and preliteracy skills. Therefore, it is hypothesized that dialogic reading may affect these skills in young children with disabilities as well.

Research Question One

Will using dialogic reading, with incorporation of pause time, promote the receptive language skills of young children with disabilities ?

Research Question Two

Will using dialogic reading, with incorporation of pause time, promote the expressive language skills of young children with disabilities?

Research Question Three

Will using dialogic reading, with incorporation of pause time, promote the preliteracy skills of young children with disabilities?

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter will present an overview of the research literature for using dialogic reading, a specific type of shared interactive reading, for young children, both preschool and early elementary aged, with disabilities. First, a framework for preliteracy skills will be discussed, specifically defining terminology of these skills. Next, the importance of early language and preliteracy skills in young children will be reviewed, with specific attention paid to the relationship between early language and preliteracy skills in preschool and their later impact on reading achievement for children who are typically developing and at-risk, and for those with disabilities. Within the importance of developing early language and preliteracy skills for young children with disabilities, a brief review on how children with disabilities acquire vocabulary skills will be incorporated, with interventions generally used to target these skills in young children with disabilities discussed. The theoretical foundations of early intervention (EI) and early childhood special education (ECSE) will be reviewed, including constructivism, socioculturalism, and behaviorism, with a specific emphasis on direct instruction.

As shared interactive reading is a widely accepted intervention to target early language and preliteracy skills in young children with and without disabilities, a review of descriptive literature in this area follows. This will include descriptive studies on how adults and children with and without disabilities typically interact in shared interactive reading when no specific guidance is provided. Specific intervention studies using shared interactive reading for children who are typically developing or at-risk is presented, with explicit information on the strategies and skills targeted, the duration and frequency of interventions, setting, training, and outcomes assessed. Next, studies that have implemented shared interactive reading for young children

with disabilities will be reviewed. Special attention will be paid to how researchers define

disability and language impairment, as well as the strategies and skills targeted, the duration and

frequency of interventions, setting, training, and outcomes assessed.

Dialogic reading, a specific type of shared interactive reading, will be defined with a

general overview of the history of development and strategies it encompasses. Following,

studies on dialogic reading for young children who are typically developing or at-risk will be

reviewed in light of the strategies and skills targeted, the duration and frequency of interventions,

setting, training, and outcomes assessed. Next, the research on dialogic reading for young

children with disabilities will be discussed, again, paying special attention to how researchers

define disability and language impairment, as well as the strategies and skills targeted, the

duration and frequency of interventions, setting, training, and outcomes assessed. Finally, the

interventions of shared interactive and dialogic reading will be compared and contrasted in light

of use for children who are typically developing and at-risk versus those for children with

disabilities.

Framework of Preliteracy Skills

Preliteracy skills, also known as early literacy skills and emergent literacy skills, are a set

of skills that contribute to the later ability of a child to read, write, and comprehend language

(Paris, 2005; Whitehurst & Lonigan, 1998). Preliteracy is an umbrella term that encompasses

the attitudes, knowledge, and skills related to conventional forms of reading and the

environments that support the development of these skills (Whitehurst & Lonigan, 1998).

Several terms make up what are considered preliteracy skills. For example, alphabet knowledge

is the identification of lower- and uppercase letters (Paris, 2005). Concepts of print can be

defined as knowledge of word boundaries, sentences, punctuation marks, and directionality of

reading (Paris, 2005). Phonics is the correlation of letters and sounds, whereas phonemic awareness is the understanding of how phonemes work together to make syllables and words (e.g., onset rime, initial consonants, segmentation, blending) (Paris, 2005). Language is defined by Whitehurst and Lonigan (1998) as "semantic, syntactic, and conceptual knowledge". Preliteracy skills can be viewed as "outside-in", the language and conceptual knowledge children possess, or as "inside-out", the skills children have in alphabet knowledge, phonological awareness, and decoding (Whitehurst & Lonigan, 1998).

The preliteracy skills that are developed during the early years, birth to age five, are clearly linked to later conventional literacy skills (Coll, 2005; Lonigan & Shanahan, 2009; Reese, Sparks, & Leyva, 2010). The early skills consistently impact later skills such as decoding, oral reading fluency, writing, spelling, and reading comprehension (Lonigan & Shanahan, 2009). According to the National Early Literacy Panel (Lonigan & Shanahan, 2009), there are nine variables that are predictors of later reading ability: alphabet knowledge, phonological awareness, rapid automatic naming of letters/digits, rapid automatic naming of objects/colors, writing or writing one's name, phonological memory, concepts about print, print knowledge, and reading readiness (a combination of alphabet knowledge, concepts of print, phonological awareness, vocabulary, and memory). When assessed in preschool or kindergarten, these skills consistently predict later literacy achievement (Coll, 2005; Lonigan & Shanahan, 2009). Oral language skills (i.e., receptive and expressive vocabulary, syntactic and semantic knowledge, and narrative discourse processes) in preschool in particular both directly and indirectly impact word recognition skills when children transition to school-age and serve as a foundation for early reading skills (Coll, 2005).

According to Paris (2005), preliteracy skills can be considered constrained and unconstrained. Constrained skills typically have a steep trajectory for mastery and have a smaller range of influence, but may be highly important to beginning readers (Paris, 2005). Alphabet knowledge, phonics, and concepts of print are considered highly constrained, as there are a discrete or finite number of skills that can be learned within each category (e.g., 26 letters of the alphabet). Unconstrained skills have a wider range of influence (e.g., the domains they influence and the length of time of that influence), encompass nearly limitless skills (e.g., learning novel words), and are more difficult to fully master. Phonemic awareness and oral reading fluency are less constrained, and vocabulary and comprehension are considered the least constrained (Paris, 2005).

Constrained skills are often divided into three categories: conceptual, developmental, and methodological (Paris, 2005). Conceptual constraints can be rated by scope (i.e., number of elements or set size), importance (i.e., centrality of the concept), and range of influence (i.e., the influence of one skills upon another) (Paris, 2005). Developmental constraints are known as unequal learning (i.e., some skills are learned more quickly than others), mastery (i.e., learned completely), universality (i.e., learned the same by all), and codependency (i.e., require prerequisite knowledge) (Paris, 2005). Finally, methodological constraints refer to the methods used to gather data about the specific skills (Paris, 2005). While, according to Paris (2005) there are nine variables that influence later reading ability, dialogic reading has been shown to influence specifically the vocabulary component of reading readiness, one of the least constrained skills. The importance of these early language and preliteracy skills for young children who are typically developing, at-risk, and those with disabilities will be discussed below.

Importance of Early Language and Preliteracy Skills for Young Children who are

Typically Developing and At-Risk

Approximately 37% of fourth grade students in the United States do not achieve basic

levels of reading achievement (Lonigan & Shanahan, 2009). Oral language skills, specifically

vocabulary, are an essential precursor to later reading achievement, particularly reading

comprehension (Callaghan & Madelaine, 2012; Dickinson & Porsche, 2011; Farkas & Beron,

2004; Morgan & Meier, 2008; NICHD, 2005; Storch & Whitehurst, 2002). The NICHD Early

Child Care Research Network (2005) reported that children's oral vocabulary skills in first grade

are second only to their decoding skills as a predictor of third grade reading comprehension

skills. Preschool children's oral language skills, in combination with their decoding skills are

important for building both preliteracy skills (e.g., phonological awareness, letter word skills)

and later reading comprehension (NICHD, 2005). Additionally, overall oral language skills in

preschool contribute to the development of preschool coding skills; these language and

preliteracy skills have a high concurrent intercorrelation (NICHD, 2005; Storch & Whitehurst,

2002). Similarly, Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg and Poe (2003)

proposed a comprehensive language approach (CLA) to later reading achievement, stating that

varied language skills (e.g., vocabulary skills) interact with literacy knowledge to develop

preliteracy and later literacy abilities.

There exists great variability in the preliteracy skills children bring from preschool upon

entry to kindergarten and first grade, with greater variance among children considered at-risk due

to low socioeconomic status or identified as English Language Learners (ELL) (Lee & Burkam,

2002; Lonigan & Shanahan, 2009; NICHD, 2005). Children who lack these abilities are at risk

both for reading disorders and lower pragmatic skills (Morgan & Meier, 2008; Whitehurst & Lonigan, 1998).

The preschool years represent the highest rate of vocabulary growth, making it a crucial period in the development of oral language skills (Farkas & Beron, 2004). On average, children acquire 2.2 words per day from age one to age eight (Biemiller & Slonim, 2001). If children present with deficits in oral vocabulary skills in preschool, they may experience significant limitations in their ability to develop preliteracy skills (Dickinson et al., 2003). By the end of second grade, one study showed a discrepancy in vocabulary of an average of 7,100 root words for children in the highest quartile as compared to only 3,000 average root words for children in the lowest quartile (Biemiller & Slonim, 2001). By fifth grade, the children in the lower quartile had still not learned the 7,100 root words of children from the highest quartile in second grade (Biemiller & Slonim, 2001). It is thus critical to support the development of language and preliteracy skills concurrently during the preschool years (Biemiller & Slonim, 2001; Dickinson et al., 2003).

Preschool teachers' language skills and modeling of vocabulary words fosters children's language development that later contributes to reading abilities in fourth grade (Dickinson & Porsche, 2011). Yet, when kindergarten teachers were observed in their natural instruction of vocabulary, it was found that there was no planned vocabulary instruction. Within vocabulary instruction that occurred, there were few repeated explanations and word selection was haphazard (Wright, 2012). The disparity was greater for children in economically disadvantaged classrooms, further increasing the inequality (Wright, 2012).

Importance of Early Language and Preliteracy Skills for Young Children with Disabilities

Children who are identified in the preschool years as having a disability are at even greater risk for later deficits in reading skills (Aram, Ekelman, & Nation, 1984; Carlson et al., 2012; Catts, Fey, Tomblin, & Zhang, 2002; Scarborough, 1990; Snowling, Bishop, & Stothard, 2000). More than 69% of children identified as having a disability in preschool, particularly a language impairment, were identified ten years later as having a learning disability which resulted in persistent deficits in language skills and academic achievement, requiring special tutoring and/or grade retention (Aram et al., 1984). Within children identified as having a disability in preschool, higher scores in expressive language and non-verbal intelligence were the strongest predictors of later academic success (Aram et al., 1984; Catts et al., 2002; Scarborough, 1990; Snowling et al., 2000). Literacy knowledge upon entry to preschool was also a significant predictor of later reading outcomes (Catts et al., 2002; Scarborough, 1990).

Disabilities in language in preschool are also linked to later negative outcomes in social competence and related to increased report of behavior problems (Aram et al., 1984; Kaiser et al., 2002; Kaiser et al., 2000). Factors that contribute to these outcomes include lack of opportunity to engage in language and preliteracy activities during the preschool years, such as book reading, library visits, and engagement with print (Carlson et al., 2012; Koppenhaver et al., 2007; Marvin, 1994; McDonnell et al., 2014). Another factor is the ability of the classroom teachers to support language and preliteracy skill development for children with disabilities (McDonnell et al., 2014). Although over 90% of Head Start teachers in inclusion classrooms reported feeling students with disabilities were ready for emergent literacy instruction, they reported lacking support from other professionals, as well as lack of training in strategies to support preliteracy skills (McDonnell et al., 2014). Therefore, more information is needed in

how children with disabilities acquire language skills, such as vocabulary skills, and how the adults in their environments support this development.

Vocabulary Acquisition in Young Children with Disabilities

Preschool children identified with disabilities in the area of communication (i.e., language impairments) have particular difficulty responding to typical learning encounters with novel vocabulary. Acquisition of novel vocabulary for children who are typically developing is highly related to their existing lexicon (Bloom, 2002; Hindman, Connor, Jewkes, & Morrison, 2008; Roskos et al., 2008). Therefore children with disabilities enter the learning experience at a disadvantage due to their limited semantic knowledge (Gray, 2004; Scarborough, 1990). When comparing vocabulary acquisition between children who are typically developing and those with disabilities, their fast mapping (e.g., ability to learn a new word within one exposure) was similar, but children with disabilities had more difficulty producing the novel words (Gray, 2003; Gray, 2004). Overall, children with normal language skills both comprehended and produced more novel words than preschool children with disabilities (Gray, 2003; Gray, 2004). Deficits in both semantics and phonology contribute to this difficulty in learning new words (Gray, 2004). Children with disabilities may require twice as many exposures to new words to comprehend them and twice as many opportunities to practice the new word to express it correctly (Gray, 2003). Context for word learning is also important, with children with language impairments performing better in classroom based interventions than in individual decontextualized therapy sessions (Wilcox, Kouri, & Caswell, 1991). However, similar to the variability in this population, there also exists significant irregularity in their ability to learn novel words (Kiernan & Gray, 1998). This difficulty with vocabulary acquisition persists and increases with the

severity of the disability (Koppenhaver et al., 2007).   Therefore it is essential to consider interventions for preschoolers with disabilities that influence vocabulary acquisition.

Vocabulary Interventions for Young Children with Disabilities

While preliteracy and language skills are a significant predictor of later reading ability, there has been more research on vocabulary learning than interventions targeting vocabulary skills, particularly in preschool children (Roskos & Burstein, 2011). However, interventions reviewed that specifically targeted vocabulary for children ages birth to nine years, an overall effect size of .88, or nearly one standard deviation gain, has been described indicating these intervention provide meaningful changes for young children with disabilities (Marulis & Neuman, 2010). Descriptions of these interventions vary dramatically, further complicating the topic (Marulis & Neuman, 2010). Interventions which are designed to provide repetition of words, coupled with explanations and multisensory activities can be helpful for children who are typically developing acquire new vocabulary (Lonigan & Shanahan, 2009; Marulis & Neuman, 2010; Roskos & Burstein, 2011; Roskos et al., 2008). For children who are at-risk or identified as having a language impairment, more explicit instruction may be required (Marulis & Neuman, 2010; Roskos & Burstein, 2011). Interventions have typically favored more positive outcomes for children in middle and upper class, with children considered poor or at-risk having less significant gains (Marulis & Neuman, 2010). Researcher implemented interventions tend to have better effects, potentially due to increased fidelity (Marulis & Neuman, 2010). Measurement is also a variable factor, with intervention assessed by researcher developed tools often more able to detect change than those using standardized assessments (Marulis & Neuman, 2010; Roskos et al., 2008).

Children who have smaller than average lexicons typically make less gains during interventions on vocabulary, where children with larger vocabularies produce more novel words following an intervention (Leung, 2008; Penno, Wilkinson, & Moore, 2002; Senechal, Thomas, & Monker, 1995). This effect is not consistently observed among intervention studies in shared interactive reading (Pollard-Durodola et al., 2011). This could be attributed to what children bring to the intervention, such as level of participation. Children who answer more questions, label, and point during shared book readings acquire more novel words than those who passively listen to the story (Senechal et al., 1995). Similar effects are noted for comprehension skills (Senechal et al., 1995).

Book reading with preschool children appears to be an ideal way to promote preliteracy skills and particularly vocabulary development (Dickinson, De Temple, Hirschler, & Smith, 1992; Gonzalez et al., 2014; Justice & Pullen, 2003; Lonigan & Shanahan, 2009; Marulis & Neuman, 2010; Reese, Sparks et al., 2010; Roskos & Burstein, 2011, Roskos et al., 2008; Scarborough & Dobrich, 1994; Senechal, Pagan, Lever, & Ouellette, 2008; Walsh & Blewitt, 2006). As children learn more through active engagement in vocabulary interventions, further investigation into shared book reading, and specifically shared interactive and dialogic reading, is warranted. These interventions allow multiple exposures to novel words as well as promotion of oral language skills. Dialogic reading provides for explicit instruction in vocabulary and oral language skills through a structured framework of reading. The following section will describe the theoretical foundations for EI and ECSE, which support the selection of dialogic reading as a potentially positive intervention for young children with disabilities.

Theoretical Foundations

Dunst and Trivette (2008) call for the use of evidence-based practices in EI and ECSE. Dialogic reading, an evidence-based practice for children who are typically developing or at-risk, is congruent with many of the theoretical bases in early childhood special education. In alignment with what Odom and Wolery (2003) refer to as a "unified theory of practice" for early intervention and early childhood special education, this study will employ multiple theoretical foundations: constructivism, socioculturalism, and direct instruction from the theory of behaviorism. According to the constructivist and sociocultural theoretical approaches to EI and ECSE, children benefit from interventions that occur in natural and inclusive settings, where the learning is embedded in a natural context and is guided by a significant other (Gindis, 1999; Odom & Wolery, 2003; Piaget, 1964; Valsiner, 2005; Vygotsky, 1978). Interventions that are designed to take into account where the child is developmentally, and where their potential development lies, are most effective (Chaiklin, 2003; Gindis, 1999; Lowenthal, 1975; Vygotsky, 1978; Wang, 2009). When intervening for children with disabilities, however, it is sometimes most effective to specifically identify skill deficits and intervene in those specific areas, consistent with a behaviorist approach (Lane, Carter, Pierson, & Glaeser, 2006). In conjunction with this approach, children with disabilities also benefit from direct instruction that is explicit in nature and from interactive instruction in which the child is an active participant in determining the rules for language through modeling by an adult (Cole & Dale, 1986).

Constructivism

The history of EI and ECSE can be directly linked back to the theoretical work of Piaget as the first researcher to question how children come to know or develop (Huitt & Hummel, 2003; Lowenthal, 1975; Odom & Wolery, 2003; Valsiner, 2005). According to Piaget (1963),

children progress through distinct stages of development, which are bound by cognitive ability and age. Piaget viewed the learning processes of children as distinctly different from adults. While the ages at which children progressed through these stages may differ, the sequence was inherent for all children (Chandler, 2009; Huitt & Hummel, 2003; Piaget, 1954; Piaget, 1963; Piaget, 1964). This thought was preceded by the belief that development was the result of a biological drive to reconcile the child's thought processes with his/her environment, also known as assimilation (Chandler, 2009; Huitt & Hummel, 2003; Piaget, 1954; Piaget, 1963; Piaget, 1964). Piaget also spoke to a child's modification of an existing cognitive "schema" to account for a new situation or experience and referred to this as accommodation (Chandler, 2009; Huitt & Hummel, 2003; Piaget, 1954; Piaget, 1963; Piaget, 1964). Piaget's theory can be directly applied to some aspects of early intervention in current times, such as evaluating child development through a stage theory to understand what may occur next in the intervention process (Lowenthal, 1975). In language acquisition, children must continually access their existing lexical knowledge and apply it to new exposures to the same or similar words. Shared interactive and dialogic reading both provide the child with multiple exposures to familiar and novel words in a naturally occurring activity.

Socioculturalism

Whereas Piaget looked solely at the child for explanation of development, Vygotsky took into account the sociocultural context in which a child was developing (Gindis, 1999; Vygotsky, 1962; Vygotsky, 1978; Vygotsky, 2004). Also different from Piaget, Vygotsky did not attempt to explain development in one single account or principle, such as assimilation or accommodation. Instead he explained development in reference to the social context, taking into account the child's developmental level (Gindis, 1999; Vygotsky, 1962; Vygotsky, 1978;

Vygotsky, 2004). This is best known as his reference to a child's "zone of proximal development" (ZPD) or taking into consideration what abilities a child brings to a learning situation, what comes "next" developmentally, and providing scaffolding of that skill to mastery from an adult (Chaiklin, 2003; Gindis, 1999; Rutland & Campbell, 1996; Vygotsky, 1962; Vygotsky, 1978; Vygotsky, 2004; Wang, 2009). Vygotsky's ZPD has greatly influenced EI and ECSE, particularly for children with disabilities, as it led to practices such as dynamic assessment (Chaiklin, 2003; Gindis, 1999; Wang, 2009).

Shared interactive and dialogic reading provide a context for the adult reader to take into consideration the current knowledge of the child and to provide prompts allowing scaffolding of skills to the next level of language, as seen in the ZPD. This allows for a strengths based perspective, which was critical in Vygotsky's theory, in that children should first be viewed from a context of what they can bring to a learning situation, rather than what deficit may be present (Gindis, 1999; Wang 2009).

Behaviorism

Direct instruction, or the explicit and systematic teaching of specific skills, has been beneficial for children with disabilities in learning language and preliteracy concepts and skills (Botts, Losardo, Tillery, & Werts, 2014; Celik & Vuran, 2014; Cole & Dale, 1986; Cole, Dale, & Mills, 1991; Justice & Kaderavek, 2004). The use of careful selection of materials, explicit step-by-step teaching, adult modeling, targeted elicitation, error correction, fading of teacher directed activities, and adequate practice is inherent to this type of instruction (Gersten, Woodward, & Darch, 1986; Justice & Kaderavek, 2004). Direct instruction involves the presentation of corrective feedback, often in a cycle of teaching, assessment, reteaching, and repeated assessment (Gersten et al., 1986; Joyce, Weil, & Calhoon, 2000; Kameenui & Simmons, 1990).

This process requires the teacher to intentionally plan how and when feedback will be provided to support the students' learning objectives and the provision of specific correction procedures (Gersten et al., 1986). Children with disabilities often require systematic, repeated, and intentionally scaffolded experiences to learn new concepts (Justice & Kaderavek, 2004). The inherent structure involved in direct instruction allows children with disabilities to effectively and efficiently learn new skills and aides in the maintenance and generalization of those skills (Botts et al., 2014). The intentional targeting of specific language and preliteracy skills as well as the systematic provision of feedback (i.e., evaluating, expanding and repeating of children's responses) in dialogic reading echoes the strategies evident in direct instruction. The adult reader is continuously providing prompts, assessing the child's response, and adjusting specific feedback to assist the child in learning the targeted skills.

Shared Interactive Reading

Descriptive Review of Shared Interactive Reading

Shared interactive reading interventions focus on engaging the child using strategies such as child-centeredness, elaborations of children's utterances, active responding, pause time, and evaluation of children's responses (Hemmeter & Kaiser, 1994). They have been used to target both language and preliteracy skills in preschool children with and without disabilities, generally effecting positive change in the specific skills targeted (e.g., Bus, Van Ijzendoorn, & Pellegrini, 1995; Colmar, 2011; Colmar, 2013; Ezell et al., 2000; Mol et al., 2009).

Shared interactive reading can be a good context for explicit instruction in vocabulary development, and language and preliteracy skills in general as it provides children with a context in order to scaffold new language skills (Bus et al., 1995; Dickinson et al., 1992; Gonzalez et al., 2014; Justice, Logan, Kaderavek, & Dynia, 2015; Justice & Pullen, 2003; Lonigan & Shanahan,

2009; Marulis & Neuman, 2010; Reese, Sparks et al., 2010; Roskos & Burstein, 2011, Roskos et al., 2008; Scarborough & Dobrich, 1994; Senechal et al., 2008; Walsh & Blewitt, 2006). Shared interactive reading interventions produce statistically significant and moderate-sized effects on children's oral language skills and print knowledge and account for unique variance in their expressive vocabulary and morphological skills (Bus, et al., 1995; Justice et al., 2015; Lonigan & Shanahan, 2009; Mol et al., 2009; Senechal et al., 2008).

Purposeful identification of target vocabulary words within storybooks and teaching these words through multiple exposures in close succession is a powerful tool for children at-risk or those identified with language impairments (Roskos & Burstein, 2011; Roskos et al., 2008; Walsh & Blewitt, 2006). Questioning children related to the specific vocabulary words has been found to promote vocabulary growth; this is true for both eliciting questions (i.e., when children are required to recall and use specific vocabulary) and non-eliciting questions (Gonzalez et al., 2014; Walsh & Blewitt, 2006). Shared interactive reading also promotes teachers' use of inferential over literal questions (Zucker, Justice, Piasta, & Kaderavek, 2010). Although gains in both receptive and expressive vocabulary are noted with these interventions, greater gains in expressive vocabulary are more common (Roskos & Burstein, 2011; Roskos et al., 2008).

Reviews of shared interactive reading with preschool children that are typically developing have discovered a focus on immediate information (e.g., labeling pictures) for three-year-olds and extension of communication, recall, and analysis more common in reading to four-year-olds (Dickinson et al., 1992). Although suggestions on the optimal way to share storybooks with preschool children vary, a preference for reading in small groups, reading with expression, encouraging interaction, relating books to the children's lives, discussing language and word meanings, listening to the children's comments and repeating them and expanding them, and

repeated reads are common recommendations (Dickinson et al., 1992; Justice, Meier, & Walpole, 2005; Justice & Pullen, 2003; Marulis & Neuman, 2010; Pellegrini, Galda, Jones, & Perlmutter, 1995; Roskos et al., 2008; Trivette, Simkus, Dunst, & Hamby, 2012). Duration or frequency of interventions did not appear to be a significant factor that impacted effect sizes, with some interventions of short duration causing significant changes in children's skills (Bus et al., 1995; Marulis & Neuman, 2010).

Interactions During Shared Interactive Reading for Young Children with and without Disabilities

Researchers have attempted to observe and describe the typical interactions between adults and children with and without disabilities during shared interactive reading, as this is a valuable context in which to address early language and preliteracy skills. Without specific training, adults tend to question children about information related directly to pictures more than concepts of print or information related to the storyline (Ezell & Justice, 1998; Rabidoux & MacDonald, 2000). During these interactions, adults act more as 'managers' and 'directors' while the children take a more passive role in the book reading experience, creating decreased opportunities for the children to verbally engage or initiate communication in the activity (Ezell & Justice, 1998; McGinty, Justice, Zucker, Gosse, & Skibbe, 2012; Pellegrini et al., 1995; Pellegrini, McGillicuddy-DeLisi, Sigel, & Brody, 1986; Rabidoux & MacDonald, 2000). The text type in which adults (i.e., parents) engage their children in reading results in different types of language interactions (Pellegrini et al., 1995; Pellegrini, Perlmutter, Galda, & Brody, 1990). Narrative texts (e.g., *The Little Red* Hen) created less parent-child interaction than expository texts (e.g., *My First Book of Words*) where parents were more inclined to question children around vocabulary (Pellegrini et al., 1990).

Adults interacting with children with disabilities are often ineffective in their use of questioning and in ways of sharing their knowledge with children during shared book reading and may require specific training in effective strategies (Ezell & Justice, 1998; McGinty et al., 2012; Rabidoux & MacDonald, 2000). However, parents of children with disabilities were observed to adjust their interactions during book reading to a less demanding and more supportive strategy than parents of children without disabilities suggesting they attempt to support their children within their zone of proximal development (Pellegrini et al., 1986). Shared book reading provides an opportunity for a shared context, promoting topic control that may assist children with disabilities in scaffolding language skills from the reader (Justice & Kaderavek, 2003; Justice & Pullen, 2003). Engaging children in interactive shared reading that encourages child participation is directly related to gains in their language and preliteracy skills (Gonzalez et al., 2014; Pellegrini et al., 1995). Specifically, the length of time adults' engaged children in questioning related to increased receptive vocabulary skills while frequency and duration of questioning related to increased expressive vocabulary skills (Gonzalez et al., 2014). Therefore it is valuable to consider using these shared interactive reading experiences to promote the language skills of young children with significant disabilities.

Shared Interactive Reading for Young Children who are Typically Developing or At-Risk

There exists a strong literature base around shared storybook reading for young children who are typically developing or considered at-risk for language and preliteracy skill development. Generally, interventions including shared interactive reading have targeted a wide range of language and preliteracy skills and tend to positively effect the skills they seek to change. There is also variety in the duration of interventions, settings in which these

interventions occur, as well as how adults are trained and what skills were affected as a result of the intervention.

   Strategies and skills targeted. Extra-textual talk (e.g., information the reader provides that goes beyond the words in the book) prior to, during, and after book reads is significantly related to increases in children's language and preliteracy skills (Gonzalez et al., 2014). While studies vary in their focus on either language or preliteracy skills, the majority of teachers and parents naturally focus their book related talk on questions regarding meaning (e.g., vocabulary) over code-related information (Hindman et al., 2008). The majority of interventions in shared book reading were implemented using a questioning strategy and centered on promotion of oral language skills, specifically expressive vocabulary (Brannon, Daukas, Coleman, Israelson, & Williams, 2013; Senechal & Cornell, 1993; Trivette et al., 2012; Wasik & Bond, 2001; Wasik, Bond, & Hindman, 2006). However, strategies such as specific commenting have been implemented and found to increase children's initiations and comments, potentially to a greater degree than questioning (Hockenberger, Goldstein, & Haas, 1999). Other studies have targeted specific vocabulary words through repeated reads and found that children are more likely to learn these targeted words than if the books were read without intentional strategies focused on the targeted words (Justice et al., 2005; Penno et al., 2002; Pollard-Durodola et al., 2011; Wasik & Bond, 2001; Wasik et al., 2006). Specifically, providing the meaning of novel words in a contextualized setting and encouraging the use of those words in new contexts facilitates vocabulary growth and generalization of newly learned words (Justice, Kaderavek, Bowles, & Grimm, 2005; Justice & Pullen, 2003). Similarly, when researchers targeted increased references to story plot (i.e., vocabulary, sequence of events, story structure) and socio-cognitive themes (i.e., mental causality, mental terms, references to child's life), parents where able to

change their reading behaviors resulting in eliciting rich dialogue between parents and children around a shared storybook (Aram, Fine, & Ziv, 2013). Retellings of stories by children, adult's use of manipulatives or concrete objects, and positive reinforcement of children's comments are other effective strategies used to promote vocabulary growth (Leung, 2008; Trivette et al., 2012; Wasik & Bond, 2001).

Shared interactive reading interventions have also focused on preliteracy skills, such as skills related to print concepts, phonological awareness, alphabet knowledge (Justice & Ezell, 2002; Justice & Pullen, 2003). Justice & Ezell (2002) found that children who participated in print focused reading sessions performed better on measures of print awareness than children receiving regular reads (e.g., with a focus on pictures).

Differential effects have also been noted based on what the child brings to the reading experience as well as the types of prompts used (Senechal, 1997; Hay & Fielding-Barnsley, 2007; Hindman et al., 2008). Specifically, questions may promote more positive effects on expressive vocabulary, while repeated readings may work to improve both receptive and expressive vocabulary simultaneously (Senechal, 1997; Senechal & Cornell, 1993). However, frequency and duration of vocabulary related questions were linked to improved expressive vocabulary (Gonzalez et al., 2014). Verbal cues in shared interactive reading have also been supplemented by concrete objects and manipulative as well as by repeated reads and pause time to further affect change on children's oral language skills and engagement with books (Aram et al., 2013; Justice & Pullen, 2003; Trivette et al, 2012; Wasik & Bond, 2001; Wasik et al., 2006). Whether teachers provide questions prior to, during or after the book reading experience also bring differential effects (Gonzalez et al., 2014). Specifically, time spent discussing the book

after a book read is significantly linked to expressive language skills, while the quantity of questions was related to receptive vocabulary skills (Gonzalez et al., 2014).

Duration and frequency. Interventions of shared interactive reading appear to vary significantly in duration and frequency of book reads; unfortunately this information was not consistently reported. Researchers have evaluated repeated book reads over as few as two days (Senechal, 1997) to as long as one school year (i.e., nine months) (Wasik et al., 2006). On average, most interventions were eight to twelve weeks in duration, with a range of three to five book readings per week (Aram et al., 2013; Brannon et al., 2013; Justice & Ezell, 2002; Pollard-Durodola et al., 2011). Single readings of a storybook between an adult and child may not be sufficient for vocabulary acquisition (Senechal & Cornell, 1993).

Setting. The strategies implemented around shared storybook reading are frequently evaluated in home settings with parent-child dyads (Aram et al., 2013; Brannon et al., 2013; Hockenberger et al., 1999; Pellegrini et al., 1995). Other studies have taken place in the preschool classroom, implemented either by researchers or by training classroom teachers (Gonzalez et al., 2014; Justice, Meier et al., 2005; Justice & Ezell, 2002; Leung, 2008; Milburn, Girolametto, Weitzman, & Greenberg, 2014; Penno et al., 2002; Pollard-Durodola et al., 2011; Wasik & Bond, 2001; Wasik et al., 2006).

Training. Training parents and teachers to implement strategies of shared interactive reading with fidelity is crucial for positive outcomes. Many studies in shared interactive reading were observational in nature (Gonzalez et al., 2014; Hindman et al., 2008; Zucker et al., 2010) or researcher implemented (Justice & Ezell, 2002; Justice, Meier et al., 2005; Senechal, 1997; Senechal & Cornell, 1993; Senechal et al., 2008; Senechal et al., 1995), while others were implemented by parents (Aram et al., 2013; Brannon et al., 2013; Hockenberger et al., 1999).

Training for parents included workshops and videos (Aram et al., 2013; Brannon et al., 2013; Hockenberger et al., 1999). Providing teachers with training through professional development (Penno et al., 2002; Pollard-Durodola et al., 2011; Wasik & Bond, 2001), or professional development combined with individual coaching sessions, resulted in significantly higher rates of strategy use and longer book-related conversations (Milburn et al., 2014; Wasik et al., 2006).

Outcomes assessed. Shared interactive reading is generally found to result in positive effects for the skills targeted. However, due to the lack of sensitivity of standardized assessments for the relatively short intervention periods, the exclusive or supplemental use of more sensitive curriculum based or researcher developed measures is often warranted (Brannon et al., 2013; Justice & Ezell, 2002; Justice, Meier et al., 2005; Leung, 2008; Milburn et al., 2014; Penno et al., 2002; Pollard-Durodola et al., 2011; Senechal, 1997; Senechal & Cornell, 1993; Senechal et al., 2008; Senechal et al., 1995; Wasik & Bond, 2001; Wasik et al., 2006). Similar to other features of shared interactive reading, outcome variables for children and adults are also inconsistent across studies. Researchers have reported positive child outcomes for such skills as extended dialogue, time engaged in reading, expressive language and vocabulary skills, receptive vocabulary skills, scientific vocabulary, preliteracy skills (e.g., words in print, print recognition, alphabet knowledge), (Aram et al., 2013; Brannon et al., 2013; Gonzalez et al., 2014; Hockenberger et al., 1999; Justice & Ezell, 2002; Justice, Meier et al., 2005; Leung, 2008; Milburn et al., 2014; Penno et al., 2002; Pollard-Durodola et al., 2011; Senechal, 1997; Senechal & Cornell, 1993; Senechal et al., 2008; Senechal et al., 1995; Trivette et al., 2012; Wasik & Bond, 2001; Wasik et al., 2006).

When assessing outcomes in adults, researchers have found that adults trained or participating in shared interactive reading have demonstrated growth in reference to book plot,

reference to socio-cognitive aspects of the book, specific commenting, open-ended questions, responsive statements and feedback, variability in words, explicit explanations of target vocabulary, and use of concrete objects to reinforce vocabulary words (Aram et al., 2013; Hockenberger et al., 1999; Milburn et al., 2014; Penno et al., 2002; Pollard-Durodola et al., 2011; Wasik & Bond, 2001; Wasik et al., 2006).

Summary. In summary, shared interactive reading is a broad term that describes an adult (e.g., parent, caregiver, teacher) and child engaging in verbal interaction around a shared storybook. Earlier studies by Senechal and colleagues investigated shared interactive reading as an intervention to positively effect children's acquisition of novel receptive and expressive vocabulary through researcher-child shared reading sessions with positive effects (Senechal, 1997; Senechal et al., 1995). This area of research has expanded to show that shared reading between parents and their children accounts for a unique portion of variance in children's expressive vocabulary and morphological knowledge (Senechal et al., 2008). Also working with parent-child dyads, researchers have found that training parents in strategies such as specific commenting can also facilitate children's language and preliteracy skills (Hockenberger et al., 1999), increase parents' referencing to a book's overall plot (Aram et al., 2013), and increase time spent reading while facilitating expressive language skills (Brannon et al., 2013).

Shared interactive reading studies have also shown benefits for children in preschool classrooms. Teacher engagement of their students around shared interactive reading promotes active participation, relating to meaningful gains in the children's language and preliteracy skills (Gonzalez et al., 2014). Specifically, shared interactive reading in classroom promotes novel word learning in elaborated words (Justice et al., 2005; Penno et al., 2002; Pollard-Durodola et al., 2011; Trivette et al., 2012; Wasik & Bond, 2001; Wasik et al., 2006), print awareness

(Justice & Ezell, 2002), and scientific vocabulary (Leung, 2008). Further, teachers can be trained in using strategies effectively to target a variety of language and preliteracy skills through shared interactive reading (Milburn et al., 2014; Pollard-Durodola et al., 2011; Wasik & Bond, 2001; Wasik et al., 2006; Zucker et al., 2010).

Shared Interactive Reading for Young Children with Disabilities

Research in using shared interactive reading for young children with a variety of disabilities is also well established. The population most commonly targeted is children with mild-moderate language impairments (Colmar, 2011; Colmar, 2013; Ezell et al., 2000; Justice, Kaderavek, et al., 2005; McGinty et al., 2012; Pile, Girolametto, Johnson, Chen, & Cleave, 2010; van Kleeck, Woude, & Hammett, 2006), however researchers have expanded work for children with more severe disabilities in early elementary school (Browder, Mims, Spooner, Ahlgrim-Delzell, & Lee, 2008; Hudson & Test, 2011; Koppenhaver, Erickson, & Skotko, 2001; Mims, Browder, Baker, Lee, & Spooner, 2009). Similar to the research in shared interactive reading for children who are at-risk or typically developing, there is much variability in the literature regarding skills targeted, duration and frequency of intervention, settings, types of training provided, and outcomes for children with disabilities.

Defining language impairment or disability status. There is wide variability in how researchers describe participants as well as qualify their language impairment or disability status, which may effect interpretation of the outcomes of shared interactive reading since children who range from non-verbal to speaking in phrases are quite different to begin with. Researchers using the term "language impairment", "communication disorder" or "language difficulties" are most often referring to the clinical term "specific language impairment". According to the American Speech-Language Hearing Association (ASHA); (Ervin, 2001), a specific language

impairment is, "characterized by difficulty with language that is not caused by known neurological, sensory, intellectual, or emotional deficit." In other words, it is in the absence of other disabilities. With the new revisions in the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5, American Psychiatric Association, 2013), ASHA recommended the omission of the specifier of specific language impairment as a disability status in language disorder due to the required information regarding non-verbal intelligence, which is often difficult to establish and variable among populations.

However, qualifications of language disorder for research studies has varied, including participants receiving speech-language therapy services (Ezell et al., 2000), those with language scores one and a half to two standard deviations below the mean on standardized assessments of total language ability (Colmar, 2011; Colmar 2013; van Kleeck et al., 2006; Ziolkowski & Goldstein, 2008), and language scores one standard deviation below the mean on total language ability (Justice, Kaderavek et al., 2005; Pile et al., 2010). Other studies included participants with disabilities beyond communication including high functioning autism (Bellon, Ogletree, & Harn, 2000), multiple disabilities (e.g., cerebral palsy, hydrocephalus, visual impairment) (Browder et al., 2008; Mims et al., 2009), Rett syndrome (Koppenhaver et al., 2001), and mild intellectual disabilities (Yoder, Spruytenburg, Edwards, & Davies, 1995).

Strategies and skills targeted. Researchers have combined strategies of milieu teaching with shared interactive book reading, incorporating techniques such as prompting, expansions, pause time, repeated reads, and open-ended questions about pictures and have found positive effects on preschool children with disabilities' mean length of utterance (MLU) and their expressive vocabulary skills (Colmar, 2011; Colmar 2013; Yoder et al., 1995). These results are heightened when combining milieu strategies around both shared interactive book reading and

everyday conversations in the home setting (Colmar, 2011; Colmar 2013). Similar to the

strategies of milieu teaching, shared interactive reading has been combined with training adults

in scaffolding skills (i.e., completion prompts, choice making, wh-questions, and expansions)

and using manipulatives for preschool children with high functioning autism (Bellon et al.,

2000). When specifically targeted, inferential and literal language skills have also been

successfully improved through shared interactive reading in a 1:1 interaction between adults and

children with language impairments (van Kleeck et al., 2006).

In addition to targeting language skills in children with disabilities, shared interactive

reading has been used to affect change on preliteracy skills, such as alphabet knowledge,

phonological awareness (i.e., rhyme, alliteration, initial sound identification), concepts of print,

and early writing skills (Ezell et al., 2000; Justice, Kaderavek et al., 2005; Justice et al., 2015;

Pile et al., 2010; Ziolkowski & Goldstein, 2008). Additional strategies around shared book

reading include extension activities in preschool classrooms such as use of manipulatives or

objects related to the book, acting out the book, or using technology to enhance interaction with

the book for children with disabilities (Bellon et al., 2000; Johnston, McDonnell, & Hawken,

2008; Kaderavek & Justice, 2002).

When using shared interactive reading for children with multiple or more severe

disabilities (e.g., significant intellectual disability, cerebral palsy, spina bifida, seizure disorder,

visual impairment), researchers have extended work from children in preschool to early

elementary school (Hudson & Test, 2011). These studies have included the use of least to most

prompting and alternative and assistive communication technology (AAC) such as single

switches, voice output devices, and picture symbols (Browder et al., 2008; Hudson & Test, 2011;

Koppenhaver et al., 2001; Mims et al., 2009). Researchers have also adapted books to provide

greater accessibility for children with multiple disabilities using shortened length, laminated pages, character name adaption (i.e., substituted students' names), Velcro, and concrete objects (Browder et al., 2008; Hudson & Test, 2011; Mims et al., 2009).

    Pause time. Within the many strategies used to implement shared interactive reading for children with disabilities, the use of pause or wait time is frequently referenced (Bellon et al., 2000; Browder et al., 2008; Colmar, 2011; Colmar, 2013; Ezell et al., 2000; Justice, Kaderavek et al., 2005; Koppenhaver et al., 2001; Mims et al., 2009; Pile et al., 2010; van Kleeck et al., 2006; Yoder et al., 1995; Ziolkowski & Goldstein, 2008). Pause time may be referred to as a "cloze procedure" in which the adult pauses to indicate the child should provide a response (Bellon et al., 2000). In other studies, while the specific term "pause time" was not used, the incorporation of a prompt delay for two or more seconds was implemented (Browder et al., 2008; Ziolkowski & Goldstein, 2008). In many studies, researchers explicitly incorporate pause or wait time in shared interactive book reading, both to allow children the opportunity to initiate communication around the book reading, and to respond to questions posed by the adult (Colmar, 2011; Colmar, 2013; Ezell et al., 2000; Justice, Kaderavek et al., 2005; Koppenhaver et al., 2001; Mims et al., 2009; Pile et al., 2010; van Kleeck et al., 2006; Yoder et al., 1995). When specified, the pause or wait time specified ranges from two to five seconds to thirty seconds. Pausing allowed for changes in child behavior such as increasing child initiations and utterances, reduction in adult utterances, and increased turn-taking exchanges (Colmar, 2011; Colmar 2013). The use of pause time, in conjunction with questioning techniques (e.g., wh-questions, open ended questions) has resulted in positive effects for children's oral language skills (Bellon et al., 2000; Colmar, 2011; Colmar, 2013).

Duration and frequency. Similar to the variability observed in shared interactive reading for children who are typically developing or at-risk, duration of interventions using shared interactive reading for children with disabilities ranged from as little as 4 weeks to as long as 4 months, with others falling somewhere in between (i.e., 5 weeks, 7 weeks, 8 weeks, 9 weeks, 10 weeks, 13 weeks) (Bellon et al., 2000; Colmar, 2011; Colmar, 2013; Ezell et al., 2000; Justice, Kaderavek et al., 2005; Pile et al., 2010; van Kleeck et al., 2006; Yoder et al., 1995; Ziolkowski & Goldstein, 2008). Justice and colleagues (2015) completed their print-focused shared interactive reading intervention for one school year. There also exists variability in the frequency of shared book reading within these interventions, ranging from daily book reads to twice weekly (Bellon et al., 2000; Colmar, 2011; Colmar, 2013; Ezell et al., 2000; Justice, Kaderavek et al., 2005; Pile et al., 2010; van Kleeck et al., 2006; Yoder et al., 1995; Ziolkowski & Goldstein, 2008).

Setting. Interventions in shared interactive reading between parents and their children with disabilities took place in the home setting (Colmar, 2011; Colmar, 2013; Justice, Kaderavek et al., 2005; Koppenhaver et al., 2001; Pile et al., 2010). When these interventions were implemented in schools, some were in inclusive settings (Justice et al., 2015; van Kleeck et al., 2006; Ziolkowski & Goldstein), while others took place in self-contained preschool or elementary classrooms (Browder et al., 2008; Mims et al., 2009). Researchers also reported interventions taking place in the clinic setting (Bellon et al., 2000; Ezell et al., 2000; Yoder et al., 1995).

Training. Shared interactive reading interventions for children with disabilities were more often implemented by researchers, particularly when the book reading took place in the classroom or clinic setting (Bellon et al., 2000; Browder et al., 2008; Mims et al., 2009; van

Kleeck et al., 2006; Yoder et al., 1995; Ziolkowski & Goldstein, 2008). When researchers trained parents to implement the targeted strategies in the home, instruction was provided in person, via written materials, and/or video (manufactured or researcher developed), (Colmar, 2011; Colmar, 2013; Ezell et al., 2000; Justice, Kaderavek et al., 2005; Justice et al., 2015; Koppenhaver et al., 2001; Pile et al., 2010). Studies were variable in their training schedule, though training was offered more than once in two studies (Colmar, 2011; Colmar 2013; Koppenhaver et al., 2001).

Outcomes assessed. Comparable to studies with children who are typically developing or at-risk, interventions for children with disabilities focused on improving the specific skills targeted within shared book reading. Similar to results in studies with children who are typically developing, researchers report improvement in expressive and receptive language skills, overall oral language skills (e.g., total language score, MLU), and additionally in literal and inferential language skills (Colmar, 2011; Colmar, 2013; van Kleeck et al., 2006; Yoder et al., 1995). However, in contrast, studies with children with more significant disabilities target a broader range of skills beyond oral language. Researchers have noted significant gains in spontaneous language use for children with ASD (Bellon et al., 2000), and increased participation, vocalizations, eye gaze, symbolic communication, and use of AAC for children with multiple disabilities (Browder et al., 2008; Hudson & Test, 2011; Koppenhaver et al., 2001; Mims et al., 2009).

These studies have also been found to increase children's preliteracy skills including alphabet knowledge, concepts of print, alliteration, identification of initial sounds, name writing, and rhyming skills (Ezell et al., 2000; Justice, Kaderavek et al., 2005; Justice et al., 2015; Kaderavek & Justice, 2002; Pile et al., 2010; Ziolkowski & Goldstein, 2008). While not

specifically targeted, shared interactive reading often results in increased turn taking exchanges for children with disabilities and the adult facilitating the book reading, creating increased opportunities for scaffolding of language skills (Pile et al., 2010).

Dependent on the outcome variable assessed, measurement of the outcomes was often completed using standardized assessments (e.g., PPVT, EOWVT, TELD, CELF-P2; ITPA) (Colmar, 2011; Colmar, 2013; Pile et al., 2010; van Kleeck et al., 2006). More often, researcher developed assessments, curriculum based measures (i.e., IGDIs, DIBELS), and observations of specific skills were used (Bellon et al., 2000; Browder et al., 2008; Ezell et al., 2000; Justice, Kaderavek et al., 2005; Koppenhaver et al., 2001; Mims et al., 2009; Yoder et al., 1995; Ziolkowski & Goldstein, 2008).

Summary. Research in shared interactive reading for children with disabilities has most often occurred between parents and their children with more mild language impairments. Its development has followed that of shared interactive reading for children who are typically developing or at-risk. Justice and colleagues have observed how shared interactive reading occurs naturally between parents and their children with disabilities (McGinty et al., 2012) as well as developed interventions in the same context to target preliteracy skills (Ezell et al., 2000; Justice & Kaderavek, 2005; Justice et al., 2015). Similarly, Colmar (2011, 2013) trained parents to engage in shared interactive reading with their children with language impairments using milieu strategies significantly impacting expressive language skills with smaller gains in receptive skills. However, additional researchers have trained parents in similar strategies, and while positively affecting their ability to engage in interactive storybook reading, results were not significant for child outcomes (Pile et al., 2010).

Shared interactive reading for students with disabilities has also been researched in school settings. In this setting, children with more significant disabilities (e.g., ASD, multiple disabilities, significant intellectual disability) have participated in shared interactive reading with researchers often using modifications such as manipulative objects, AAC devices, or adaptive books with positive outcomes noted for spontaneous language or general participation (Bellon et al., 2000; Browder et al., 2008; Mims et al., 2009). Researchers have also evaluated shared interactive reading in preschools for children with language impairments to target literal and inferential language skills (van Kleeck et al., 2006) and phonological awareness (Ziolkowski & Goldstein, 2008).

Dialogic Reading

Overview of Dialogic Reading

Dialogic reading, a specific type of shared interactive reading, has a strong empirical history in the research of improving outcomes for children who are typically developing and those at-risk for language/reading deficits (Mol et al., 2009; Morgan & Meier, 2008; Zevenbergen & Whitehurst, 2003). Dialogic reading is an intervention designed to reduce the straight reading of storybooks by adults and to engage the child in a dialogue around the shared book, thus improving the oral language skills of children (Mol et al., 2009; Morgan & Meier, 2008; Whitehurst et al., 1988; Zevenbergen & Whitehurst, 2003). Whereas shared interactive reading generally incorporates many of the same strategies of dialogic reading (e.g., repetition of vocabulary words, oral language prompts, and evaluation of children's responses), dialogic reading provides a specific framework for how adults can engage children in interactive reading. Through a series of prompts, known by the acronym CROWD, and a prompting hierarchy, known by the acronym PEER, dialogic reading turns the passive role of the child into the active

role of storyteller (Mol et al., 2009; Morgan & Meier, 2008; WWC, 2007; Whitehurst et al., 1988; Zevenbergen & Whitehurst, 2003). The prompting hierarchy (PEER) begins with the adult *prompting* the child using one of the CROWD strategies and centered on an event or picture in the storybook. The adult then *evaluates* the child's response, providing positive, corrective feedback. Following the adult *expands* on the child's initial response, by adding some linguistic component such as an adjective or phrase to enrich the child's response. Finally, the adult asks the child to *repeat* the expanded utterance aloud. Within this hierarchy, a variety of prompts can be used: *Completion* prompts are used often in repetitive text elements for the child to complete an utterance the adult begins; *Recall* questions are used to ask the child about an event or picture that has been read about in the book; *Open-ended questions* allow the child to provide a response that goes beyond the typical closed response options of yes/no; *Wh-questions* are used to highlight particular language features by varying what, where, who, when, and why questions related to the story; *distancing* questions are asked for the child to relate an event or experience in their life or environment to something in the shared storybook (Mol et al., 2009; Morgan & Meier, 2008; WWC, 2007; Whitehurst et al., 1988; Zevenbergen & Whitehurst, 2003). The prompts used by the adult will vary based on the level of the child's language skills and references to aspects in the book (Mol et al., 2009; WWC, 2007, WWC, 2010; Zevenbergen & Whitehurst, 2003).

The U.S. Department of Education's What Works Clearinghouse (WWC, 2007) has established dialogic reading as an evidence-based practice for children who are typically developing and those at risk. It has also accepted two research studies for dialogic reading for children with disabilities, concluding that dialogic reading has potentially positive effects for communication skills in children with disabilities (WWC, 2010). Generally, the research in

dialogic reading for children with disabilities is limited. Dialogic reading has been evaluated for use between parents and children with disabilities in the home setting as well as in preschool classrooms (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994). Studies range in duration from six weeks to one school year and often incorporate additional strategies to the core foundation of dialogic reading; including supplemental library centers, use of repeated reads, and pause time (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Katims, 1994). Within the limited research base, dialogic reading has been found to effectively produce changes in adult behavior, resulting in more questions that are open-ended and more wh-questions asked (Crain-Thorenson & Dale, 1999; Dale et al., 1996). Similar to dialogic reading in children who are typically developing, parents and teachers implement the strategies equally well (Crain-Thorenson & Dale, 1999; Dale et al., 1996). Changes in children's language and behaviors have been described as higher levels of verbal engagement during book reading, more interest in books generally, and increased expressive vocabulary and overall oral language skills (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994).

Dialogic Reading with Young Children Who are Typically Developing or At-Risk

Dialogic reading was founded in a seminal study by Whitehurst and colleagues (1988) where the goal was to reduce the straight reading of storybooks by adults to encourage development of children's oral language skills. That study was then expanded to children in a childcare setting in Mexico using Spanish, where similar positive effects on children's mean length of utterance (MLU) and expressive vocabulary skills were noted (Valdez-Menchaca & Whitehurst, 1992; Whitehurst et al., 1988). The empirical base for dialogic reading continued to grow through a series of four randomized control studies by Whitehurst and colleagues, where

they evaluated strategies in home settings with parent-child dyads, school settings, with

classroom teachers, and a combined home and school approach (Lonigan & Whitehurst, 1998;

Mol et al., 2009; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst et

al., 1999). Since that time, the research on dialogic reading has continued to expand, using the

CROWD and PEER strategies to target a variety of skills, with interventions ranging in duration

and frequency of reading, as well as variance in training strategies used and outcomes achieved.

Strategies and skills targeted. Similar to the literature in shared interactive reading,

dialogic reading interventions have targeted a wide variety of skills. Unlike shared interactive

reading however, the central focus of strategies is consistent in using CROWD prompts and the

PEER prompting hierarchy. Dialogic reading was first developed to increase the overall oral

language skills of preschool children, namely their receptive and expressive vocabulary skills

and MLU (Lonigan & Whitehurst, 1998; Mol et al., 2009; Whitehurst, Arnold et al., 1994;

Whitehurst, Epstein et al., 1994; Whitehurst et al., 1988; Whitehurst et al., 1999). Following in

that same focus, many researchers have continued to target these skills in additional studies

(Arnold, Lonigan, Whitehurst, & Epstein, 1994; Brannon et al., 2013; Huebner, 2000; Huebner

& Meltzoff, 2005; Kotaman, 2013; Rahn, 2013; Towson & Gallagher, 2014). However, other

researchers, including the founders, have expanded dialogic reading to target preliteracy skills,

such as phonological awareness (Callaghan & Madelain, 2012; Lacour, McDonald, Tissington,

& Thomason, 2011). Frequently, interventions in dialogic reading have targeted both language

and preliteracy skills (e.g., alphabet knowledge, concepts of print, rhyme, initial sound

recognition) in conjunction with one another (Fielding-Barnsley & Purdie, 2002; Fielding-

Barnsley & Purdie, 2003; Hay & Fielding-Barnsley, 2007; Lonigan, Allan, & Lerner, 2011;

Lonigan, Anthony, Bloomfield, Dyer, & Samwel, 1999; Reese, Leyva, Sparks, & Grolnick, 2010).

Dialogic reading interventions have been implemented in other languages and countries beyond the United States. Researchers in the field of second language acquisition and English Language Learners (ELL), for example, have implemented dialogic reading to target growth of language and preliteracy skills in English when the primary language was Cantonese (Chow, McBride-Chang, Cheung, & Chow, 2008; Chow, McBride-Chang, & Cheung, 2010) and Spanish (Cohen, Kramer-Vida, & Frye, 2012; Tsybina & Eriks-Brophy, 2010). Researchers in rural Bangladeshi have also implemented dialogic reading in Bangla to improve native expressive language skills for preschool children (Opel, Ameer, & Aboud, 2009). Similarly, dialogic reading was implemented in Mexican childcare centers to improve language skills in the primary language of Spanish (Valdez-Menchaca & Whitehurst, 1992).

Additional targeted skills include improvement in reading attitudes and fictional narrative skills (Kotaman, 2013; Lever & Senechal, 2011; Zevenbergen et al., 2003). In a unique implementation outside of book reading, Strouse, O'Doherty, and Troseth (2013) used the strategies of dialogic reading during co-viewing of educational videos between parents and their children to increase expressive vocabulary.

Duration and frequency. Quality and frequency of dialogic reading are important (Mol et al., 2009). Generally, intervention times for implementing dialogic reading for children who are typically developing or at-risk have ranged widely, from four weeks (Arnold et al., 1994; Briesch, Chafouleas, Lebel, & Blom-Hoffman, 2008; Opel et al., 2009; Strouse et al., 2013; Whitehurst et al., 1988) to one school year (Lonigan, Farver, Phillips, & Clancy-Menchetti, 2011; Lonigan, Purpura, Wilson, Walker, & Clancy-Menchetti, 2013; Reese, Leyva et al., 2010;

Whitehurst, Epstein et al., 1994; Whitehurst et al., 1999; Zevenbergen et al., 2003). The majority of the studies have implemented the strategies for 6 to 12 weeks (Brannon et al., 2013; Chow et al., 2008; Chow et al., 2010; Fielding-Barnsley & Purdie, 2002; Fielding-Barnsley & Purdie, 2003; Huebner, 2000; Huebner & Meltzoff, 2005; Kotaman, 2013; Lever & Senechal, 2011; Lonigan et al., 1999; Lonigan & Whitehurst, 1998; Valdez-Menchaca & Whitehurst, 1992; Whitehurst, Arnold et al., 1994).

Frequency of the interventions has also differed across studies. When dialogic reading is implemented in the home setting, researchers have been reliant on parent reports of frequency of book reading. Researchers have suggested parents and/or teachers implement dialogic reading daily (Brannon et al., 2013; Fielding-Barnsely & Purdie, 2002; Fielding-Barnsley & Purdie, 2003; Huebner, 2000; Reese, Leyva et al., 2010; Whitehurst, Arnold et al., 1994), three to five times per week (Towson & Gallagher, 2014; Whitehurst, Epstein et al., 1994; Whitehurst & Lonigan, 1988; Whitehurst et al., 1999), or twice weekly (e.g., Chow et al., 2008; Chow et al., 2010; Lever & Senechal, 2011; Lonigan & Whitehurst, 1998; Lonigan et al., 2013). Although length of each reading is not typically reported, some studies have stated average reading times of 5 to 10 minutes (Huebner, 2000; Lonigan & Whitehurst, 1998; Rahn, 2013; Whitehurst, Arnold et al., 1994), to 12 minutes (Briesch et al., 2008; Valdez-Menchaca & Whitehurst), and up to 15 to 20 minutes (Lever & Senechal, 2011; Lonigan et al., 2013; Tsybina & Eriks-Brophy, 2010).

Setting. Dialogic reading is most often implemented with children who are at risk or typically developing in the home or school setting. Researchers have predominantly trained parents of preschool children to implement the strategies of dialogic reading in the home (Arnold et al., 1994; Blom-Hoffman, O'Neil-Pirozzi, & Cutting, 2006; Blom-Hoffman, O'Neil-Pirozzi,

Volpe, Cutting, & Bissinger, 2007; Brannon et al., 2013; Briesch et al., 2008; Chow et al., 2008; Chow et al., 2010; Fielding-Barnsley & Purdie, 2002; Fielding-Barnsley & Purdie, 2003; Hay & Fielding-Barnsley, 2007; Huebner, 2000; Huebner & Meltzoff, 2005; Huebner & Payne, 2010; Kotaman, 2013; Lacour et al., 2011; Lonigan & Whitehurst, 1998; Reese, Leyva et al., 2010; Strouse et al., 2013; Towson & Gallagher, 2014; Tsybina & Eriks-Brophy, 2010; Whitehurst et al., 1988). Less frequently, dialogic reading is implemented the classrooms of preschool children (Cohen et al., 2012; Lever & Senechal, 2011; Lonigan et al., 1999; Lonigan, Farver et al., 2011; Lonigan et al., 2013; Opel et al., 2009; Rahn, 2013; Valdez-Menchaca & Whitehurst, 1992). Often, the most effective results for children were found when dialogic reading was implemented in both school and home setting simultaneously and when it was implemented with high fidelity (Lonigan & Whitehurst, 1998; Mol et al., 2009; Morgan & Meier, 2008; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst et al., 1999; Zevenbergen et al., 2003).

Training. As dialogic reading for children who are typically developing or at-risk has most often been implemented in the home environment, training has become a critical point of focus to ensure fidelity of implementation. Although training parents and teachers in the strategies of dialogic reading initially began as face-to-face training, it has evolved to a more standardized practice. Materials such as video training and curriculums complete with specific storybooks and implementation guidelines have been created (Arnold et al., 1994; Blom-Hoffman et al., 2006; Blom-Hoffman et al., 2007; Brannon et al., 2013; Fielding-Barnsley & Purdie, 2002; Fielding-Barnsley & Purdie, 2003; Hay & Fielding-Barnsley, 2007; Lonigan et al., 1999; Lonigan & Whitehurst, 1998). Video training and the supplemental materials have standardized the implementation of dialogic reading, leading to higher rates of fidelity and better

outcomes than face-to-face training (Arnold et al., 1994; Blom-Hoffman et al., 2006). These materials, currently published as the *Read Together, Talk Together* program kit (RTTT; Pearson Early Learning, 2006) have allowed for ease and efficiency in training and implementation, decreased cost, and standardization of training for a variety of professionals, including research assistants (Arnold et al., 2006; Blom-Hoffman et al., 2006; Blom-Hoffman et al., 2007; Briesch et al., 2008; Cohen et al., 2012; Lever & Senechal, 2011; Reese, Leyva et al., 2010; Strouse et al., 2013; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst et al., 1999; Zevenbergen et al., 2003).

Training via video can be effective in parent retention of strategies, with parents showing maintenance of the CROWD and PEER strategies up to 12 weeks and two years following initial exposure to training (Blom-Hoffman et al., 2007; Huebner & Payne, 2010). However, other researchers found that parents may require supplemental trainings to learn certain skills with integrity (Briesh et al., 2008). When comparing video training in person to video training materials mailed to the home, researchers noted significantly better outcomes with in person training (Huebner & Meltzoff, 2005). After being trained by video, parents were most successful in using the strategies of "wh-questions" and evaluation of children's responses and less likely to implement recall questions, expansion of children's utterances, and solicitation for children to repeat that expansion (Briesch et al., 2008). In a further expansion of training materials, the Literacy Preschool Express Curriculum (LEPC) has been created featuring ten thematic units centered on dialogic reading and strategies to enhance phonological awareness in young children across one school year (Lonigan, Farver et al., 2011).

Although standardized training materials are available, researchers have also used their own methods of training for parents. When implementing dialogic reading in different languages

or in English, researchers provided parents with books and "hints" for prompt questions and the prompting strategy (i.e., PEER) provided as a written supplement (Chow et al., 2008; Chow et al., 2010). Additionally, researchers have developed their own video training for dialogic reading supplemented with written information (Fielding-Barnsley & Purdie, 2002; Fielding-Barnsley & Purdie, 2003; Hay & Fielding-Barnsley, 2007; Huebner & Meltzoff, 2005). Other researchers describe use of professional development (e.g., training workshops, consultation, community of practice meetings) and reviewing the research on the importance of reading to children to train adults to implement dialogic reading (Cohen et al., 2012; Kotaman, 2013; Lacour et al., 2011; Tsybina & Eriks-Brophy, 2010; Valdez-Menchaca & Whitehurst, 1992).

Although there is some consistency in the materials used for training, there is variability in the time allotted for training. This information is not consistently provided, trainings were reported as brief as 30 minutes (e.g., Brannon et al., 2013; Towson & Gallagher, 2014) and as long as two hours (e.g., Kotaman, 2013) and up to five days (e.g., Opel et al., 2009). Booster sessions halfway or periodically through the intervention period for some studies were also noted (Huebner, 2000; Huebner & Meltzoff, 2005; Tsybina & Eriks-Brophy, 2010). In implementation of the LEPC curriculum, Lonigan and colleagues (2011) utilized weekly in class mentoring of teachers, in addition to 6 half-day workshops distributed across the school year.

Flynn (2011) has also provided practical advice on implementing dialogic reading in classrooms using a three tiered approach, classifying the CROWD strategies by complexity to match the children's language abilities. This expansion of dialogic reading has also included extension activities to be implemented beyond story time, such as during art, cooking or centers (Flynn, 2011).

Outcomes assessed. Similar to studies reviewed for shared interactive reading, dialogic reading interventions predominantly positively affect the skills targeted (Reese, Leyva et al., 2010). The original intent on reducing the straight reading of storybooks by adults to provide an interactive experience between adults and children is seen consistently across studies. Most commonly, dialogic reading positively affects children's receptive and expressive vocabulary skills and overall language skills (Arnold et al., 1994; Brannon et al., 2013; Hay & Fielding-Barnsley, 2007; Huebner, 2000; Kotaman, 2013; Lonigan et al., 1999; Lonigan, Farver et al., 2011; Lonigan & Whitehurst, 1998; Lonigan et al., 2013; Mol et al., 2009; Morgan & Meier, 2008; Strouse et al., 2013; Towson & Gallagher, 2014; WWC, 2007; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst et al., 1988; Whitehurst et al., 1999). Preliteracy skills, such as concepts of print, and final sound recognition have also been positively affected (Fielding-Barnsley & Purdie, 2002; Fielding-Barnsley & Purdie, 2003). When implemented in other languages, such as Cantonese, Spanish, or Bangla, dialogic reading promotes general language development, expressive vocabulary, phonological awareness, and print knowledge (Chow et al., 2008; Chow et al., 2010; Cohen et al., 2012; Opel et al., 2009; Tsybina & Eriks-Brophy, 2010; Valdez-Menchaca & Whitehurst, 1992).

These strategies are also found to have a positive impact on children's attitudes toward reading, their confidence with text, and to increase time engaged in storybook reading with their parents (Brannon et al., 2013; Hay & Fielding-Barnsley, 2007; Huebner & Payne, 2010; Kotaman, 2008). Additionally, dialogic reading was found to be as effective as activity based instruction in promoting the vocabulary development of young children at-risk for language deficits (Rahn, 2013).

In reviewing studies in the best ways to train adults, it was found that both parents and teachers implemented the strategies of dialogic reading equally well and that video based training was as or more effective as training parents and teachers face-to face (Arnold et al., 1994; Blom-Hoffman et al., 2006; Blom-Hoffman et al., 2007; Lonigan & Whitehurst, 1998; Mol et al., 2009; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst, et al., 1999). While training parents in these strategies improves interaction and overall parent-child reading styles, parents may require more than one training session to implement all aspects of dialogic reading with fidelity (Briesch et al., 2008; Huebner, 2000).

Dialogic reading has been expanded beyond the original intentions of affecting change on children's vocabulary skills to more complex language structures such as narratives. Researchers have found that dialogic reading improves children's use of decontextualized language, evaluative devices, and references to internal mental states during narrative construction, as well as added to the overall length of these narratives (Lever & Senechal, 2011; Zevenbergen et al., 2003).

Detecting change in children's skills following a dialogic reading intervention has varied from standardized to researcher developed tools. Standardized assessments (e.g., PPVT, EOWPVT) were used in earlier studies of dialogic reading, and continued to be used as part of a larger test protocol in later studies (Arnold et al., 1994; Chow et al., 2008; Chow et al., 2010; Cohen et al., 2012; Fielding-Barnsley & Purdie, 2002; Fielding-Barnsley & Purdie, 2003; Huebner, 2000; Huebner, 2005; Kotaman, 2013; Lever & Senechal, 2011; Lonigan et al., 1999; Lonigan, Allan et al., 2011; Lonigan & Whitehurst, 1998; Lonigan et al., 2013; Rahn, 2013; Reese et al., 2010; Strouse et al., 2013; Tsybina & Eriks-Brophy, 2010; Valdez-Menchaca & Whitehurst, 1992; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst

et al., 1988; Whitehurst et al., 1999; Zevenbergen et al., 2003). It was noted that while change could often be detected in children's language skills using standardized measures for some studies, there was often a need for 'near-transfer' measures of vocabulary growth due to their increased specificity to the targeted skills in the intervention. These near-transfer assessments allowed researchers to see growth specifically related to the vocabulary words targeted through dialogic reading (Cohen et al., 2012; Fielding-Barnsley & Purdie, 2002; Fielding-Barnsley & Purdie, 2003; Lever & Senechal, 2011; Lonigan & Whitehurst, 1998; Mol et al., 2009; Rahn, 2013; Strouse et al., 2013; Tsybina & Eriks-Brophy, 2010; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst, et al., 1999). Curriculum based assessments have also been utilized in more recent studies due to their increased sensitivity to small increments of change (Brannon et al., 2013; Lacour et al., 2011; Rahn, 2013). Depending on the specific skills targeted during an intervention, researchers have used other assessments, including book identification, telephone interviews with parents, spelling, children's preliteracy experiences, child participation in reading, children's attitudes toward reading, narrative tasks, story comprehension, and spontaneous language during book reads (Chow et al., 2008; Chow et al., 2010; Fielding-Barnsley & Purdie, 2002; Fielding-Barnsley & Purdie, 2003; Huebner, 2000; Huebner, 2005; Huebner & Payne, 2010; Kotaman, 2013; Lonigan & Whitehurst, 1998; Opel et al., 2009; Reese, Leyva et al., 2010; Valdez-Menchaca & Whitehurst, 1992; Zevenbergen et al., 2003).

As part of the original studies on dialogic reading, the longitudinal effects were also evaluated. It was found that dialogic reading had positive effects on children's oral language skills that carried over to the end of kindergarten, but not beyond to first and second grade (Whitehurst et al., 1999). Further research in longitudinal effects appears warranted.

Summary. There is a strong literature base for dialogic reading with children who are typically developing or at-risk. Initiated by Whitehurst and colleagues (1988), dialogic reading was first evaluated in the home setting between parents and their children with positive effects found in expressive vocabulary and MLU. Since the seminal study, research was expanded into classrooms, where teachers were trained to implement these strategies in small groups, or in a combination of home and school interventions (Lonigan & Whitehurst, 1998; Mol et al., 2009; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Zevenbergen & Whitehurst, 2003). In an initial series of four-randomized control studies, positive change was affected on children from both middle class and low socioeconomic backgrounds (Lonigan & Whitehurst, 1998; Mol et al., 2009; Whitehurst et al., 1988; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Zevenbergen & Whitehurst, 2003). This line of research was expanded to children in Mexican child-care settings, whose primary language was Spanish, where similar gains in expressive vocabulary and oral language were found (Valdez-Mechaca & Whitehurst, 1992; Zevenbergen & Whitehurst, 2003). Within the home setting, researchers have found that dialogic reading can positively impact the attitudes children have toward reading as well as their language skills (Kotaman, 2008). Additionally, researchers looking at the longitudinal effects of children receiving exposure to dialogic reading intervention in Head Start programs on second grade language skills found that the effects were still significant at the end of kindergarten, but not beyond (Mol et al., 2009; Whitehurst et al., 1999; Zevenbergen & Whitehurst, 2002). In looking at longitudinal effects of training parents in these strategies, parents continued to use dialogic reading strategies up to two years later, resulting in increased child involvement in book reading (Huebner & Payne, 2010).

Training of adults, either parents or teachers, in the strategies of dialogic reading vary. In an attempt to standardize training, Arnold and colleagues (1994) created a short video presentation of the CROWD and PEER strategies and found it to be more effective than training adults in a more traditional fashion. The effectiveness of this video training was further substantiated by additional studies specifically evaluating the training as well as others (Blom-Hoffman et al., 2006; Blom-Hoffman et al., 2007). The standardization of training has allowed for wider distribution of the dialogic reading strategies.

Expansions of dialogic reading in both strategies and outcomes assessed are continuing to develop. The impact of dialogic reading has gone beyond expressive vocabulary to evaluate the effect on narrative skills of children in both preschool and kindergarten (Lever & Senechal, 2011; Zevenbergen et al., 2003). Results of these studies suggest that dialogic reading positively affects children's use of evaluative devices, improved use of decontextualized language, references to mental states and emotions, as well as generally increased length of narratives (Lever & Senechal, 2011; Zevenbergen et al., 2003). Recently, a curriculum based in dialogic reading with the addition of preliteracy skill training has been developed and effects were positive for expressive language, phonologic awareness and print knowledge (Lonigan, Farver et al., 2011). Flynn (2011) has also specifically laid out for teachers how to effectively implement dialogic reading strategies in a classroom setting.

Dialogic Reading for Young Children with Disabilities

While there is a limited research base for the use of dialogic reading for preschool children with disabilities, five studies have been identified as using this specific strategy (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994). Within these five studies, the U.S. Department of Education's What Works

Clearinghouse has accepted two research studies (Crain-Thorenson & Dale, 1999; Dale et al., 1996), concluding that dialogic reading has potentially positive effects for communication skills in children with disabilities (WWC, 2010).

Defining language impairment or disability status. Similar to studies in shared interactive reading for children with disabilities, researchers implementing dialogic reading vary in their definition of disability. Two studies evaluated dialogic reading for children with mild-moderate language delay as defined by scores of greater than one standard deviation below the mean on one standardized measure of receptive vocabulary skills (Crain-Thorenson & Dale, 1999; Dale et al., 1996). Similarly, Hargrave and Senechal (2000) defined their participants as having "poor vocabulary skills" as measured by a lag of at least 13 months on a standardized measure of expressive vocabulary skills. They specifically excluded children with learning disabilities or "more significant impairments" (Hargrave & Senechal, 2000). The remaining two studies evaluated children with ASD (Fleury et al., 2013) and children in self-contained preschool classrooms with a wide range of mild to moderate disabilities, including intellectual disability, behavioral and physical disorders, and speech and language disorders (Katims, 1994). However, in implementing dialogic reading for children with ASD, all participants were able to verbally communicate with at least two to three word phrases (Fleury et al., 2013).

Strategies and skills targeted. Studies in dialogic reading for children with disabilities often incorporate additional strategies to the core foundation of dialogic reading; including supplemental library centers, use of repeated reads, and pause time (Crain-Thorenson & Dale, 1999; Dale, et al., 1996; Fleury et al., 2013; Katims, 1994). Similar to studies using dialogic reading for children who are typically developing or at-risk, these intervention aimed to improve oral language skills, including receptive and expressive vocabulary, and concepts about print

(Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994). In addition to the skills, these studies also sought to improve children's on-task behavior, verbal participation, and engagement with books (Fleury et al., 2013; Katims, 1994).

Pause time. Similar to the research in shared interactive reading for children with disabilities, pause, or wait time, has also been incorporated into the interventions in dialogic reading (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013). When implementing dialogic reading in the home, researchers have instructed parents to "slow down and give your child time to respond" (Crain-Thorenson & Dale, 1999, p. 32) or have allowed a five second interval prior to another adult utterance (Fleury et al., 2013). In two studies, utterances by the adult within two seconds of the prior utterance were coded as "insufficient time to respond", suggesting the need for children with disabilities to have more time to process language presented to them (Crain-Thorenson & Dale, 1999; Dale et al., 1996). When specifically instructed to increase the time between a prompt and another utterance, adults made significant changes in their use of pause time (Crain-Thorenson & Dale, 1999). The strategy facilitated children's linguistic performance and verbal engagement (Crain-Thorenson & Dale, 1999; Dale et al., 1996).

Duration and frequency. Intervention periods within the five studies ranged in duration from six weeks to one school year. Katims (1994) implemented dialogic reading across one school year, introducing 49 books systematically through small group reading. In contrast, Hargrave and Senechal (2000) implemented their intervention in 20 sessions across four weeks, or five book readings per week. In a series of two studies, Crain-Thorenson, Dale and colleagues (1996, 1999) designed an 8 week intervention for parent-child dyads and a 6-11 week

intervention for implementation in both home and school settings, with reading in the school setting occurring four times per week. In a single case design, five storybooks were read across the intervention phases, with a total of nine reading sessions across five weeks (Fleury et al., 2013).

Setting. Dialogic reading has been evaluated for use between parents and children with disabilities in the home setting (Dale et al., 1996) as well as in preschool classrooms (Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994), with one study comparing home versus school implementation (Crain-Thorenson & Dale, 1999). While Fleury and colleagues' (2013) study took place in preschools, the intervention took place in a small intervention room adjacent to the children's classroom. Within the interventions in the preschool setting, dialogic reading was implemented in small groups of eight or less (Hargrave & Senechal, 2000; Katims, 1994) or individually with either a teacher or researcher (Crain-Thorenson & Dale, 1999; Fleury et al., 2013).

Training. Researchers implemented the intervention of dialogic reading in one study (Fleury et al., 2013), while the remaining four studies trained either parents or teachers to implement the intervention with the participants (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Hargrave & Senechal, 2000; Katims, 1994). Training included workshops in which video training was supplemented by practice and written materials (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Hargrave & Senechal, 2000; Katims, 1994) with one study providing a second training session half-way through the intervention period (Crain-Thorenson & Dale, 1999).

Outcomes assessed. Within the limited research base, dialogic reading has been found to effectively produce changes in adult behavior, resulting in more questions that are open-ended and more wh-questions asked (Crain-Thorenson & Dale, 1999; Dale et al., 1996). Similar to

dialogic reading in children who are typically developing, parents and teachers implement the strategies equally well (Crain-Thorenson & Dale, 1999; Dale et al., 1996). Changes in children's language and behaviors have been described as higher levels of verbal engagement during book reading, more interest in books generally, and increased expressive vocabulary and overall oral language skills (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994). To capture these changes in the participants' skills, researchers used standardized assessments (e.g., PPVT, EOWPVT), researcher developed tools (e.g., near-transfer vocabulary assessments), coding of child language and MLU, and observation (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994).

Summary. The U.S. Department of Education's What Works Clearinghouse (WWC, 2010) has accepted two research studies for dialogic reading for children with disabilities (Crain-Thorenson & Dale, 1999; Dale et al., 1996), concluding that dialogic reading has potentially positive effects for communication skills in children with disabilities. Dale and colleagues (1996) compared dialogic reading to a non-book language focused intervention in the home setting using 33 parent-child dyads. The children ranged in age from three to six years and presented with mild to moderate language delays (Dale et al., 1996). The authors examined if dialogic reading was more effective in changing parent language and if it positively affected the expressive language skills of the young children with language delays. Results of video coded transcriptions indicated that the parents who implemented dialogic reading asked significantly more wh- and open-ended questions and imitated their children's utterances more than the comparison group. The children in the intervention group showed a higher rate of response to questions posed, used a higher number of different words, and increased in their MLU. It was

also noted that differential effects occurred for children in that children with a lower MLU made gains in verbal engagement and vocabulary, while children with a higher MLU increased in their grammatical skills (Dale et al., 1996). Crain-Thorenson & Dale (1999) evaluated if training parents and teachers in dialogic reading, with the additional components of pause time and repeated reads, had positive effects on children's receptive and expressive language skills. Following an 8-week intervention, there were no significant differences between groups for changes in adult language, however, there were significant changes to adult speech within groups. Children were noted to demonstrate growth in their language skills, but were not significantly different than the comparison group (Crain-Thorenson & Dale, 1999).

The research in dialogic reading for children with disabilities remains limited and narrow. Katims (1994) implemented dialogic reading daily in a group setting, while simultaneously systematically introducing 49 storybooks into the classroom library center across one school year. The preschool children with mild-moderate learning and behavioral difficulties moved from low-level browsing to higher level reenactments with books in the library center and made significant gains on concepts of print (Katims, 1994). Hargrave & Senechal (2000) examined the benefits of dialogic reading for children with "poor vocabulary" (e.g., excluding children with documented learning disabilities or more involved disabilities) in childcare centers across four weeks in small groups of eight children. Teachers were trained via video-training and found to implement the strategies of dialogic reading successfully, changing their behaviors in questioning. Children in the intervention group made significant gains on near-transfer vocabulary, but not on standardized assessments of receptive vocabulary. Small effects were noted for standardized measures of expressive vocabulary (Hargrave & Senechal, 2000). Most recently, Fleury and colleagues (2013) explored the effects of dialogic reading with three

children with ASD in a multiple baseline, single case design. Following an intervention with five storybooks, children were noted to increase their rates of verbal participation and duration engaged with printed materials.

In summary, dialogic reading has been evaluated for use between parents and children with disabilities in the home setting as well as in preschool classrooms (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994). Studies range in duration from six weeks to one school year and often incorporate additional strategies to the core foundation of dialogic reading; including supplemental library centers, use of repeated reads, and pause time (Crain-Thorenson & Dale, 1999; Dale, et al., 1996; Katims, 1994). Within the limited research base, dialogic reading has been found to effectively produce changes in adult behavior, resulting in more questions that are open-ended and more wh-questions asked (Crain-Thorenson & Dale, 1999; Dale, et al., 1996). Similar to dialogic reading in children who are typically developing, parents and teachers implement the strategies equally well (Crain-Thorenson & Dale, 1999; Dale, et al., 1996). Changes in children's language and behaviors have been described as higher levels of verbal engagement during book reading, more interest in books generally, and increased expressive vocabulary and overall oral language skills (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994).

Shared Interactive and Dialogic Reading for Young Children with and without Disabilities:

Similarities and Differences

Dialogic and shared interactive reading for children who are typically developing, those considered at-risk, and those with disabilities have both similarities and differences related to the interventions, as well as how they have been evaluated in research. These variables in strategies

and skills targeted, duration and frequency of intervention, setting, training, and outcomes assessed which have been reviewed for each intervention above, will be reviewed below for comparison.

Interventions across populations target a similar set of skills in children. Dialogic reading is specifically known for increasing the expressive vocabulary skills and overall oral language skills of children with disabilities as well as those who are typically developing and considered at-risk (Mol et al., 2009; WWC, 2007; WWC, 2010). However, dialogic and shared interactive reading have been used as a framework to target a myriad of skills, including phonological awareness, alphabet knowledge, concepts of print, rhyme, alliteration, identification of initial sounds, engagement and motivation toward book reading, narrative skills, as well as increased turn-taking and specific commenting (Ezell et al., 2000; Fleury et al., 2013; Hay & Fielding-Barnsley, 2007; Hockenberger et al., 1999; Huebner & Payne, 2010; Katims, 1994; Kotaman, 2008; Lever & Senechal, 2011; Zevenbergen et al., 2003; Ziolkowski & Goldstein, 2008).

Duration of intervention is another variable in which studies of dialogic and shared interactive reading differ across populations. When looking at research in children who are typically developing and at-risk, intervention times vary from one month to one school year (Lonigan & Whitehurst, 1998; Mol et al., 2009; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst et al., 1999; Zevenbergen & Whitehurst, 2003). However, interventions for children with disabilities are typically shorter in duration, lasting between five and 16 weeks, with only one extending a full school year (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994).

Video trainings have been found an efficient and standardized method when training caregivers and teachers in dialogic and shared interactive reading for children who are typically

developing and at-risk, often saving time and resources (Arnold et al., 1994; Blom-Hoffman et al., 2006; Blom-Hoffman et al., 2007). However, when working with children with disabilities, researchers have often provided training face-to-face, frequently with supplemental handouts (Colmar, 2011; Colmar, 2013; Crain-Thorenson & Dale, 1999; Dale et al., 1996; Hargrave & Senechal, 2000; Pile et al., 2010). Similarly, however, it has been observed that regardless of the training type, in both populations, teachers and caregivers are able to learn the strategies taught and often retain them over time (Blom-Hoffman et al., 2007; Brannon et al., 2013; Crain-Thorenson & Dale, 1999; Dale et al., 1996; Hargrave & Senechal, 2000; Hockenberger et al., 1999; Huebner & Payne, 2010; Pollard-Durodola et al., 2011). In a similar vein, interventions for children who are typically developing and at-risk are more often implemented by the caregiver or teacher, whereas those for children with disabilities are more often researcher-implemented (Fleury et al., 2013; Katims, 1994; Mol et al., 2009; van Kleek et al., 2006; Yoder et al., 1995; Zevenbergen & Whitehurst, 2003; Ziolkowski & Goldstein, 2008).

Within the commonality of using dialogic and shared interactive reading to target a variety of skills, is the fact that these interventions are generally effective in creating positive change on the outcome variable being targeted when implemented with fidelity (Ezell et al., 2000; Fleury et al., 2013; Hay & Fielding-Barnsley, 2007; Hockenberger et al., 1999; Huebner & Payne, 2010; Katims, 1994; Kotaman, 2008; Lever & Senechal, 2011; Zevenbergen et al., 2003; Ziolkowski & Goldstein, 2008). Measurement in the outcomes of interventions using dialogic and shared interactive reading has varied across populations. Lonigan, Allan, and Lerner (2011) found that researchers and practioners often lack measurement tools that are both sensitive and specific enough to capture changes in children's language and preliteracy skills during interventions such as dialogic and shared interactive reading. In the seminal work by Whitehurst

and colleagues, standardized assessments of children's receptive and expressive vocabulary were prominent (Lonigan & Whitehurst, 1998; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst et al., 1988; Whitehurst et al., 1999; Zevenbergen & Whitehurst, 2003;). This trend was similar in earlier studies with children with disabilities (Crain-Thorenson & Dale, 1999; Dale et al., 1996). However, both groups have adopted more sensitive supplemental measures to capture vocabulary growth and growth in phonological awareness skills during interventions by using both "near-transfer" vocabulary assessments (i.e., assessing words specifically targeted during intervention) and by using curriculum based measures such as the myIGDIs (Individual Growth and Development Indicators) (Brannon et al., 2013; Fleury et al., 2013; Hargrave & Senechal, 2000; Whitehurst, Arnold et al., 1994; Whitehurst, et al., 1999; Ziolkowski & Goldstein, 2008). In alignment with how outcomes have been measured is the type of research design employed, with the vast majority being group design. Two exceptions are studies using single subject design for children with disabilities by Fleury and colleagues (2013) evaluating the effects of dialogic reading on children with ASD and Ziolkowski & Goldstein (2008) in examining the potential effects of repeated book reads on phonological awareness skills in preschool children with language delays.

The research in dialogic and shared interactive reading has progressed further for children typically developing and those at-risk than for children with disabilities. This has resulted in creation of training materials and curriculum to support its' implementation (Blom-Hoffman, et al., 2006; Lonigan, Farver et al., 2011). The development of these materials (*Read Together, Talk Together; Literacy Express Preschool Curriculum*) has allowed for wider dissemination of this intervention to all children.

Dialogic reading, unlike shared interactive, provides an explicit framework for how adults can engage children in interactive book reading. While shared interactive reading aims to promote general interaction around specific skills (e.g., vocabulary or preliteracy skill), dialogic reading specifically dictates both the types of prompts that are implemented (i.e., completion, recall, open-ended question, wh-questions, distancing questions) as well as a prompting hierarchy (i.e., prompt, evaluation, expand, repeat) that is to be used for each prompt during the reading. This detailed framework allows for potentially improved fidelity of implementation by the reader. It also allows for readers to go beyond simply questioning children around books and includes systematic evaluation of children's responses, expansions upon the responses, and allows the child to practice the expanded utterances through modeling and repetition. It is these key factors that may be critical for improving the language and preliteracy skills of young children with disabilities.

Purpose

Research in dialogic reading for children with disabilities is limited. Five studies have examined dialogic reading for children with disabilities (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994). Of these, three have participants with less severe disabilities, ranging from children with limited vocabulary skills to children with mild-moderate language delays (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Hargrave & Senechal, 2000). Two of the five studies targeted children with more significant disabilities; one for children with ASD and one for children with developmental disabilities in self-contained preschool classrooms (Fleury et al., 2013; Katims, 1994). Sample sizes for these five studies are small, ranging from 4 to 36, and settings and implementation of the intervention are inconsistent (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave

& Senechal, 2000; Katims, 1994). Additionally, much of the research in this area focuses on parent-child dyads as opposed to classroom-based interventions. Measures of assessment for both child and adult participants are inconsistent, as well as the definition of what constitutes a disability.

According to the U.S. Department of Education What Works Clearinghouse (WWC, 2010), only two of these five studies were conducted to meet their evidence standards (i.e., Crain-Thorenson & Dale, 1999; Dale et al., 1996). Of these two studies, neither examined the effects of dialogic reading beyond the domains of language and communication skills. Sample sizes in these studies were small, each with 32 and 33 participants. Further, these studies are limited to one geographic region of the United States. Based on review of these two studies, WWC (2010) concluded that dialogic reading has potentially positive effects on the communication and language skills for children with disabilities, although the extent for evidence is small.

Most prior research studies that used shared interactive and dialogic reading with children with disabilities have been conducted in the home environment, with the parents trained to read to their children; and are limited in the school setting (Colmar, 2011; Colmar, 2013; Crain-Thorenson & Dale, 1999; Dale et al., 1996; Ezell et al., 2000; Fleury et al., 2013; Hargrave & Senechal, 2000; Pile et al., 2010; van Kleeck et al., 2006; Ziolkowski & Goldstein, 2008). Within the school setting, interventions have varied in the dependent variable with targets to increase skills ranging from receptive and expressive vocabulary to child engagement and phonological awareness (Crain Thorenson & Dale, 1999; Fleury et al., 2013; Hargrave & Senechal, 2000; van Kleeck et al., 2006; Ziolkowski & Goldstein, 2008). Therefore, the setting of the current study focused on the use of dialogic reading in inclusive and self-contained

preschool classrooms, balanced equally across the intervention and comparison groups, to extend previous research using shared interactive reading in schools.

Prior research suggests that dialogic reading positively impacts the receptive and expressive vocabulary, overall oral language, and preliteracy skills often in deficit of children with mild to moderate communication disorders (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; WWC, 2010). However, there is limited empirical evidence as to the positive effects of dialogic reading with children with significant developmental delays and more specifically those with significant impairments in communication (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; WWC, 2010). Therefore, the current study was designed to determine if shared interactive reading, and specifically dialogic reading, is effective to make positive changes in children with disabilities. The purpose of the current study is to extend the existing literature base through examining the effects of dialogic reading, with incorporation of pause time, on the language and preliteracy skills of preschool children with significant developmental disabilities in a classroom setting.

CHAPTER 3

METHODOLOGY

This quasi-experimental study examined the effects of implementing dialogic reading, with the incorporation of pause time, on the receptive and expressive language and preliteracy skills of young children with disabilities. The data were analyzed using ANCOVAs to determine if the intervention of dialogic reading (i.e., PEER and CROWD), with the incorporation of pause time, affected the language and preliteracy outcomes of young children with disabilities.

Variables

Statement and Operational Definitions of Independent Variables

The independent variable in this study was the intervention of dialogic reading, with incorporation of pause time.

Dialogic reading included prompts and materials provided in the *Read Together, Talk Together* program kit (RTTT; Pearson Early Learning, 2006). This kit was developed based on the research in dialogic reading by Whitehurst and Lonigan, and contains 20 books, both fiction and nonfiction, with accompanying teacher and parent notes for each book. These include suggested prompts and vocabulary words that can be targeted using the strategies of dialogic reading. Three books from this kit were used: *Pigs Aplenty, Pigs Galore* (McPhail, 1993), *The Wolf's Chicken Stew* (Kasza, 1987), and *A Summery Saturday Morning* (Mahy, 1998). Five different vocabulary words were chosen for each book, for a total of 15 different targeted vocabulary words across the three books.

Each storybook was scripted with a total of 15 prompts using the CROWD (i.e., completion, recall, open-ended questions, wh-questions, distancing) strategies, with five prompts targeting each of the five targeted vocabulary words (i.e., one prompt per one vocabulary word),

and the remaining 10 prompts targeting general receptive and expressive language skills. Each prompt was implemented using the PEER (i.e., prompt, evaluate, expand, repeat) strategy of dialogic reading. Each of the three books were read for a two week period, three times per week, for a total of six intervention sessions per book. Of the 10 prompts promoting receptive and expressive language skills (i.e., the 10 prompts not targeting vocabulary words) only five were used for each reading of each book (e.g., for each of three repeated reads), with each set of prompts being alternated every other read, while the prompts for the vocabulary words remained consistent across repeated reads. Therefore, a total of 10 prompts per book read were implemented (i.e., five prompts for vocabulary words, five prompts for receptive and expressive language per session).

Pause time was defined as allowing five seconds of time to elapse following the presentation of each of the 10 prompts per book reading session. If none of the children responded within five seconds to the any of the prompts, the prompts were repeated. If the participants did not respond after the second presentation of a given prompt, the researcher modeled the appropriate response and asked the children to repeat the model. This procedure was repeated for all 10 prompts per book reading session. If the prompt involved a direct reference to a picture in the book, the researcher pointed to the specific reference as the prompt was given.

Statement and Operational Definitions of Dependent Variables

The dependent variables included the participants' performance on receptive language skills as assessed by the *Peabody Picture Vocabulary Test-4ᵗʰ Edition* (PPVT-4; Dunn & Dunn, 2007), the 'Which One Doesn't Belong' subtest of the Individual Growth and Development Indicators of Early Literacy (IGDIs-EL; McConnell, Bradfield, Wackerle-Hollman, &

Rodriquez, 2012), and a receptive vocabulary near transfer test. Expressive language skills were

measured by the *Expressive One-Word Picture Vocabulary Test-4th Edition* (EOWPVT-4;

Martin & Brownell, 2011), the Picture Naming subtest of the Individual Growth and

Development Indicators of Early Literacy (IGDIs-EL; McConnell, et al., 2012), and an

expressive near transfer vocabulary measure. Children's preliteracy skills were assessed using

the *Get Ready to Read!-Revised* (GRTR-R; Whitehurst & Lonigan, 2010).

Research Questions

Research Question One

Will using dialogic reading, with incorporation of pause time, promote the receptive

language skills of young children with disabilities ?

Research Question Two

Will using dialogic reading, with incorporation of pause time, promote the expressive

language skills of young children with disabilities?

Research Question Three

Will using dialogic reading, with incorporation of pause time, promote the preliteracy

skills of young children with disabilities?

Research Design

This study was a pretest-posttest quasi-experimental group design with one intervention

group and one comparison group. Children in five inclusion classrooms were randomly assigned

to intervention or comparison conditions (i.e., three comparison, two intervention). Children in

seven self-contained classrooms were randomly assigned to intervention or comparison

conditions (i.e., three comparison, four intervention). The 42 student participants within the 12

classrooms were equally distributed with 21 students in the intervention condition and 21 students in the comparison condition.

Recruitment Procedures

Prior to the initiation of the study, a meeting was held with the school administrator, and classroom teachers of 3-5 year-old children of both inclusion and self-contained classrooms in two preschool centers to review the procedures of the study and explain the consent process. Across the two centers where data were collected there were two full-day self-contained classrooms for children with ASD, one full-day self-contained classroom for children with severe to profound intellectual disabilities, 14 half-day self-contained classes for children with significant developmental delays, and seven full-day inclusion classrooms, for a total of 24 classrooms. The enrollment across these 24 classrooms was approximately 160 students at the initiation of the study; however, this fluctuated depending on the identification and eligibility of new students with disabilities during the remainder of the school year. Children in 21 of the 24 classrooms were eligible for participation, since these classrooms served children with significant developmental delay. Children from the two classrooms for children with ASD and the one full-day classroom for children with severe to profound intellectual disabilities were made up of predominantly children with primary eligibilities other than significant developmental delay and were thus not eligible to be participants.

Consents of participation from all interested classroom teachers were obtained, since classroom quality was measured and teachers would need to send and collect child consents. Fifteen of the 21 teachers (71.4%) across the two preschool centers consented to participate in the study (i.e., seven at Preschool Center 1, eight at Preschool Center 2). The targeted number of teachers at each site was six, for a total of 12 classrooms. One teacher at Preschool Center 1 was

immediately excluded due to her responsibilities changing to no longer having a classroom of students, leaving six classroom teachers (three self-contained, three inclusion) at Center 1. At Preschool Center 2, of the eight teachers that signed consent, two taught inclusive classes and six taught self-contained. In order to maintain balance of self-contained and inclusive classrooms, teachers from four of the six self-contained classrooms were randomly chosen using a web-based randomization program (i.e., Randomizer.org). This resulted in six classrooms at Preschool Center 2 (four self-contained, 2 inclusion). Thus, children from a total of 12 classrooms participated in the study (7 self- contained, and 5 inclusion).

A letter explaining the research project and permission forms were sent home to parents/guardians of all 3-5 year-old children within the 12 classrooms who had children with a primary eligibility of significant developmental delay and who had a current IEP in place. Additionally, all children recruited to join the study had to participate in their preschool class for at least three hours per day, a minimum of three days per week, and had to have a primary language of English, as determined by the primary language of instruction in the school setting. Children who were non-verbal (as determined by the classroom teacher as having no spoken words or word approximations) or who were deaf and/or blind were excluded from recruitment. Children age three had to have had their third birthday on or before December 1, 2014 to be eligible for recruitment.

Forty-seven students returned permission forms. Three children were excluded prior to the initiation of the study. Of these, two children were excluded because they did not attend school on the days the study was scheduled and the third child was excluded due to a primary eligibility other than significant developmental delay. Of the 44 children remaining, two additional children were excluded from data analysis due to missing more than four reading

sessions during the six-week intervention period, a rule that had been established prior to the study initiation.

Measures

Assessments included standardized assessments, curriculum based measures, and researcher developed tools. Standardized assessments were selected for their validity and reliability as well as their use in prior research in dialogic reading. Curriculum-based measures (CBM) were selected as they are also standardized and can be sensitive to small increments of growth over shorter duration of time. Researcher developed 'near-transfer' tools were used to specifically assess the vocabulary words targeted within the intervention of dialogic reading. Curriculum based measures and near transfer tools have been used in prior research on dialogic reading, as standardized assessments may not be sensitive and specific enough to capture changes that occur (Brannon et al., 2013; Fleury et al., 2013; Hargrave & Senechal, 2000; Senechal & Cornell, 1993; Whitehurst, Arnold et al., 1994; Whitehurst, et al., 1999; Ziolkowski & Goldstein, 2008).

Receptive language. Receptive language was assessed using the *Peabody Picture Vocabulary Test-4th Edition* (PPVT-4; Dunn & Dunn, 2007). On this norm-referenced, standardized assessment, the child is required to point to one of four pictures that represent an object or action that is named by the examiner. This assessment is commonly used in language and preliteracy research, specifically research in dialogic reading for children with disabilities (e.g., Crain-Thorenson & Dale, 1999; Hargrave & Senechal, 2000). Mean test-retest reliability by age is .93, the split-half internal consistency reliability by age is .94, and the alternate form reliability by age is .89 (Dunn & Dunn, 2007).

The 'Which One Doesn't Belong' subtest of the Individual Growth & Development Indicators of Early Literacy (IGDIs-EL; McConnell et al., 2012) was also used to assess receptive language skills.   In this CBM, the child is required to respond orally or point to the picture that does not belong in a set of three pictures. The child is first presented with four sample items; for the first two sample items, the examiner models the correct response, whereas for the second two sample items, the examiner allows the child to respond and provides positive feedback for correct responses. Following the sample items, 15 picture sets are presented one at a time, with the child asked to "find the one that doesn't belong", according to the scripted descriptions. The total number of correct items out of 15 is recorded.   The test-retest reliability of the IGDIs-EL as a whole is .93-.97, with the sensitivity reported as .71-.77 and specificity as .57-.69. The WODB has concurrent validity with the *Clinical Evaluation of Language Fundamentals-Preschool 2nd Edition* (CELF-P2; Semel, Wiig, & Secord, 2004) of .61-.71. At the direction of the first author of the myIGDIs-EL, the 'spring' set of stimulus items were used both pre and posttest for the purposes of this study (S. McConnell, personal communication, November 2014).

Children's ability to identify age appropriate vocabulary was also examined using a near-transfer receptive vocabulary task. Near-transfer implies that words were lifted (i.e., images were scanned) directly from each book. Copyright permission from the publishing company of all three books was obtained for use in this study. A total of 45 words were assessed, with 15 words selected from each of the three books. These 45 words included the 15 target vocabulary words for each of the three books used during intervention (i.e., 5 targeted words per book). See the procedures section for how these 15 target words for the intervention were selected from the 45 original words. Each word was presented in a field of four choices to participants. All words

were presented in color scanned images from the storybook with the three foils also taken from the storybook. Directions were standardized across items, stating, "Point to the picture of _____". Following the presentation of each item, five seconds elapsed prior to recording a non-response and proceeding to the next item.

Expressive language. The *Expressive One-Word Picture Vocabulary Test-4th Edition* (EOWPVT-4; Martin & Brownell, 2011) was used to assess expressive vocabulary skills. This test is a norm-referenced, standardized assessment that requires the child to verbally name pictures of common objects, actions, or concepts. This assessment is commonly used in research in dialogic reading for children with and without disabilities (e.g., Arnold et al., 1994; Crain-Thorenson & Dale, 1999; Hargrave & Senechal, 2000; Huebner, 2000; Lonigan & Whitehurst, 1998). The internal consistency is reported as alpha coefficients of .93 to .97 across age groups, with a median of .95 across ages (Martin & Brownell, 2011).

Participants' ability to express age appropriate vocabulary was also examined using the Picture Naming subtest of the Individual Growth and Development Indicators of Early Literacy (IGDIs-EL; McConnell et al., 2012), a CBM. The Picture Naming IGDIs-EL assesses oral language and vocabulary. It was chosen for its reliability, validity, and sensitivity to detect small changes in development. The Picture Naming IGDI can be repeated frequently and administration time is approximately five minutes per student. For the Picture Naming IGDI the child is first presented with four sample items of pictures of objects commonly found in a preschoolers' environment. For the first two sample items, the examiner models the correct response, whereas for the second two sample items, the examiner allows the child to respond and provides positive feedback for correct responses. Following the sample items, 15 pictures are presented one at a time, with the child asked to name the pictures, according to the scripted

descriptions. All responses provided by the children were written down and the total number of pictures named correctly out of 15 was recorded. One-month alternate form reliability coefficients range from r = .44 to .78 (McConnell, McEvoy, & Priest, 2002). The concurrent validity with the PPVT-4 is .66 and with the Expressive Vocabulary subtest is .77. At the direction of the first author of the myIGDIs-EL, the 'spring' set of stimulus items were used both pre and posttest for the purposes of this study (S. McConnell, personal communication, November 2014).

A 45 item near transfer vocabulary test was used to assess near-transfer expressive vocabulary (i.e., 15 words from each of the three books). Near-transfer implies that words were lifted (i.e., images were scanned) directly from each book. Copyright permission from the publishing company of all three books was obtained for use in this study. These 45 words included the 15 target vocabulary words for each of the three books used during intervention (i.e., 5 targeted words per book). See the procedures section for how these 15 target words for the intervention were selected from the 45 original words. This test consisted of the same 45 words from the near-transfer receptive vocabulary assessment and was presented in the same format of color scanned images of the pictures. However, as opposed to pictures presented in a field of four, single pictures were presented. Directions were standardized across books and participants, with the examiners stating, "What is the name of this picture?" Following the presentation of each picture, five seconds elapsed prior to recording a non-response and proceeding to the next picture. All verbal responses were written down and the total number of correct responses was recorded.

Preliteracy. The *Get Ready to Read!-Revised* (GRTR-R; Whitehurst & Lonigan, 2010) was utilized to collect information on preliteracy skills. This norm-referenced screening tool

requires the child to point to one of four pictures in reference to concepts of print knowledge, book knowledge, phonological awareness, and phonics. The GRTR-R was chosen due to reliability in screening preschool children's preliteracy skills and its predictive validity of later reading skills. It has been used in studies on shared interactive reading for both children that are typically developing and those with disabilities (e.g., Ziolkowski & Goldstein, 2008). The split-half reliability for middle and lower-income samples are .78 and .80 respectively (Phillips, Lonigan, & Wyatt, 2009). It has good internal consistency as demonstrated by a coefficient alpha of .88 (Lonigan, Allan et al., 2011).

Classroom Environment. The Early Language and Literacy Classroom Observation – PreK Tool (ELLCO-PreK; Smith, Brady, & Anastasopoulus, 2008) was used to assess the current quality of language and literacy practices and materials for each classroom in the study. The ELLCO-PreK evaluates 19 items in five critical categories: Classroom Structure, Curriculum, The Language Environment, Books and Book Reading, and Print and Early Writing. Trained observers have a mean interrater reliability of 74%. The internal consistency ratings are strong, with chronbach alphas of .864 and .922 for the General Classroom Environment and the Language and Literacy subscales, respectively (ELLCO-PreK; Smith et al., 2008).

Classrooms were also observed using the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008). The CLASS is an observational tool evaluating nine global scales of classroom quality in three domains: Emotional Support, Classroom Organization, and Instructional Support. Each scale is scored on a seven point Likert-type format. This instrument focuses on classroom processes rather than materials and environment (La Paro, Pianta, & Stuhlman, 2004). It is highly correlated with the Early Childhood Environment Rating Scale (ECERS; Harms, Clifford, & Cryer, 2005). The CLASS reliability is

on average a weighted kappa of 0.66 (i.e., 86% of trained observers scored the same or within one point of each other). The internal consistencies for the emotional and instructional support factors within one study sample were 0.86 and 0.78, respectively (Mashburn et al., 2008).

Participants

Results are presented for the 42 student participants who completed the study. Students enrolled in this study attended one of twelve classrooms at two preschool centers in a suburban school district in the southeastern United States. Twenty-two students attended one center and the remaining 20 attended the other center. Through random assignment at the classroom level, using a randomization program on Randomizer.org, children in six of the classrooms (i.e., 50%) were in the intervention group while children in the remaining six classrooms were in the comparison condition. Of the five inclusive classrooms in the study, children from two were in the intervention group, with children from three classrooms in the comparison group. Of the seven self-contained classrooms, children from four were in the intervention group and children from three classrooms were in the comparison group.

Due to the heterogeneity of this population, interviews with the classroom teacher were completed to collect demographic data on the students including educational eligibility, medical diagnoses, current special education services, gender, age, race, home language(s), and areas of participants' current IEP goals and objectives (see Appendix A). All participants had a primary state eligibility of significant developmental delay (SDD), and 81% also had a secondary eligibility of speech-language impairment. In the state where this research took place, SDD is defined by performance on a standardized norm-referenced test more than two standard deviations below the mean in one domain (i.e., cognition, speech-language/communication, gross/fine motor, activities of daily living, and social/personal) or one and a half standard

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deviations below the mean in two or more domains. All participants had an Individualized

Education Plan (IEP) currently in effect. The mean age of all participants was 55.88 months (*SD*

= 6.84), with a range of 40 months to 66 months. The participants were identified predominantly

as male (i.e., 78.6%) and of the Caucasian race (73.8%). Other race/ethnicities were identified as

Latino (16.7%), African American (7.1%), and biracial (2.4%). See Table 1 for student

demographics. The majority of the participants' home language was described as English (81%),

with others listed as Spanish (14.3%), Haitian-Creole (2.4%), and Swahili (2.4%). Medical

diagnoses included Down syndrome (*n* = 3), Attention Deficit Disorder (*n* = 2), Seizure Disorder

(*n* = 1), Strabismus (*n* = 1), Macrocephaly (*n* = 1), and Hearing Impairment (*n* = 1). Thirty-one

percent of the participants received occupational therapy services, while 23.8% received physical

therapy (see Table 1).

Additionally, scores obtained upon initial assessment in the determination of eligibility

for special education services in the public school system on the *Preschool Language Scale-4th*

Edition (PLS-4; Zimmerman, Steiner, & Pond, 2002) or *Preschool Language Scale – 5th Edition*

(PLS-5; Zimmerman, Steiner, & Pond, 2011) were gathered and analyzed prior to the initiation

of the study to describe potential group differences (see Table 1).

The two groups were not significantly different on any pretest assessment. Similarly,

there was no significant difference noted between the two groups on receptive, expressive, or

total PLS scores upon entry to the preschool program. Gender representation was similar across

groups with the comparison group having 16 boys and five girls and the intervention group

having 17 boys and 4 girls. More children in the intervention group received speech-language

therapy than in the comparison group (90.5% and 71.4% respectively). The groups were

significantly different on pretest age, with the intervention group having a mean age of 53.57

months (*SD* = 6.37) and the comparison group having a mean age of 58.19 months (*SD* = 6.65) (*t* = 2.30, *p* = .027). This discrepancy in pretest age is likely due to the fact that the comparison group had three inclusion classes, whereas the intervention group had two. In this setting, older children are often placed in the inclusive classrooms (see Table 1).

Setting

This study was conducted with children in inclusive and self-contained preschool special education classrooms within two public preschool centers in a suburban county in the Southeastern United States. This school district is the ninth largest school district in its state, with an enrollment of over 39,000 students. It consists of 44 schools and centers; 24 elementary schools, seven middle schools, six high schools, three alternative schools, one psycho-education center, and three preschool centers. The district enrollment in free/reduced meals is 32.42%. The 4-year graduation rate is 78%, which is consistent with the national average.

Characteristics of teachers in the twelve classrooms were gathered via demographic information sheets that were self-reported (see Appendix B). The teachers were all female and all Caucasian. Teachers from the intervention and comparison classrooms were not significantly different in age, years of total teaching experience, or years experience in teaching preschool. Overall, the teachers of children in the intervention group had a higher mean age (i.e., 39.5 years) than the teachers in the comparison group (i.e., 34.83 years). While the intervention group had slightly more years teaching experience in general (i.e., 9.83 years) than the comparison group (i.e., 8 years), the comparison group had slightly more years teaching preschool (i.e., 7.83 years) than the intervention group (i.e., 6.83 years). All classroom teachers had a minimum of a Bachelor of Science degree, with one teacher having earned a Master's degree, and one additional teacher earing a Specialist in Education. Many teachers held multiple areas of

certification, with six teachers certified specifically in preschool special education. Other

certification areas were general special education (P-12) and Early Childhood Education (P-5).

Across both groups, teachers reported using the High Scope curriculum most frequently

($n = 5$). Other curriculums were Read It Once Again ($n = 4$) and the Carolina Curriculum ($n =$

1). Two teachers reported not using any one specific curriculum to guide their instruction. When

asked if teachers had experience in using or had received training in dialogic reading, six

reported they had no experience with the remaining half reporting unsure. Similarly, five

teachers reported no experience with or training in shared interactive reading, with the remaining

seven unsure if they were familiar with this technique. See Table 2 for specific teacher

characteristics by group.

The principal investigator observed all classrooms (i.e., intervention and comparison)

prior to the intervention using the Classroom Assessment Scoring System (CLASS; Pianta et al.,

2008) and the Early Language and Literacy Classroom Observation - PreK (ELLCO-PreK;

Smith et al., 2008) to evaluate current language modeling practices. Classrooms in the

intervention group were not significantly different than classrooms in the comparison group on

overall scores or subscales of either the CLASS or the ELLCO (see Table 3). On average, all

classrooms scored 5.97 ($SD = .45$) on the Emotional Support Construct of the CLASS,

suggesting a mix of effective interactions with periods of when interactions were less effective.

On the Classroom Organization construct, and average score of 5.37 ($SD = .54$) also indicating a

midrange of effective practices. For the Instructional Support Construct, an average score of

3.12 ($SD = .81$) was observed, suggesting the lower range of effective practices and potential

absence of quality instruction. These scores are consistent with the 2013 national scores from

the Office of Head Start for the Classroom Organization ($M = 5.63$, $SD = .43$) and Emotional

Support ($M = 5.99$, $SD = .34$) domains, with the Instruction Support domain ($M = 2.72$, $SD = .50$) slightly higher than the Head Start national average.

Observations using the ELLCO resulted in overall average scores of 3.57 ($SD = .26$) on the General Classroom Environment subscale that fell in the basic to strong range (3.0-3.9). Scores on the Language and Literacy on average were 3.03 ($SD = .39$) also falling in the basic to strong range (3.0-3.9). When evaluating the individual section scores, classrooms fell on average in the basic to strong range ($M = 3.02$, $SD = .55$) for Books and Book Reading and in the basic to strong range ($M = 3.3$, $SD = .46$) for the Language Environment. The Print and Early Writing section score was the lowest, falling in the inadequate to basic range ($M = 2.71$, $SD = .71$). See Table 3 for specific classroom information by group.

The principal investigator and one research assistant (designated as Research Assistant A) led dialogic reading for the intervention classrooms within a relatively quiet area of the preschool classroom. The teacher and paraprofessional(s) were in a separate area of the classroom, working with the remainder of the children not enrolled in the intervention. Small groups of three to five children participated in the dialogic reading sessions. Groups were determined by enrollment in their existing classroom and remained static throughout the intervention.

Similarly, the student PI and one research assistant (A) led the regular reading sessions for the comparison classrooms within a relatively quiet area of the preschool classrooms. The teacher and paraprofessional(s) were in a separate area of the classroom, working with the remainder of the children not enrolled in the intervention. Small groups of two to five children participated in the regular reading sessions. Groups were determined by enrollment in their existing classroom and remained static throughout the intervention.

Materials

Three picture books were selected from 20 in the *Read Together, Talk Together* program Kit A (RTTT; Pearson Early Learning, 2006) for children ages two to three years: *Pigs Aplenty, Pigs Galore* (McPhail, 1993)*, The Wolf's Chicken Stew* (Kasza, 1987), and *A Summery Saturday Morning* (Mahy, 1998). This reading program is based on research by Whitehurst and Lonigan and the books in the kit are chosen to work well for dialogic reading. Kit A (for children ages two to three years) was selected because the participant children range in age from three to five years and present with significant developmental delays. The three books selected from the RTTT kit are based on criteria used by Hargrave and Senechal (2000) and used by Fleury and colleagues (2013): (a) colorful illustrations, (b) potentially new vocabulary appear in the text and illustrations, (c) texts limited by length, as to increase the likelihood of adult-child interactions, (d) book topics appropriate for preschool age children, (e) books with subject matter not specific to certain holidays (e.g., Christmas, Thanksgiving), and (f) books of low likelihood to have been read frequently to children in this study.

Selection of the RTTT kit was based on its creation by the researchers originating the intervention of dialogic reading as well as to increase fidelity of implementation. Prior research in both shared interactive and dialogic reading shows fidelity of implementation of the CROWD and PEER or related strategies influences the effect on outcomes for children with language impairments (Colmar, 2011; Colmar 2013; Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Pile et al., 2010; van Kleeck et al., 2006; Ziolkowski & Goldstein, 2008).

Teacher notes that highlight specific vocabulary words and suggested prompts based on the CROWD strategy accompany each book in the RTTT kit. These teacher notes guided

selection of the pool of 45 vocabulary words (i.e., 15 per book) as well as guided the

development of prompts employed during the intervention. Selection of the full list of 45 words

was also guided by their ability to be depicted through illustrations. All words chosen were

nouns since action words are more difficult to decipher through pictures and nouns are typically

learned first in English. As children with significant disabilities typically respond better to

explicit, direct instruction, words with concrete meanings were selected (e.g., beak, oatmeal,

bicycle). The 15 target vocabulary words were selected based on the low probability that

preschool children with significant developmental delays would successfully identify by pointing

or verbally name them prior to the intervention. In order to determine which fifteen total words

(i.e., five words per book) would be targeted during the intervention, all participants were

pretested on their ability to expressively name all 45 words to determine the low probability that

they are in the lexicon of preschool children with significant developmental delays. From the

original 45 words, only those that the majority of the participants (i.e., more than 50%) did not

name correctly were considered for use in the intervention. The 15 target words (i.e., five words

for each of the three books) were then randomly chosen from this pool of low probability words.

See Appendix C for specific response rates for all 45 words as well as which words were

selected for target words in the intervention group. The three books were read with the

intervention and comparison groups as described in the procedures section.

In sum, the materials for this intervention included three picture books, each containing

fifteen scripted prompts, for a total of 45 scripted prompts across the three books. Assessments

were the PPVT-4; EOWPVT-4; GRTR!-R; 'Which One Doesn't Belong' IGDIs-EL; Picture

Naming IGDIs-EL; near-transfer receptive vocabulary assessment; near-transfer expressive

vocabulary assessment; ELLCO; and CLASS.

Pilot Study

The student PI piloted the expressive near-transfer assessment, the straight reading, and dialogic reading intervention with two typical children ages three and four years prior to the initiation of the current research study. The children responded accurately to 64% (i.e., 28 of the 45 words) of the near transfer expressive assessment. However, the incorrect responses were semantically related (e.g., 'goose' for duck, 'quack part' for beak). No adjustments were made to the near transfer assessments, as all pictures were at least familiar to both children. As the vocabulary word prompts were not determined until the pretesting was complete (See Materials section on how target words were chosen), sample vocabulary prompts were inserted for the sake of the pilot study. Oral language prompts were selected from the 'Book A' version of each of the three storybooks so as to mimic a true reading within the study (i.e., five vocabulary prompts, five oral language prompts per book). Minor changes were made to scripted prompts for the intervention books for the current study based on participant feedback to the book reading. These adjustments were to provide more specific focus on the targeted vocabulary words. For example, in *Pigs Aplenty, Pigs Galore*, for the word 'lamp', instead of simply pointing to the picture and asking, "What is this?", the prompt was adjusted to, "What is next to the man's chair?" Similarly, in the book *The Wolf's Chicken Stew*, an oral language prompts was changed from, "What is Mrs. Chicken doing?" to "Where is Mrs. Chicken going?" to focus the type of response that could be regarded as correct.

Procedures

Participants were assessed within three weeks prior to the initiation of the intervention and within two weeks of the conclusion of the intervention on standardized measures of receptive and expressive vocabulary as well as preliteracy skills. Curriculum based assessments

and researcher developed assessments of receptive and expressive near-transfer vocabulary skills were also administered pre and post intervention. All assessments took place in a quiet room separate from the preschool classroom. In order to establish rapport with each child, assessment began with receptive language tasks, as they required no speech from the child. Expressive language and preliteracy tasks followed.

The student PI and four research assistants (A, B, C, and D) were responsible for all pre and posttesting of participants. Classroom observations were completed by the student PI and implementation of book reading in both the intervention and comparison conditions was done by the student PI and Research Assistant A. Four research assistants (C, D, E, F) were responsible for fidelity checks of the intervention and comparison groups. The student PI is a licensed and certified speech-language pathologist and certified special education teacher for preschool children with disabilities with 14 years experience working in the public school systems. Research assistant A is a certified special education teacher with a master's degree in Early Childhood Special Education (ECSE) with two years of classroom teaching experience. Research assistants B, C, and E are currently enrolled in a Master's program in ECSE. Research assistant D is a doctoral student in special education with 12 years of prior classroom teaching experience. Research assistant F is certified speech-language pathologist, certified special education teacher for preschool children, and an assistant professor of special education with an earned doctorate focusing in ECSE.

Each book for the intervention group was prepared using typed notes taped to pages with specific prompts, taken from the RTTT program kit, to ask a set number of questions per book. For each book, the fifteen prompts were distributed as follows: five prompts for the five targeted vocabulary words implemented during every reading of each book; the remaining 10 to promote

receptive and expressive language in general were sub-grouped into two sets of five which were used in alternating readings. Therefore, for each intervention book reading session, the researcher implemented 10 prompts per book. Two books for the intervention group were created for each story (i.e., *Pigs a Plenty, Pigs Galore* Book A and B) as to avoid any mistake that the researcher would read the inappropriate book during the intervention. Therefore Book A contained 5 vocabulary prompts and one set of 5 oral language prompts and Book B contained the same 5 vocabulary prompts and the second set of 5 oral language prompts (see Appendix D). This was true for each of the three storybooks. Books for the comparison group contained no modifications and were labeled "Book C". Each prompt was implemented using one of the CROWD strategies and the PEER prompting hierarchy. See Appendix D for the selected targeted vocabulary words and scripted prompts for each of the three books.

The student PI and one research assistant (A) implemented dialogic book reading in the intervention classrooms and regular book reading in the comparison classroom for six weeks. Three picture books were read, each for a two-week period, with each book read over six sessions. Reading took place in a relatively quiet area in the classroom (e.g., the classroom library area), with no more than five children in a group, for approximately 10 minutes per day, three days per week. The comparison group was read to at the same frequency (i.e., three times per week) using the same books as the intervention group, with no questions asked or elaborations made during the reading. Therefore, the comparison and intervention groups received repeated readings of the same three story books, with six exposures of each book. The targeted frequency of reading was consistent with prior literature for children with language impairments engaging in dialogic reading (e.g., Ziolkowski & Goldstein, 2008).

Daily data sheets were completed for each reading session by the student PI and research assistant A to gather information on attendance of participants, location of reading within the classroom, activities occurring simultaneous to the reading sessions, and any anecdotal information (e.g., ability of students to respond correctly to prompts, attention level of participants). A sample of this form is found in Appendix E.

Fidelity

The student PI and all research assistants completed training in the administration of all standardized and researcher developed assessments, the strategies of dialogic and controlled reading, and in completing fidelity checks. These trainings took place in two separate three-hour sessions. Day one consisted of trainings on all assessments. The researcher and research assistants practiced the assessments to reach 90% inter-observer reliability. Training for dialogic reading was completed using the RTTT video training for teachers at the end of day one. This format has been found to be highly acceptable in training both parents and teachers in the CROWD and PEER strategies and increases standardization of training (Arnold et al., 1994; Blom-Hoffman et al., 2006; Blom-Hoffman et al., 2007). Day two consisted of a review of all assessments as well as review of the CROWD and PEER strategies. Following review, the student PI and research assistants practiced the reading of the three books using both dialogic reading strategies (i.e., the scripted CROWD prompts with the PEER prompting hierarchy) and the straight reading with no elaborations, while taking turns practicing fidelity checks.

Fidelity checks were completed for one intervention and one comparison session per week, per student PI and researcher A, for a total of 33% of completed session days. Four trained research assistants (C, D, E, and F) performed the fidelity checks. Fidelity checks typically occurred during the first reading of each week to ensure that proper adherence to the

intervention and comparison conditions was implemented for subsequent readings. For the intervention group, fidelity was determined by adherence to the specific scripted prompts in each storybook, the implementation of pause time following each prompt, and implementing the PEER prompting hierarchy. Different fidelity checks were created for each version (Book A & Book B) of each of the three books. The fidelity was calculated as a percentage of total opportunities correct of total opportunities per book. See Appendix F for a sample of fidelity checklist for the intervention group. In the comparison group, fidelity checks were related to the researchers' adherence to reading the storybook without any additional questions or elaborations per every four pages of the book (see Appendix G). Ninety percent or greater fidelity was considered acceptable for both groups. If either the student PI or research assistant dropped below the targeted 90% fidelity for one session, training using the RTTT videos would have been repeated, but results of the fidelity checklists revealed that the student PI and research assistant completed the intervention with an average of 98.54% fidelity for the intervention group and 99.3% for the comparison group.

Inter-observer Agreement

The assessment team for this study was comprised of the student PI and four research assistants (A, B, C, and D), all of whom completed CITI training. Two additional research assistants (E and F) were trained through demonstration and practice in the scoring procedures for the purposes of inter-observer agreement (IOA). Inter-observer reliability was completed by research assistant E or F for 20% of the data for greater than or equal to 90% agreement. Inter-observer reliability was determined by dividing the total number of agreements between both members of the research team by the total number of observations, and then multiplied by 100.

Inter-observer reliability averaged 95%. A third party checked and resolved all discrepancies (research assistant D).

Data Analysis

All children's files were de-identified and assigned a four-digit code. The student PI scored all classroom and student participant assessments, with all raw scores converted to standardized scores as appropriate. Research assistant E or F verified 20% of all scoring. Data were analyzed using SPSS software (SPSS; IBM, 2011). A one-way Analysis of Covariance (ANCOVA) was used to determine differences on the posttest scores on measures between the intervention and comparison groups (i.e., PPVT-4 raw scores, EOWPVT-4 raw and standard scores, GRTR-R, Picture Naming and 'Which One Doesn't Belong' subtests of the myIGDIs-EL, and the expressive near transfer vocabulary assessments) when all assumptions were met. The pretest scores and age were used as covariates for each analysis. Prior to ANCOVA analysis, the assumption of homogeneity of regression slopes (HOS) was performed to ensure that there was not an interaction between the independent variable (group) and the covariates (pretest age and pretest scores). For data that met the assumption, the pretest scores and age were used as the covariates to determine if the intervention group's scores were significantly different from those of the comparison group following the intervention. An alpha level of .05 was set for each ANCOVA analysis. Effect sizes, using partial eta squared and Cohen's d, were calculated for each dependent variable where significant differences were noted between the comparison and intervention groups (Cohen, 1992). For Cohen's d, effects were determined as small (.10), medium (.25), or large (.40) for each results (Cohen, 1992). For partial eta squared, effects were determined as small (.02), medium (.13), and large (.26). Finally, Levene's test of equality of variance was analyzed for each ANCOVA to assess the homogeneity of variance

between the two groups (i.e., comparison and intervention). Each analysis completed except the expressive near transfer full and target words assessments met this assumption. This indicates that there may be a chance of incorrectly rejecting the null hypothesis. However, because the group sample sizes are equal the chance of this occurrence is mitigated, therefore, ANCOVAs were completed for these two measures. Results for these two measures should be interpreted with caution.

The receptive and expressive near transfer vocabulary assessments were first analyzed in entirety (i.e., 45 words) to determine the potential presence of between group differences. However, because significant differences were noted between groups on both the receptive and expressive near transfer assessments, additional analyses was completed, separating the words in two groups (i.e., 15 target words, 30 non-target words) to determine from where the significant effects came.

For data that did not meet the assumption of HOS, the Johnson-Neyman (J-N) procedure was conducted as an alternative to ANCOVA. The J-N technique is the soundest alternative to ANCOVA when the assumption of HOS has been violated (D'Alonzo, 2004). This procedure was completed for the analysis of the PPVT-4 standard scores and all analyses of the receptive near transfer vocabulary assessment (i.e., full, target words, non-target words). The J-N technique uses the covariate means and standard deviations, the sum of squares residual (error) for the interaction on the HOS, and the intercept and slope for the comparison and intervention groups to calculate an upper and lower limit of potential effect. Results of effectiveness are interpreted based on covariate (i.e., pretest) scores falling above, below, or in between these upper and lower limits. This allows for interpretation of effect for different groups within the sample.

Table 1

Table of Characteristics of Participants

Characteristic	Intervention Group				Comparison Group				Total			
	n	%	*M*	*SD*	*n*	%	*M*	*SD*	*n*	%	*M*	*SD*
Age (in months)*	21		53.57	6.37	21		58.19	6.65	42		55.88	6.84
Gender												
Male	17	81.0			16	76.2			33	78.6		
Female	4	19.0			5	23.8			9	21.4		
Race/Ethnicity												
African American	1	4.8			2	9.5			3	7.1		
Biracial	1	4.8			0	0			1	2.4		
Caucasian	13	61.9			18	85.7			31	73.8		
Latino/Hispanic	6	28.6			1	4.8			7	16.7		
Home Language												
English	15	71.4			19	90.5			34	81.0		
Haitian-Creole	1	4.8			0	0			1	2.4		
Spanish	5	23.8			1	4.8			6	14.3		
Swahili	0	0			1	4.8			1	2.4		
Primary Eligibility												
SDD	21	100			21	100			42	100		

	n	%	M	SD	n	%	M	SD	n	%	M	SD
Secondary Eligibility												
Speech Impaired	19	90.5			15	71.4			34	81.0		
Autism	0	0			1	4.8			1	2.4		
Special Services												
Speech Thx	19	90.5			15	71.4			34	81.0		
Occupation Thx	8	38.1			5	23.8			13	31.0		
Physical Thx	7	33.3			3	14.3			10	23.8		
Area of Goals												
Communication	18	85.7			15	71.4			33	78.6		
Articulation	7	33.3			5	23.8			12	28.6		
Social-Emotional	15	71.4			17	81.0			32	76.2		
Adaptive	16	76.2			11	52.4			27	64.3		
Fine Motor	9	42.9			8	38.1			17	40.5		
Gross Motor	8	38.1			3	14.3			11	26.2		
Cognitive	14	66.7			14	66.7			28	66.7		
PLS Score Entry												
Receptive	18	86.7	70.22	12.96	16	76.2	78.5	15.09	34	80.9	74.12	14.41
Expressive	18	86.7	75.94	10.07	16	76.2	76.25	9.26	34	80.9	76.09	9.55

	n	%	M	SD	n	%	M	SD	n	%	M	SD
Total	18	86.7	71.44	12.01	16	76.2	75.82	11.14	34	80.9	73.57	11.63
Class Placement												
Inclusive	7	33.3			12	57.1			19	45.2		
Self-Contained	14	66.7			9	42.9			23	54.8		

Significantly different (p<.05)

Table 2

Table of Characteristics of Classroom Teachers

	Intervention Group				Comparison Group				Total			
Characteristic	n	%	M	SD	n	%	M	SD	n	%	M	SD
Age (in years)	6	100	39.5	13.52	6	100	34.83	6.31	12	100	37.17	10.35
Gender												
Female	6	100			6	100			12	100		
Years Teaching (Total)	6	100	9.83	10.46	6	100	8	3.41	12	100	8.92	7.48
Years Teaching (Preschool)	6	100	6.83	7.36	6	100	7.83	3.19	12	100	7.33	5.43
College Degree(s)												
Bachelors Degree	4	66.7			6	100			10	83.3		
Master's Degree	1	16.7			0	0			1	8.3		
Specialist of Education	1	16.7			0	0			1	8.3		
Certification Area(s)												

General Special Education (P-12)	3	50	3	50	6	50
Preschool Special Education	4	66.67	2	33.33	6	50
Early Childhood Education (P-5)	3	50	5	83.33	8	66.67
Curricula						
High Scope	2	33.3	3	50	5	41.7
Read It Once Again	2	33.3	2	33.3	4	33.3
Carolina Curriculum	1	16.7	0	0	1	8.3
None Specified	1	16.7	1	16.7		
Experience in Dialogic Reading	0	0	0	0	0	0
Experience in Shared Interactive Reading	0	0	0	0	0	0

Table 3

Table of Classroom Characteristics by Group

Characteristic	Intervention Group				Comparison Group				Total			
	n	%	*M*	*SD*	*n*	%	*M*	*SD*	*n*	%	*M*	*SD*
CLASS												
Emotional Support	6	100	6.06	.35	6	100	5.88	.55	12	100	5.97	.45
Positive Climate	6	100	6.67	.30	6	100	6.29	.80	12	100	6.48	.61
Negative Climate	6	100	1.17	.30	6	100	1.33	.44	12	100	1.25	.37
Teacher Sensitivity	6	100	5.83	.41	6	100	5.79	1.00	12	100	5.81	.73
Regard for Student Sensitivity	6	100	4.92	.79	6	100	4.75	.42	12	100	4.83	.61
Classroom Organization	6	100	5.53	.34	6	100	5.21	.68	12	100	5.37	.54
Behavior Management	6	100	5.71	.53	6	100	5.50	.52	12	100	5.61	.52
Productivity	6	100	5.83	.52	6	100	5.04	.95	12	100	5.44	.84
Instructional Learning Formats	6	100	5.04	.51	6	100	5.08	.75	12	100	5.06	.61
Instructional Support	6	100	2.97	.57	6	100	3.28	1.04	12	100	3.12	.81
Concept Development	6	100	2.29	.49	6	100	2.71	.97	12	100	2.50	.76
Quality of Feedback	6	100	3.92	.80	6	100	4.04	1.32	12	100	3.98	1.04
Language Modeling	6	100	2.71	.62	6	100	3.08	1.14	12	100	2.90	.89

ELLCO

General Classroom Environment	6	100	3.60	.17	6	100	3.55	.34	12	100	3.57	.26
Classroom Structure	6	100	3.57	.25	6	100	3.77	.41	12	100	3.67	.32
Curriculum	6	100	3.39	.20	6	100	3.25	.34	12	100	3.32	.28
Language & Literacy	6	100	2.85	.35	6	100	3.22	.35	12	100	3.03	.39
Language Environment	6	100	3.21	.31	6	100	3.40	.59	12	100	3.30	.46
Books & Book Reading	6	100	2.80	.62	6	100	3.23	.39	12	100	3.02	.55
Print & Early Writing	6	100	2.45	.66	6	100	2.97	.70	12	100	2.71	.70

CHAPTER 4

RESULTS

Results of Research Questions

Three research questions were posed for this study. Each question consisted of a

different aspect of language and preliteracy skills (i.e., receptive language skills, expressive

language skills, preliteracy skills). All research questions centered on the independent variable

of dialogic reading (PEER and CROWD) with the incorporation of pause time (i.e., a five second

pause following each question). The intervention consisted of dialogic reading using three

storybooks, with each book having 10 scripted prompts related to targeted vocabulary words and

general oral language skills per book reading. Allowing five seconds to lapse following each

scripted prompt before one repetition of the prompt or modeling of the correct response

incorporated the strategy of pause time. The dependent variables were measured through

standardized assessments, curriculum based assessments, and researcher developed assessments.

Receptive language was assessed using the *Peabody Picture Vocabulary Test-4th Edition*

(PPVT-4; Dunn & Dunn, 2007), the 'Which One Doesn't Belong' subtest of the Individual

Growth and Development Indicators of Early Literacy (IGDIs-EL; McConnell et al., 2012), and

a near transfer test of 45 vocabulary words related directly to the three storybooks. Expressive

language was measured using the *Expressive One-Word Picture Vocabulary Test-4th Edition*

(EOWPVT-4; Martin & Brownell, 2011), the Picture Naming subtest of the Individual Growth

and Development Indicators of Early Literacy (IGDIs-EL; McConnell et al., 2012), and a near

transfer test of 45 vocabulary words related directly to the three storybooks. Preliteracy skills

were assessed using the *Get Ready to Read!-Revised* (GRTR-R; Whitehurst & Lonigan, 2010).

Both raw and standard scores were analyzed for the PPVT-4 and the EOWPVT-4 due to the

decreased sensitivity of these measures to small increments of change during the intervention period of six weeks. See Table 4 for means on each standardized measure and Table 5 for means on each near transfer vocabulary measure.

Research Question One. Will using dialogic reading, with incorporation of pause time, promote the receptive language skills of young children with disabilities?

Results of Research Question One. To answer the first research question, children's pretest and posttest scores on the PPVT-4, 'Which One Doesn't Belong' subtest of the myIGDI's-EL, and the near transfer receptive vocabulary test were analyzed to compare the comparison group to the intervention group. For general receptive vocabulary, the posttest raw scores of the PPVT-4 were analyzed using ANCOVA, with no significant findings, $F(1, 38) = 1.69$, $p = .202$, $\eta^2 = .042$ (see Table 6). While there were no significant differences between the two groups, the intervention group started with lower pretest scores ($M = 47.09$, $SD = 32$) than the comparison group ($M = 63.24$, $SD = 32.07$) and more growth was noted in the intervention group posttest scores ($M = 54.95$, $SD = 29.41$) than in the comparison group ($M = 64.86$, $SD = 32.07$). A similar pattern was observed in the adjusted posttest means for the groups, with the intervention group's scores ($M = 62.86$, $SD = 3.12$) higher than the comparison group's scores ($M = 56.95$, $SD = 3.12$). Follow-up tests were completed to determine pair wise differences among the adjusted means. There were no significant differences among the pair wise comparison of adjusted means between the intervention and comparison groups.

Analysis for the PPVT-4 standard scores was completed using the Johnson-Neyman (J-N) technique as the homogeneity of slopes assumptions required to use ANCOVA was violated for interaction of the independent variable and pretest scores (covariate) (see Figure 1). The interaction was a result of the comparison group's pretest scores ($M = 87.19$, $SD = 18.46$) being

higher than their posttest scores ($M = 84.14$, $SD = 24.45$). A paired samples t-test showed this decrease to be non-significant, $t(20) = 1.02$, $p = .321$. The interaction was also confounded by the increase in the intervention group's mean scores from pretest ($M = 79.52$, $SD = 23.45$) to posttest ($M = 84.71$, $SD = 19.01$). This positive change for the intervention group was also not significant, as established by a paired samples t-test, $t(20) = -1.84$, $p = .081$. The J-N procedure was conducted to determine if any meaningful effects occurred for the intervention group. For individuals having pretest scores on the PPVT-4 below 80.35 ($n = 13$), the intervention had a positive effect. Because the upper limit, as calculated by the J-N technique was an invalid number (-373.9), no other conclusions can be made for the remaining eight participants in the intervention group about their receptive vocabulary skills as measured by the PPVT-4.

Additional analysis for receptive language skills was completed on the 'Which One Doesn't Belong' (WODB) subtest of the myIGDI's-EL. Results of the one-way ANCOVA revealed there were no significant differences between the two groups, $F(1, 38) = .20$, $p = .656$, $\eta^2 = .005$ (see Table 6). Neither group made notable gains on this assessment. The intervention group's pretest ($M = 4.81$, $SD = 3.28$) and posttest ($M = 4.43$, $SD = 3.36$) scores were lower overall when compared to the comparison group's pretest ($M = 6.48$, $SD = 4.14$) and posttest ($M = 6.48$, $SD = 3.74$) scores. This resulted in similar adjusted posttest means for the intervention ($M = 5.26$, $SD = .59$) and comparison ($M = 5.65$, $SD = .59$) groups. Follow-up tests were completed to determine pair wise differences among the adjusted means. There were no significant differences among the pair wise comparison of adjusted means between the intervention and comparison groups.

Results for the receptive near transfer vocabulary assessment were analyzed three different ways; the entire list of 45 words, the 15 words targeted through the intervention, and the

remaining 30 words that were not explicitly targeted. Each of these analyses were completed using the J-N technique as the assumption of HOS was violated based on a significant interaction between the independent variable (group) and the pretest scores for each (see Figures 2, 3, and 4). Accordingly, while no significant differences can be established between the intervention and comparison group for this assessment, general trends are noted with the lower and upper limits established through the J-N procedure. For each division of words (i.e., the full list, the target words, and the non-target words), the intervention group was observed to show increase in scores from pre to posttest (see Table 5, Figures 2, 3, and 4). Each portion of the receptive near transfer assessment is discussed individually.

On the receptive near transfer assessment full list of 45 words, the interaction (see Figure 2) was attributed to the lack of growth observed in the comparison group between the pretest (*M* = 34.38, *SD* = 13.83) and posttest scores (*M* = 34.81, *SD* = 14.56), resulting in a slope close to zero. A paired samples t-test confirmed there was no significant change within the comparison group, *t*(20) = -5.03, *p* = .621. However, the intervention group showed growth in means from pretest (*M* = 27.00, *SD* = 14.38) to posttest (*M* = 37.05, *SD* = 8.07). A paired samples t-test confirmed there was a significant difference between pre and posttest for the intervention group, *t*(20) = -5.62, *p* < .001. The J-N technique was then used to calculate upper and lower limits to further interpret the effectiveness of dialogic reading, with the incorporation of pause time, on the intervention group. For children whose pretest scores were below the lower limit of 39.05 (*n* = 16), the intervention had a positive effective on their ability to learn these words. For children in the intervention group whose pretest scores feel between 39.05 and 45 (*n* = 5), there is insufficient evidence to conclude if the intervention was either helpful or harmful.

For the 15 target words on the receptive near transfer assessment, an interaction of HOS (see Figure 3) was attributed to the limited growth for the comparison group observed from pretest scores ($M = 10.76$, $SD = 5.07$) to posttest scores ($M = 11.05$, $SD = 5.15$). A paired samples t-test confirmed there was no significant change within the comparison group, $t(20) = -6.79$, $p = .505$. The intervention group demonstrated growth between pretest ($M = 8.67$, $SD = 5.64$) to posttest ($M = 13.24$, $SD = 3.14$). A significant difference between pre and posttest was established through a paired samples t-test, $t(20) = -3.83$, $p = .001$. The J-N technique was then used to calculate upper and lower limits to further interpret the effectiveness of dialogic reading, with the incorporation of pause time, on the intervention group's ability to learn the 15 target words. For children in the intervention group whose pretest scores were below 11.43 ($n = 12$), the intervention was effective in their understanding of the 15 target words. For children whose scores fell between 11.43 and 15 ($n = 9$), there is not enough evidence to conclude if the intervention was effective.

Finally, for the 30 non-target words on the receptive near transfer assessment, the HOS assumption was violated (see Figure 4) because the comparison group's pretest scores remained relatively stable from pretest ($M = 23.62$, $SD = 9.00$), to posttest ($M = 23.76$, $SD = 9.57$), resulting in a slope near zero. A paired samples t-test confirmed there was no significant change within the comparison group, $t(20) = -2.31$, $p = .820$. Conversely, the intervention group showed significant growth from pretest ($M = 18.33$, $SD = 9.91$) to posttest ($M = 23.81$, $SD = 5.73$). This significant change was confirmed through a paired samples t-test, $t(20) = -4.03$, $p = .001$. The J-N technique was used to calculate upper and lower limits to further interpret the effectiveness of dialogic reading, with the incorporation of pause time, on the intervention group's ability to learn the 30 non-targeted words. Children whose pretest score fell below 9.78 ($n = 5$) were positively

affected by the intervention to learn words that were not specifically targeted. Children whose

pretest scores fell above 21.67 (*n* =11) the intervention was not effective. For children whose

scores fell between 9.78 and 21.67 (*n* = 5) there is insufficient evidence to determine if the

intervention was effective on this particular measure of receptive vocabulary.

Research Question Two. Will using dialogic reading, with incorporation of pause time,

promote the expressive language skills of young children with disabilities?

Results of Research Question Two. Results on the EOWPVT-4, Picture Naming subtest

of the myIGDI's-EL, and the near transfer expressive vocabulary test were used to answer the

second research question. The raw and standard posttest scores of the EOWPVT-4 were

analyzed using one-way ANCOVAs using age and pretest scores as covariates and the treatment

condition (dialogic reading vs. comparison) as the within-subject factor. There were no

significant results for either the raw scores (F (1, 38) = .324, p = .573, η^2 = .008) or the standard

scores (F (1, 38) = .324, p = .572, η^2 = .008). For the EOWPVT-4 raw scores the intervention

group's pretest scores (*M* = 34.86, *SD* = 25.64) were lower than the comparison group's pretest

scores (*M* = 44.05, *SD* = 22.00). The intervention group's posttest scores (*M* = 40.48, *SD* =

22.86) grew slightly more than the comparison group's scores (*M* = 48.29, *SD* = 23.13). This

resulted in marginally higher adjusted posttest means for the intervention group (*M* = 45.18, *SD*

= 1.92) than the comparison group (*M* = 43.59, *SD* = 1.92). Follow-up tests were completed to

determine pair wise differences among the adjusted means. There were no significant

differences among the pair wise comparison of adjusted means between the intervention and

comparison groups. On the EOWPVT-4 standard scores, the intervention group's pretest scores

(*M* = 81.43, *SD* = 23.49) were again lower than the comparison group's scores (*M* = 85.95, *SD* =

19.22). The growth to posttest scores for the intervention group was slightly more (*M* = 85.05,

SD = 20.13) than the comparison group (*M* = 88.05, *SD* = 18.26). This led to higher adjusted

posttest means for the intervention group (*M* = 87.29, *SD* = 1.78) over the comparison group (*M*

= 85.81, *SD* = 1.78). Follow-up tests were completed to determine pair wise differences among

the adjusted means. There were no significant differences among the pair wise comparison of

adjusted means between the intervention and comparison groups.

The Picture Naming subtest of the myIGDI's-EL, a curriculum based assessment for

expressive vocabulary, revealed no significant results following the analysis using a one-way

ANCOVA with age and pretest scores held constant as covariates (F (1, 38) = .223, p = .639, η^2

= .006). Similar to the other subtest of the myIGDI's-EL, the intervention group's pretest (*M* =

3.81, *SD* = 3.22) and posttest scores (*M* = 4.67, *SD* = 3.15) were lower overall than the

comparison group's pretest (*M* = 4.81, *SD* = 3.28) and posttest scores (*M* = 5.95, *SD* = 3.75).

However, because neither group showed much growth on this assessment the adjusted posttest

means for the intervention group (*M* = 5.18, *SD* = .37) and the comparison group (*M* = 5.44, *SD*

= .37) were similar. Follow-up tests were completed to determine pair wise differences among

the adjusted means. There were no significant differences among the pair wise comparison of

adjusted means between the intervention and comparison groups.

Like the receptive near transfer assessment, results for the expressive near transfer

vocabulary assessment were analyzed three different ways; the entire list of 45 words, the 15

words targeted through the intervention, and the remaining 30 words that were not explicitly

targeted. All three analyses were completed using a one-way ANCOVA with age and

corresponding pretest scores as covariates. Results for the entire list of 45 vocabulary words

were significant, F (1, 38) = 20.91, p <.001, η^2 = .355 (see Table 8). The strength of the effect

size between the intervention and dependent variable was considered large both according to

partial eta squared ($\eta^2 = .355$) and Cohen's d ($d = .49$). The intervention group had the lower

pretest mean ($M = 11.24$, $SD = 11.23$) and the higher posttest mean ($M = 24.48$, $SD = 12.26$) and

adjusted posttest mean ($M = 26.34$, $SD = 1.34$). The comparison group had the higher pretest

mean ($M = 15.43$, $SD = 9.19$) and the lower posttest mean ($M = 18.90$, $SD = 10.25$) and adjusted

posttest mean ($M = 17.04$, $SD = 1.40$). Follow-up tests were completed to determine pair wise

differences among the adjusted means. There were significant differences among the pair wise

comparison of adjusted means between the intervention and comparison groups ($p < .001$).

Results for the 15 words targeted during the intervention on the expressive near transfer

assessment showed significantly greater gains for the intervention group than the comparison

group, $F (1, 38) = 26.87$, $p < .001$, $\eta^2 = .414$ (see Table 8). The strength of effect size between

the intervention and this dependent variable was also large ($\eta^2 = .414$, $d = 1.45$). While the

pretest means for the comparison ($M = 2.76$, $SD = 2.19$) and the intervention ($M = 2.62$, $SD = $

3.61) were similar, the intervention group had a significantly higher posttest mean ($M = 10.33$,

$SD = 5.34$) than the comparison group ($M = 4.05$, $SD = 2.97$). The adjusted posttest means

showed a similar trend, with the intervention group ($M = 10.33$, $SD = .829$) higher than the

comparison group ($M = 4.05$, $SD = .829$). Follow-up analysis showed significant differences

among the pair wise comparison of adjusted means between the intervention and comparison

groups ($p < .001$).

The final analysis conducted on the expressive near transfer assessment was for the

remaining 30 words that were not specifically targeted through the intervention. The ANCOVA

revealed significantly greater gains for the intervention group than the comparison group, $F (1,$

$38) = 6.68$, $p = .014$, $\eta^2 = .150$ (see Table 8). The strength of the effect of the intervention on the

dependent variable was considered medium according to the partial eta squared ($\eta^2 = .150$) and

small according to Cohen's d (*d* = .09). The intervention group had a lower pretest mean (*M* =

8.61, *SD* = 7.90) than the comparison group (*M* = 12.67, *SD* = 7.23), however the posttest mean

for the intervention group (*M* = 14.14, *SD* = 7.49) was similar to the posttest mean for the

comparison group (*M* = 14.86, *SD* = 7.76) indicating a higher rate of growth for the intervention

group. Additionally, the adjusted posttest mean for the intervention group was higher (*M* =

16.01, *SD* = .80) than for the comparison group (*M* = 12.99, *SD* = .80). Follow-up tests were

conducted to evaluate pair wise differences between the adjusted means. There were significant

differences among the pair wise comparison of adjusted means between the intervention and

comparison groups (*p* = .014).

Research Question Three. Will using dialogic reading, with incorporation of pause

time, promote the preliteracy skills of young children with disabilities?

Results of Research Question Three. The GRTR-R was used to determine the

differences between groups on preliteracy skills to answer question three. A one-way ANCOVA

on posttest scores of the GRTR-R, using pretest scores and age as covariates and the treatment

condition as the within subject factor, was completed with no significant differences between the

treatment and comparison groups (F (1, 38) = 3.50, *p* = .069, η^2 = .084) (see Table 9). While

there were not significant differences, the intervention group had lower pretest means (*M* =

10.52, *SD* = 6.02) than the comparison group (*M* = 12.09, *SD* = 6.69) and had posttest means (*M*

= 13.14, *SD* = 6.51) similar to the comparison group (*M* = 13.23, *SD* = 5.97). Adjusted posttest

means also indicated the potential for more growth in the intervention group (*M* = 14.30, *SD* =

.81) than for the comparison group (*M* = 12.08, *SD* = .81). Follow-up tests were completed to

determine pair wise differences among the adjusted means. There were no significant

differences among the pair wise comparison of adjusted means between the intervention and comparison groups.

      Summary of Results. In summary, the intervention group performed significantly better than the comparison group on measures of both receptive and expressive near transfer vocabulary. This was true for the entire list of 45 words, the targeted list of 15 words, and the non-targeted list of 30 words. There were no significant differences between groups on other measures of receptive language (i.e., PPVT-4, 'Which One Doesn't Belong' subtest of the myIGDIs-EL, receptive near transfer vocabulary assessment), the expressive language measures (i.e., EOWPVT-4, Picture Naming subtest of the myIGDIs-EL), nor the preliteracy measure (i.e., GRTR-R) (see Table 10).

Table 4

Pretest and Posttest Mean Standard and Raw Scores by Group for Standardized Assessments

Group	PPVT-4	EOWPVT-4	GRTR-R	Which One Doesn't Belong IGDI	Picture Naming IGDI
Comparison					
SS Pretest	87.19 (18.46)	85.95 (19.22)			
SS Posttest	84.14 (24.45)	88.05 (18.26)			
Raw Pretest	63.24 (28.18)	44.05 (22.00)	12.09 (6.69)	6.48 (4.14)	4.81 (3.28)
Raw Posttest	64.86 (32.07)	48.29 (23.13)	13.23 (5.97)	6.48 (3.74)	5.95 (3.75)
Intervention					
SS Pretest	79.52 (23.45)	81.43 (23.49)			
SS Posttest	84.71 (19.01)	85.05 (20.13)			
Raw Pretest	47.09 (32.00)	34.86 (25.64)	10.52 (6.02)	4.81 (3.28)	3.81 (3.22)
Raw Posttest	54.95 (29.41)	40.48 (22.86)	13.14 (6.51)	4.43 (3.36)	4.67 (3.15)

Table 5

Pretest and Posttest Mean Raw Scores by Group for Near Transfer Vocabulary Assessments

Group	Receptive Near Transfer			Expressive Near Transfer		
	Complete List (*n*=45)	Target Words	Non-Target	Complete List	Target Words	Non-Target

	(n=15)	Words (n=30)	(n=45)*	(n=15)*	Words (n=30)*
Comparison					
Pretest	34.38	10.76	23.62	15.43	2.76	12.67
	(13.83)	(5.07)	(9.00)	(9.19)	(2.19)	(7.23)
Posttest	34.81	11.05	23.76	18.90	4.05	14.86
	(14.56)	(5.14)	(9.57)	(10.25)	(2.97)	(7.76)
Intervention					
Pretest	27.00	8.67	18.33	11.24	2.62	8.61
	(14.38)	(5.64)	(9.91)	(11.23)	(3.61)	(7.90)
Posttest	37.05	13.24	23.81	24.48	10.33	14.14
	(8.07)	(3.14)	(5.73)	(12.26)	(5.34)	(7.49)

* = significance at the alpha level of .05

Table 6

Analysis of Covariance for Standardized Receptive Language Assessments

Source	SS	df	MS	F	P	Effect Size
PPVT-4						
Raw Score	321.96	1	321.96	1.69	.202	.042
Error	7261.40	38	191.09			
Total	189630.00	42				
WODB	1.36	1	1.36	.201	.656	.005
Error	256.17	38	6.74			
Total	1797.00	42				

Table 7

Analysis of Covariance for Standardized Expressive Language Assessments

Source	SS	df	MS	F	P	Effect Size
EOWPVT-4						
Raw Score	23.46	1	23.46	.324	.573	.008
Error	2755.77	38	72.52			
Total	104526.00	42				
Standard Score	20.26	1	20.26	.324	.572	.08
Error	2373.96	38	62.47			
Total	329467.00	42				
Picture Naming IGDI	.671	1	.671	.223	.639	.006
Error	104.92	38	2.76			
Total	1681.00	42				

Table 8

Analysis of Covariance for the Near Transfer Expressive Vocabulary Assessments

Source	SS	df	MS	F	P	Effect Size
Full Test (45 Items)	801.85	1	801.85	20.91	.000	.355
Error	1457.32	38	38.350			

Total	25193.00	42				
Target Words	361.45	1	361.45	26.87	.000	.414
(15 Items)						
Error	511.05	38	13.45			
Total	3334.00	42				
Non-Target	83.87	1	83.87	6.68	.014	.150
Words						
(30 Items)						
Error	11163.00	42				
Total	2332.50	42				

Table 9

Analysis of Covariance for the GRTR-R

Source	*SS*	*df*	*MS*	*F*	*P*	*Effect Size*
GRTR-R	45.23	1	45.23	3.50	.069	.084
Error	491.14	38	12.93			
Total	8866.00	42				

Table 10

Significance and Effect Sizes Across All Assessments

Source	*p* Value	Significance	Effect Size
PPVT-4			
Raw Score	.202	Not Significant	.042

	Standard Score**	.081	Not Significant	
WODB		.656	Not Significant	.005
myIGDI-EL Receptive Near Transfer Vocabulary				
	Full List**	<.001*	Significant	
	Target Words**	.001*	Significant	
	Non-Target Words**	.001*	Significant	
EOWPVT-4				
	Raw Score	.573	Not Significant	.008
	Standard Score	.572	Not Significant	.008
Picture Naming		.639	Not Significant	.006
myIGDI-EL Expressive Near Transfer Vocabulary				
	Full List	<.001*	Significant	.355
	Target Words	<.001*	Significant	.414
	Non-Target Words	.014*	Significant	.150
GRTR-R		.069	Not Significant	.084

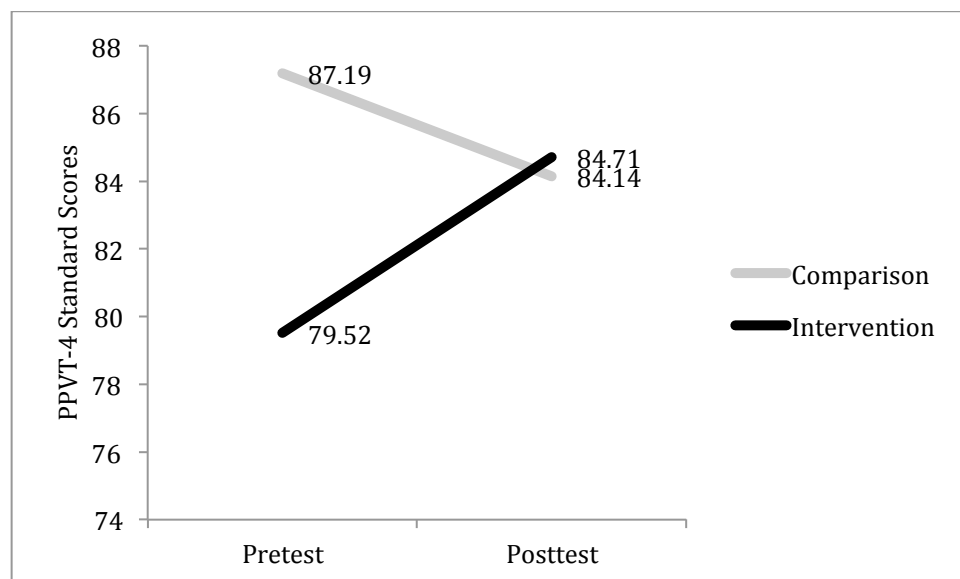* = significance at the alpha level of .05; ** = Paired sample t-test

Figure 1

Pretest and Posttest Means for PPVT-4 Standard Scores by Group
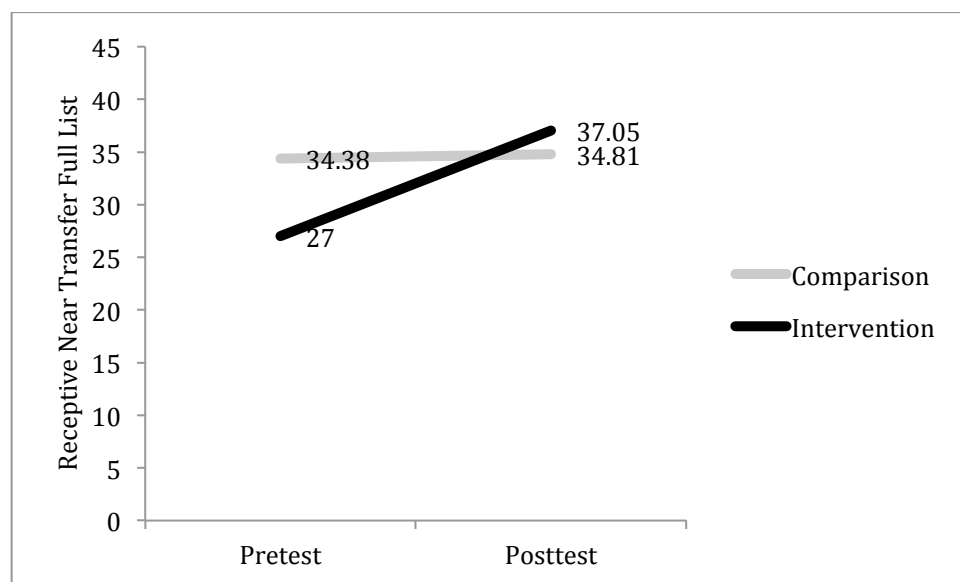

Figure 2

Pretest and Posttest Means for Receptive Near Transfer Full Assessment by Group
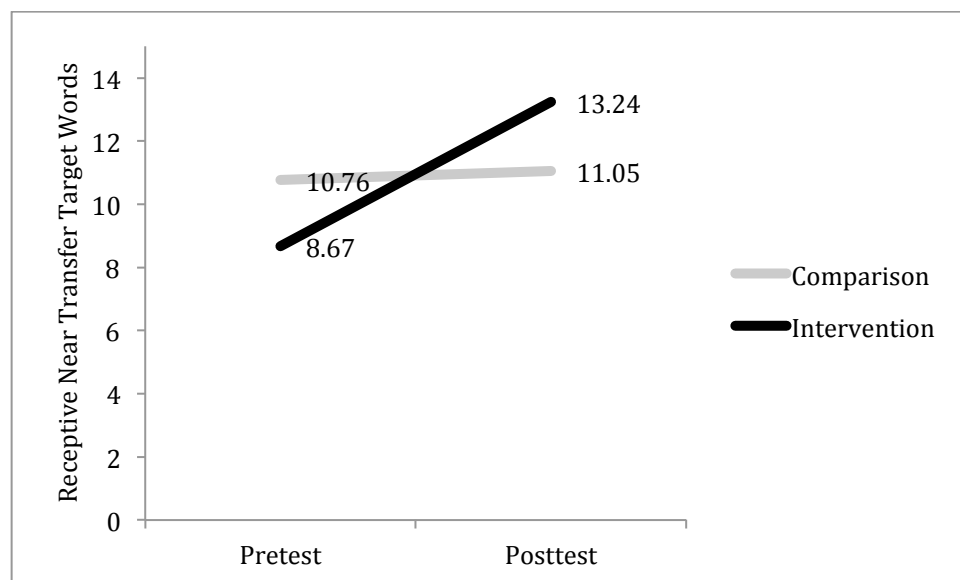
Figure 3

Pretest and Posttest Means for Receptive Near Transfer Target Words by Group
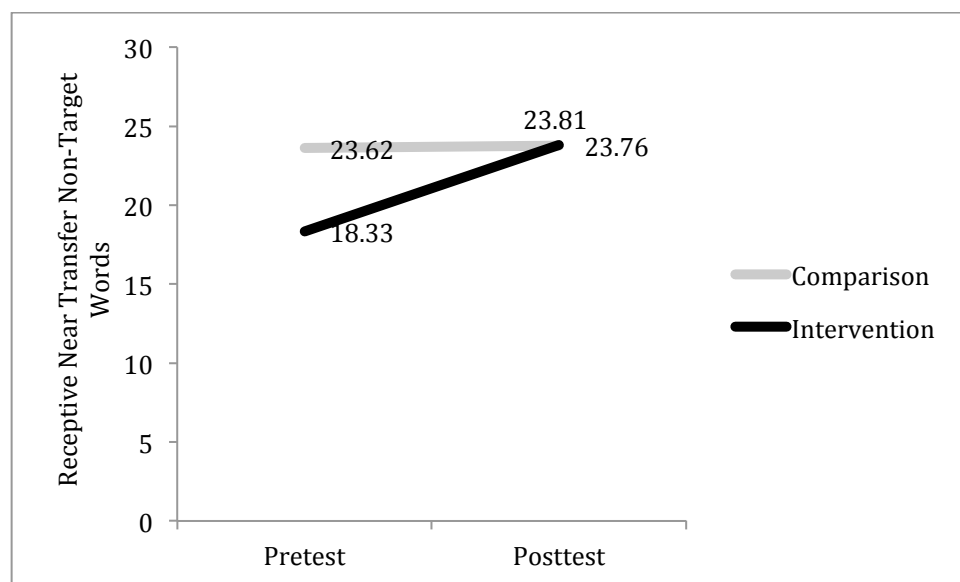
Figure 4

Pretest and Posttest Means for Receptive Near Transfer Non-Target Words by Group

CHAPTER 5

DISCUSSION

The purpose of this study was to examine the effects of implementing dialogic reading with the incorporation of pause time on the receptive and expressive language and preliteracy skills of young children with disabilities. Children in the intervention group received storybook reading using the strategies of dialogic reading (PEER and CROWD), with five scripted prompts targeting five specific vocabulary words and five scripted prompts targeting overall oral language skills, for a total of 10 scripted prompts per book read. Following each prompt, five seconds were allowed to elapse prior to repetition of the prompt or modeling of the correct response. Children in the comparison group were read the same books with no elaborations or questions. Three storybooks were read, each for six sessions across two weeks, for a total intervention period of six weeks. The books, vocabulary words, and oral language prompts were selected from the *Read Together, Talk Together* (RTTT; Pearson Early Learning, 2006) program kit for dialogic reading.

Conclusions

Prior research for children who are typically developing or considered at-risk has shown that dialogic reading is effective in improving oral language skills, and specifically expressive vocabulary skills (Mol et al., 2009; Morgan & Meier, 2008; Zevenbergen & Whitehurst, 2003). The U.S. Department of Education's What Works Clearinghouse (WWC, 2007) has established dialogic reading as an evidence-based practice for this population. The present study found that dialogic reading, with the incorporation of pause time, positively affected the learning of specific targeted and non-targeted words within three storybooks for young children with disabilities.

However, there were no significant differences on standardized measures of receptive or expressive language or preliteracy skills.

Receptive language skills. Changes in the children's receptive language skills were assessed using the PPVT-4, 'Which One Doesn't Belong' (WODB) subtest of the myIGDI's-EL, and the near transfer receptive vocabulary test. While no significant differences were noted on the standardized assessments, significant results were found on the researcher developed assessment that evaluated the specific words within the three storybooks. Generally, the intervention group showed more growth than the comparison group on the PPVT-4 raw and standard scores. Of the 21 children in the intervention group, those who had pretest scores below 80.35 (n = 13), or 1.31 standard deviations below average, the intervention of dialogic reading had a positive effect. This suggests that children with more impaired receptive language skills responded more positively to the intervention than children with mildly impaired skills as measured by standardized assessment, such as the PPVT-4.

Receptive language skills were also assessed using the WODB subtest of the myIGDI's-EL. Although this particular assessment was selected due to its sensitivity to small increments in change over shorter periods of time, neither group made notable gains on this assessment. It was noted that many children did not appear to understand the task of identifying which object did not belong in a set of three objects, and random responses appeared prevalent. This particular assessment may not have been taught to children in this sample or may have been beyond the cognitive skill level of many children in the study as 66.7% of the participants had goals and objectives in the cognitive area of development.

Children in the intervention group showed significant gains over the comparison group on the near transfer receptive vocabulary assessment. This was true for the full list of 45 words,

the list of 15 target words, and the list of 30 non-target words. Children in the intervention group

showed significant gains for vocabulary words that were presented in all three storybooks,

regardless of whether the words were from the first book of the intervention or the final book,

suggesting that words were both learned and retained across the intervention period at least

through posttesting (i.e., six to eight weeks following initial presentation of the words). These

results were based on paired samples t-tests rather than ANCOVAs due to a significant

interaction between the independent variable (group) and the pretest scores (covariate) and

should be interpreted with caution. The Johnson-Neyman (J-N) procedure was also used to

evaluate changes in growth on the near transfer vocabulary words. In all three cases, the

intervention group showed more growth than the comparison group. However, children in the

intervention group who scored below 39.05 (n = 16) on the full list of 45 words appeared to have

greater benefit than those scoring above 39.05 (n = 5). Similarly on the list of 15 target words,

the critical value for benefit was children scoring below 11.43 (n = 12) and on the list of 30 non-

target words children with scores below 9.78 (n=5) showed the greatest benefit. These results

are similar to the standardized assessment of the PPVT-4 in that it may be that children whose

receptive vocabulary was more impaired had the greatest benefit from participation in the

dialogic reading intervention. Further, this effect was greatest for the 15 target words and the

entire list of 45 words (which encompassed the 15 target words) than for the 30 words that were

not specifically targeted during the intervention. Children in the intervention group not only

made greater gains on the words that were specifically taught through dialogic reading, but gains

were also observed on words not specifically targeted. It is possible that the 10 additional oral

language prompts per book were effective in developing their overall understanding of the

storybook, and therefore the additional 30 vocabulary words, although this was not directly

assessed. If true, then it could be that dialogic reading in general is enough to positively change the receptive vocabulary skills related to a particular storybook without specifically targeting individual words. However, this may depend on the level of receptive language skills of individual children prior to the intervention and requires further empirical evaluation before conclusions can be made.

Expressive language skills. Changes in children's expressive language skills were also assessed with multiple measures, both standardized and researcher developed. Significant results were observed on the researcher developed near transfer assessments, but not on the raw or standard scores of the EOWPVT-4 or the Picture Naming subtest of the myIGDI's-EL. These results follow the same trend as the receptive language skills in that the intervention group had slightly higher adjusted posttest means than the comparison group on both the raw and standard scores. The intervention period of six weeks may not have been not enough to effect change on standardized assessments of expressive vocabulary, such as the EOWPVT-4.

As it was suspected that there would be little movement on standardized assessments such as the EOWPVT-4, children were also assessed using the curriculum based Picture Naming subtest of the myIDGI's-EL. However, little to no change in this measure was noted in either group. Brannon and colleagues (2013) also found no significant difference between groups of typically developing children, although they did note general effects using the Picture Naming IGDI with their treatment group. Limited growth could have been caused by the unfamiliarity of these words to a group of children with generally impaired expressive language skills, as the mean expressive language score on the Preschool Language Scale upon entry to their program was 76.09 (SD = 9.55) which is 1.59 standard deviations below average. Words on this measure were often specific examples of a general category (e.g., parrot for bird, camel for animal).

Children in this study were more apt to give the general category name than the specific label, resulting in generally lower average scores in both groups. Further, because the words targeted through the dialogic reading were more general words, the intervention may not have had an impact on growth on this more specific vocabulary assessment.

Significant growth on the near transfer expressive vocabulary assessment was observed for the intervention group over the comparison group on all analyses of ANCOVA, the full list of 45 words, the list of 15 target words, and the list of 30 non-target words. The strength of effect size for the full list and the list of target words was large, suggesting the six-week intervention of dialogic reading was sufficient in teaching the participants fifteen specific words within the three storybooks. Although the intervention group scored significantly higher than the comparison group on the list of 30 non-target words, the effect size was medium, implying that while these words were not explicitly taught, the oral language prompts completed during each book reading may have facilitated a higher level of understanding of the book, resulting in greater vocabulary knowledge overall. As all assessments of near transfer vocabulary were completed in the posttest phases of the study (i.e., within two weeks following intervention), participants were not only able to learn these words, but retained them across the six-week intervention period.

Preliteracy skills. Participant's growth in preliteracy skills was measured through performance on the GRTR-R standardized assessment. While this tool is typically used as a screener for reading readiness prior to entry to kindergarten, it encompasses items on wide variety of preliteracy including print knowledge, book knowledge, phonological awareness, and phonics. Although there were no significant differences between groups, the adjusted posttest means for the intervention group were higher, suggesting slightly more growth. This may be due to the intervention group receiving longer book reading sessions than the comparison group, with

the reader referring to pictures and text through pointing, as well as engaging in dialogue around the storybook. However, although print knowledge was not specifically targeted, it may be positively impacted through more detailed engagement with a storybook.

Summary. Young children with significant disabilities frequently have deficits in their communication skills that negatively impact their later academic, social, and work outcomes (Kaiser et al., 2000; Kaiser et al., 2002; Warren & Yoder, 1996). Specifically, deficits in receptive and expressive vocabulary skills as well as oral language deficits have been reported (Shevell et al., 2003). Dialogic reading has been established as an evidence-based practice for children who are typically developing or those at-risk (Lonigan & Whitehurst, 1998; Mol et al., 2009; Whitehurst et al., 1988; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst et al., 1999; Zevenbergen et al., 2003), but has a limited empirical foundation for children with disabilities (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994). The present study adds to the sparse research on the positive outcomes of using dialogic reading, with the incorporation of pause time, for young children with disabilities.

Interestingly, children in the intervention group generally began the study with less than average skills across most assessments, making their potential for gain greater. This may be one reason why they made more significant gains than the comparison group. This is further supported by analyses completed using the J-N procedure, which suggested that children who scored below a certain threshold on the PPVT and receptive near transfer vocabulary assessments during pretest had the greatest potential for gain during the intervention. However, it was noted in prior research that children with lower MLU made greater gains in vocabulary,

which was the main focus of this intervention. In comparison, children with higher MLU increased their grammar skills (Dale et al., 1996).

Children with disabilities are known to respond positively to explicit instruction (Cole & Dale, 1986), which is the type of teaching involved in the prompting hierarchy implemented with dialogic reading. This allowed for repeated practice and exposure to novel words in a natural context. This structured learning facilitated the learning of novel words associated directly with the storybooks presented. Increased exposure may be necessary for significant gains on standardized measures of vocabulary skills. Although participants in the intervention group did not make significant gains on preliteracy skills, prior research suggests that dialogic reading positively affects skills that are specifically targeted (Reese, Leyva et al., 2010). Although the direct focus of the intervention was on receptive and expressive vocabulary and overall oral language skills through the 10 prompts in each book, preliteracy skills were targeted through expanded exposure to storybooks through dialog reading. However, for children with significant developmental delay, more explicit instruction in preliteracy skills may be necessary.

Reviews of dialogic reading for children who are typically developing and those at risk show positive outcomes in oral language skills (WWC, 2007) and in children with disabilities show potentially positive effects for communication and language skills generally (WWC, 2010). This study adds to the positive effects of dialogic reading, by showing that children with more significant impairments can also benefit from this intervention, although the specific word learning outcomes may take longer to accumulate to impact their overall language and communication skills.

Implications

Dialogic reading has been established as an evidence-based practice for children who are typically developing and those at-risk to improve oral language skills, specifically expressive vocabulary skills (WWC, 2007). The evidence for the positive effects of dialogic reading for children with disabilities is limited and is primarily focused on children with more mild impairments (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994, WWC, 2010). Currently, there are five studies that have evaluated the effects of dialogic reading for young children with disabilities (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Hargrave & Senechal, 2000; Katims, 1994). The current study suggests the explicit instruction that dialogic reading offers positively affects the specifically targeted receptive and expressive vocabulary for children with more significant disabilities. Given these results, the following implications for classroom teachers of children with disabilities are offered: 1) the incorporation of dialogic reading strategies (i.e., PEER and CROWD) into the daily routine of preschool instruction, 2) consideration of the level of receptive and expressive language skills of students and thoughtful selection of vocabulary words and prompts catering to those levels to maximize benefits, 3) utilizing repeated reads and collecting data for individual children to determine the optimal number of repeated reads to make progress on targeted skills, 4) guidance for appropriate book selection, and 5) allowing children 'pause time' following questions during storybook reading may facilitate their ability to respond to those prompts.

Although there is substantive research in using dialogic reading for children who are typically developing and at-risk and preliminary research showing its effectiveness for young children with disabilities, its practical use with fidelity appears limited in the daily routine of

preschool teachers of young children with disabilities. Yet, storybook reading is a common daily

practice in preschool classrooms, and the addition of targeting specific language and preliteracy

skills and implementing the use of the PEER and CROWD strategies is a matter of professional

development, coaching, modeling, and planning time. As dialogic reading is an evidence-based

practice for some sets of students, there is an abundance of professional development support for

its general implementation for preschool children through websites such as "Reading Rockets"

and University of North Carolina's CONNECT Modules as well as the "Read Together, Talk

Together" program kit (RTTT; Pearson Early Learning, 2006). These materials include training

videos, suggestions of appropriate storybooks, and fidelity checklists. Recently, Fleury (2015)

specified the use of dialogic reading for young children with ASD and their parents. In addition

to implementing the PEER prompting hierarchy, the CROWD strategies were expanded to

include "special prompts" (i.e., CROWDS). These special prompts are to be implemented when

children with disabilities fail to respond to a prompt and the adult simplifies the question (e.g.,

provides a choice of responses or asks in a yes/no format) (Fleury, 2015). Teachers of young

children with disabilities should consider the inclusion of these special prompts when implanting

dialogic reading in the classroom with students.

Teachers of young children with disabilities may benefit from additional support in

implementing dialogic reading in their classrooms. Specifically they may require support in how

to develop appropriate vocabulary and oral language prompts that match the receptive and

expressive language skills of their students. This may involve informally evaluating the

familiarity with vocabulary specific to the selected storybooks, as was done in the pretest

assessment of the near transfer receptive and expressive vocabulary in this study. Teachers

should consider which words are selected as targets, attending to whether they are explicitly

stated in the text, depicted only in pictures, or both. In this study, all types of words were included, and may have affected the ability of children to learn targeted words. Young children with disabilities appeared to benefit from the additional cue of a picture to support the verbal model of novel words.

Although not specifically evaluated in the current study, it appeared that some children benefited from the six repetitions of reading for each book, while others appeared to learn the vocabulary words and oral language responses in as few as three readings. Prior research suggests repeated exposure to specific books facilitates children's language development and confidence with the text (Hay & Fielding-Barnsley, 2007). Although treatment adherence was essential for standardization and fidelity within this study, following a consistent set of prompts would not be necessary over the repeated reads in a classroom, allowing the preschool teacher flexibility of adjusting vocabulary and oral language prompts as appropriate. Continuous monitoring of individual student progress should guide these decisions. This could involve repetition of the receptive and expressive near transfer vocabulary words following each week of repeated reads, or daily data collection of student responses during dialogic reading sessions.

Additional support to teachers of young children with disabilities may also be needed in book selection. Book selection in this study was guided by the criteria set forth by Hargrave and Senechal (2000) and Fleury and colleagues (2013) as noted in the methods section. Additionally, books were selected from the RTTT program kit A for children ages 2-3 years. Selection of books from one of these kits is recommended as teachers become familiar with the strategies of dialogic reading since teacher support materials accompany each storybook providing a list of potential vocabulary words to target as well as suggested oral language prompts appropriate for each book.

Although not empirically evaluated in this study, the additional strategy of pause time (i.e., 5 seconds lapse following any prompt or repetition of a prompt) was implemented during dialogic reading. This strategy appeared to be helpful in allowing children processing time to formulate their responses. Pause time has been implemented in research of both shared interactive reading for children with disabilities (Bellon et al., 2000; Browder et al., 2008; Colmar, 2011; Colmar, 2013; Ezell et al., 2000; Justice, Kaderavek et al., 2005; Koppenhaver et al., 2001; Mims et al., 2009; Pile et al., 2010; van Kleeck et al., 2006; Yoder et al., 1995; Ziolkowski & Goldstein, 2008) and in studies of dialogic reading for children with disabilities (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013). Pause time can facilitate behaviors such as increasing child initiations and turn-taking exchanges (Colmar, 2011; Colmar 2013). While the range of time that is optimal for young children with disabilities may vary, research suggests a lapse greater than two seconds is most useful (Crain-Thorenson & Dale, 1999; Dale et al., 1996). In the current study, children were observed to frequently respond to prompts following a lapse of three to five seconds.

Limitations

In reviewing the results of the current study, several factors may have influenced the outcomes. These factors include duration of the intervention, size and representativeness of the sample, inclusion of words in target list, and the absence of empirical evaluation of oral language skills and pause time.

Duration of intervention. Significant changes were noted for the intervention group over the comparison group in the words specifically targeted and those directly related to the storybook, but no significant changes were observed in standardized measures of receptive and expressive vocabulary, curriculum based assessments of receptive language or expressive

vocabulary, or in preliteracy skills. The six week, three days per week reading sessions were sufficient for teaching children in the intervention group 15 novel words; however, children may have benefitted from a longer or more frequent intervention period, thereby positively affecting standard scores in vocabulary as well. Because the children were only exposed to each book for six reading sessions, it may be that the duration of the individual book reading sessions were adequate and simply extending dialogic reading across book reading sessions for a school year would result in significant changes on standardized assessments and curriculum based measures.

Prior researchers in dialogic reading have found inconsistent results using standardized assessments (e.g., PPVT-4, EOWPVT-4). In studies with children that are typically developing or at-risk, many found no significant changes despite interventions ranging from 6 to 12 weeks (Chow et al., 2010; Fielding-Barnsely & Purdie, 2002). Yet, other research with children who are typically developing and at-risk has shown significant changes in similar measures using dialogic reading for as little as four, six, or seven weeks (Arnold et al., 1994; Huebner, 2000; Kotaman, 2013; Lonigan & Whitehurst, 1998; Lonigan et al., 1999; Valdez-Mechaca & Whitehurst, 1992; Whitehurst, Arnold et al., 1994; Whitehurst et al., 1988; Whitehurst et al., 1999). Significant changes were also noted when dialogic reading was implemented across one school year with daily reading (Lonigan et al., 2013). In children with disabilities, little change in standardized measures have been reported, regardless the length of intervention (e.g., 4-8 weeks) (Crain-Thorenson & Dale, 1999; Hargrave & Senechal, 2000). Generally, much of this research is with children who are typically developing or at-risk in their final year of preschool, and not children with significant disabilities. It may be that children with significant disabilities are not able to generalize their newly learned words to affect change on standardized measures of vocabulary or that this process requires more time and intensity than with children who are

typically developing or at-risk. Additionally, when implementing dialogic reading for children with disabilities, sample sizes tend to be small, potentially impacting the statistical power that is needed to show significant changes in standardized assessments.

Sample size. A second factor that may have impacted the results of this study is the small sample size. The final sample size was 42 children with disabilities enrolled in self-contained or inclusive preschool classrooms. Although attrition in this study was not a significant factor, recruitment of students meeting the criteria of having a primary eligibility of significant developmental delay and the availability of research assistants to complete testing and reading sessions restricted the potential sample size. This limited sample may have negatively impacted the statistical power to detect smaller changes in standardized assessment as positive trends in the intervention group over the comparison group were observed on the PPVT-4, EOWPVT-4, and the GRTR-R. Further, there were a limited number of children considered to be English Language Learners (ELL) in the overall sample (i.e., eight of 42 children) and specifically within the intervention group (i.e., six of 21 children). This impeded the ability to run additional statistical analyses to determine if dialogic reading was as, less, or more effective for children considered to be ELL. Future research employing larger sample sizes with more diverse populations would increase the generalizability of the results found in the present study.

Representativeness of sample. The participants in this study were recruited from one suburban school district in the southeastern United States with a primary eligibility of significant developmental delay. While there was a range of ability levels within the sample, it was certainly not representative of all preschool students with disabilities. Although children with other primary eligibilities were excluded (e.g., ASD, Moderate Intellectual Disability), children that may have also met the criteria for the excluded eligibilities were present in the sample as

SDD is often used as the primary eligibility in this particular state regardless of the etiology of the disability. Participation in the study was voluntary and the students were represented only from classrooms where teachers had provided their consent. Students from both inclusive and self-contained classrooms were represented, however the guidelines for these placement decisions were not obtained as part of this study. However, in this school district placement of children in inclusive classrooms was typically for children in their final year of preschool, making them older on average than children in self-contained classrooms. Children from diverse backgrounds were included if their primary language of instruction was English. Therefore extending these results to children of other languages would not be appropriate.

Inclusion of words in target list. The primary assessment used to determine receptive and expressive vocabulary growth in this study was a researcher developed near transfer assessment. Use of this type of assessment was based on prior research in dialogic reading in order to measure growth on specifically targeted skills (i.e., words) within the intervention (Cohen et al., 2012; Fielding-Barnsley & Purdie, 2002; Hargrave & Senechal, 2000; Rahn, 2013). The 15 words selected for each book were based on suggestions from the RTTT program kit that were nouns. Selection of target words was based on pretest results across the intervention and comparison group. No other criteria were implemented and therefore, some words in the list were within the text, some were only depicted in illustrations, and some were represented both in text and illustrations. For words that were specifically targeted in the intervention, 11 (73.3%) were only found in the illustrations, with the remaining four in both text and illustrations. No words were found only in the text. As the intervention group received dialogic reading prompts centered on these words, and the comparison group did not receive any extra-textual talk, there was a factor beyond dialogic reading that was not controlled for in the

learning of these target words. However, the intervention group also made significant gains on the additional 30 words that were not specifically targeted through dialogic reading prompts, implying that the intervention of dialogic reading was effective beyond the words intentionally targeted. Of the remaining 30 words not specifically targeted, 18 (60%) were found only in illustrations, with the remaining 12 found in both text and illustrations. Therefore the comparison group had exposure through text to 16 (35.56%) of the 45 words and to the remaining words the only exposure was through pictures.

Empirical evaluation of oral language skills and pause time. The three research questions posed in the current study related to receptive language, expressive language, and preliteracy skills. While a variety of standardized, norm-referenced, curriculum based, and researcher developed assessments were used, they may not have adequately measured oral language skills and did not measure pause time. The main focus of assessment was in the receptive and expressive vocabulary skills of the participants, which was one of the main skills targeted through the dialogic reading intervention. Pause time, while incorporated into the intervention group following the presentation or repetition of each prompt, was not in and of itself empirically evaluated. Therefore, it is not possible to conclude if the addition of this strategy was effective. Oral language skills, such as mean length of utterance and sentence structure (e.g., syntax, morphology), were not specifically evaluated beyond expressive vocabulary skills. As the intervention incorporated five additional prompts per book reading beyond targeting specific vocabulary words, it would have been beneficial to evaluate oral language skills in additional ways.

Future Research Suggestions

The results of this study expand a limited body of research in using dialogic reading with young children with disabilities and promote consideration of future research in this area. Areas of consideration in future research include replication with an increased sample size and more diverse populations, longer duration of intervention, different measurement tools including evaluation of skills beyond vocabulary growth, evaluating the effectiveness of pause time within the intervention, and evaluating the components of dialogic reading that may account for the most change in children's outcomes. Once the factors have been evaluated, determining the most effective way to train teachers to use dialogic reading with young children with significant disabilities can be completed.

As noted in the prior section, the size and representativeness of the sample limits the generalization of these results to all preschool students with disabilities. Replication of the current study with populations from different regions of the country and with larger numbers of students is important. It will be beneficial to also recruit participants with languages other than English so that it can be determined if dialogic reading is equally, more, or less beneficial to students who are ELL. It may also be beneficial to more specifically define the population by minimum or maximum scores on particular language assessments in order to determine for which children dialogic reading is most beneficial as well as to cater the scripted prompts more appropriately to the language levels of the participants. Similarly, evaluating if dialogic reading for children with disabilities functions differently in self-contained versus inclusive settings should be investigated. This may vary dependent on how the determination is made for placement of student with disabilities into these settings. Including children with ASD or severe or profound intellectual disabilities may also be advantageous in future studies.

The intervention period of six weeks, with each storybook read for six sessions across two weeks, appeared sufficient to affect significant changes in vocabulary growth for the intervention group. However, while upward trends were noted in standardized assessments of vocabulary, no significant gains were observed. Replication of the current study with a longer intervention period would be necessary to determine if young children with disabilities require more exposure to dialogic reading across time to effect growth that can be measured beyond near transfer assessments. Ideally, if children were taught using dialogic reading on a regular basis across a school year, there would be enough growth in their receptive and expressive vocabulary to demonstrate gains on these standardized assessment, translating into a powerful intervention for language skills.

As discussed in the limitations, measurement of language and preliteracy skills could be expanded beyond the current battery of assessments. This may not be necessary for receptive and expressive vocabulary, but for measures of oral language skills that can pinpoint growth in areas such as syntax, morphology and mean length of utterance. Prior research in dialogic reading have incorporated narrative analysis (Lever & Senechal, 2011; Reese et al., 2010; Zevenbergen et al., 2003), 'book reading interaction' (Lonigan & Whitehurst, 1998), spontaneous language (Valdez-Mechaca & Whitehurst, 1992), verbal participation (Fleury et al., 2013), response to prompt type (Fleury et al., 2013), mean length of utterance (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Whitehurst et al., 1988), and CHAT coding of videoed interactions during book reading (Crain-Thorenson & Dale, 1999; Dale et al., 1996). Incorporating one or more of these assessments may yield more meaningful results at growth in oral language skills beyond receptive and expressive vocabulary. This would involve the need

for audio or video recording for the purposes of transcription of child and adult language during dialogic reading.

In addition to additional measures for language skills, empirically evaluating the effectiveness of pause time is another area for future research. While its effectiveness has been reported in outcomes of prior research, it was not in and of itself evaluated (Bellon et al., 2000; Browder et al., 2008; Colmar, 2011; Colmar, 2013; Ezell et al., 2000; Justice, Kaderavek et al., 2005; Koppenhaver et al., 2001; Mims et al., 2009; Pile et al., 2010; van Kleeck et al., 2006; Yoder et al., 1995; Ziolkowski & Goldstein, 2008). The student PI and research assistant responsible for reading to the intervention and comparison groups recorded anecdotally through session notes that pause time appeared to be an effective strategy for young children with disabilities. The elapsed time of five seconds was not always necessary prior to a student responding, but it did appear to facilitate processing of the verbal prompts during storybook reading, particularly for children with lower level language skills. Pause time could be manipulated as an independent variable in future research of dialogic reading with young children with disabilities.

Dialogic reading was developed as a set of prompts (i.e., completion, recall, open-ended questions, wh-questions, and distancing questions) to be implemented with a specific prompting hierarchy (i.e., prompt, evaluated, expand, repeat). In reviewing the literature on dialogic reading, both with children who are typically developing and those at risk, as well as with children with disabilities, all aspects of dialogic reading have been implemented during interventions. It is of interest to evaluate which components of dialogic reading may be responsible for the variance in children's growth in language and preliteracy skills. While many studies of shared interactive reading incorporate similar prompts as in dialogic reading, few if

any, require a specific prompting hierarchy beyond responding to the child and possibly evaluating the response. Therefore, it would be of interest to evaluate if the expansion and repeating components of dialogic reading account for more variance in children's outcomes than do the other components.

Finally, the current study was conducted in the classroom during a small group activity to allow for a naturally occurring routine within inclusive and self-contained preschool classrooms. Yet it was conducted by researchers with scripted prompts and rigid adherence to fidelity of implementation. The majority of studies using dialogic reading with children with disabilities have trained teachers and parents to read to their children with positive outcomes (Crain-Thorenson & Dale, 1999; Dale et al., 1996; Hargrave & Senechal, 2000; Katims, 1994) and specific measures of fidelity for adult implementation were not reported. Although training methods vary, it is of interest to evaluate what levels of professional development and ongoing coaching support may be necessary for classroom teachers to implement dialogic reading with fidelity.

Conclusion

In summary, this study provided encouraging outcomes related to receptive and expressive vocabulary growth for young children with significant disabilities who participated in the dialogic reading intervention. Children in the intervention group scored significantly higher on the receptive and expressive near transfer vocabulary assessments. This occurred both for words that were specifically targeted during the dialogic reading as well as additional vocabulary words that were not targeted through the oral language prompts. Although participants in the intervention group did not increase significantly over the comparison group on standardized and curriculum based assessments of receptive and expressive language and preliteracy skills, there

were positive trends indicating more growth for the students receiving dialogic reading as compared to regular reading. The results for this study showed practically significant gains as well as statistically significant gains. Children in the intervention group were shown to learn novel words through dialogic reading and retain those newly learned words over the duration of the study, while children in the comparison group made little to no gains on the same assessments. This study adds to the sparse literature on the positive effects of using dialogic reading to promote the language skills of young children with disabilities by extending the population to students with more significant disabilities and in implementing the intervention in both inclusive and self-contained classrooms.

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Appendix A. *Student Demographic Information Form*

Participant #: _____   Classroom #: _____

DOB: _____   Chronological Age (Months): _____

Gender: Male / Female   Race: _____

Primary Eligibility: _____   Secondary Eligibility: _____

Home Language(s):_____

Medical Diagnosis (if any): _____

Special Education Services (Check all appropriate and provide frequency):

☐ Speech-Language Therapy: _____

☐ Occupational Therapy: _____

☐ Physical Therapy: _____

☐ Other: _____

☐ Other: _____

IEP Goals/Objectives (Check areas in which child has goals/objectives):

☐ Communication/Language   ☐ Articulation

☐ Social/Emotional   ☐ Adaptive/Self-Help

☐ Fine Motor   ☐ Gross Motor

☐ Cognitive

Notes: _____

_____

_____

_____

Appendix B. *Teacher Demographic Information Form*

Teacher #: _____   Classroom #: _____

Classroom Type: _____   DOB:_____

Gender: Male / Female   Race: _____

College Degree(s): _____

Teaching Certification Area(s): _____

Total # of Years Teaching _____   Years Teaching Preschool:_____

Current Classroom Curriculum(s):_____

_____

Professional development and/or experience in using dialogic reading?:

☐ YES   ☐ NO   ☐ NOT SURE

Professional development and/or experience in shared interactive reading?

☐ YES   ☐ NO   ☐ NOT SURE

Notes: _____

_____

_____

_____

_____

_____

Appendix C. *Target Vocabulary Words by Book*

Book	Target Word	Pretest Percent Incorrect
Summery Saturday Morning	Horn*	88.6
	Elephant	47.7
	Fence	70.5
	Sailboat	81.8
	Goose	86.4
	Sandals	95.5
	Mud*	77.3
	Leash*	86.4
	Snail	54.5
	Bicycle	27.3
	Boots	54.5
	Basket*	61.4
	Hills	88.6
	Beak*	79.5
	Tongue	45.5
Pigs Aplenty, Pigs Galore	Light	52.3
	Oatmeal*	95.5
	Guitar	47.7
	Broom	54.5
	Pillow	70.5
	Lamp*	79.5
	Sandwich	45.5
	Skateboard	38.6
	Diaper	63.6
	King	59.1
	Parachute*	88.6
	Piano*	65.9
	Sink*	81.8
	Shovel	95.5
	Mop	77.3
Wolf's Chicken Stew	Bowls*	81.8
	Scarf	90.9
	Paws	84.1
	Wolf	65.9
	Pans*	75
	Pancakes	45.5
	Chimney	86.4
	Doughnuts*	70.5
	Hat	45.5
	Window	45.5
	Apron*	100

	Bones	70.5
	Butter*	81.8
	Cake	36.4
	Chicks	70.5

Appendix D. *Specific Components of the Dialogic Reading Intervention*

Book 1	Target Vocabulary	CROWD Prompts & Targeted Response
Pigs Aplenty, Pigs Galore (McPhail, 1993)	Sink	**Where** are the pigs brushing their teeth? (*At the sink*)
	Oatmeal	**What** are the pigs pouring in the sink? (*Making oatmeal*)
PRIOR to book read: 1st read: "What do you think this book is about?"	Lamp	**What** is next to the man's chair? (*A lamp*)
	Parachute	**How** are these pigs coming to the house? (*By parachute*)
2nd read: "Do you remember something that happened in this book?"	Piano	**What** instrument is this pig playing? (*He is playing a piano.*)
3rd read: "What do you think plenty means?"	**Additional prompts to promote receptive and expressive language. BOOKA: Readings 1, 3, 5.**	**What** happened to the man? (*He slips on a banana peel and falls down.*)
4th read: "What did the pigs do in this book?"		**Who** are these two big pigs? (*They are a king and a queen.*)
		What is happening here? (*More pigs are coming to the man's house. They are coming by plane, by bus, by boat, and by train.*)
5th read: "What do you think galore means?"		The pigs are all eating pizza. **What** do you like to eat?
6th read: "What's the funniest thing the pigs do in this book?"		Of pigs and pigs and pigs some more, of pigs aplenty, _____. (*pigs galore*).
	Additional prompts to promote receptive and expressive language. BOOK B:	**What** does the man fall on? (*He falls on a pile of pigs.*)
		This pig is wearing diapers. **What**

	Readings 2, 4, 6.	are some things you wear?
		What are the pigs doing? (*They are cleaning up.*)
		Where do the pigs sleep? (*They all sleep with the man.*)
		Of pigs and pigs and pigs some more, of pigs aplenty, _____. (*pigs galore*).

Book 2	Target Vocabulary	CROWD Prompts & Targeted Response
A Summery Saturday Morning (Mahy, 1998) **PRIOR to book read**: 1st read: "What do you think this book is about?"	Basket	**What** is the boat in? (*It's in the basket*)
	Horn	**What** is the little boy blowing? (*Horn*)
2nd read: "Do you remember something that happened in this book?"	Mud	**What** did the children step in? (*Mud*)
	Beak	**What** part of the goose is this? (*Beak*)
	Leash	**What** is the dog wearing? (*A leash*)
3rd read: "What do you think summery means?"	**Additional prompts to promote receptive and expressive language. BOOK A: Readings 1, 3, 5.**	**Which** people are going on the walk? (*The woman and four children are going on the walk.*)
		What are the geese doing? (*Hissing at and chasing the dogs.*)
4th read: "What did the people do in this book?"		**What** is happening in this picture? (*The two dogs are chasing the cat.*)
		The children are running. Where do you like to run?
5th read: "What do you like to do on Saturdays?"		The dogs run, too. They want to play. On a _____. (*summery*

6th read: "What's the funniest thing the in this book?"		*Saturday morning*).
	Additional prompts to promote receptive and expressive language. BOOK B: Readings 2, 4, 6.	**Who** was walking with the big white goose? (*The big white goose is walking with her baby geese.*)
		These dogs are chasing geese. What does your dog do?
		What is everybody looking at? (*They are looking at the sea below them?*)
		What can you see in this picture? (*You can see boats, a pier, hills and birds.*)
		The dogs run, too. They want to play. On a _____. (*summery Saturday morning*).

Book 3	**Target Vocabulary**	**CROWD Prompts & Targeted Response**
The Wolf's Chicken Stew (Kasza, 1987) **PRIOR to book read**: 1st read: "What do you think this book is about?"	Bowls	**What** is on the wolf's table? (*Bowls*)
	Butter	**What** is on top of the pancakes? (*Butter*)
2nd read: "Do you remember something that happened in this book?"	Pans	**What** is hanging in the wolf's kitchen? (*Pans*)
	Doughnuts	**What** did the wolf make for the chicken? (*Doughnuts*)
	Apron	**What** is Mrs. Chicken wearing when she opens the door? (*Apron*)
3rd read: "What did the wolf want to do to the chicken?"	**Additional prompts to promote receptive and expressive language. BOOK A: Readings 1, 3, 5.**	**What's** happening on the first page of the story? (*The wolf is eating dinner.*)
		Where is Mrs. Chicken going?

4th read: "What was the surprise at then end of the book?" 5th read: "Do you know what chicken stew is?" 6th read: "What foods did the wolf cook for the chicken?"		(*She's going to her little house.*)
		What was in the sky over Mrs. Chicken's house? (*The moon and stars.)*
		The wolf made cake for Mrs. Chicken. When do you eat cake?
		"Eat well my pretty chicken, " he cried. "Get nice and fat for my _____." (*Stew*).
	Additional prompts to promote receptive and expressive language. BOOK B: Readings 2, 4, 6.	**Where** does the wolf go? (*He goes home to his kitchen.*)
		The moon and the stars are out at night in this picture. What do you see at night?
		What does the wolf bring the next night? (*He brings a layer cake.)*
		What is happening here? (*The baby chicks are giving the wolf kisses and saying 'thank you'.*)
		"Eat well my pretty chicken, " he cried. "Get nice and fat for my _____." (*Stew*).

Appendix E. *Daily Data Collection Sheet*

Center: LRP or RB   Class _____Reader_____

Control or Intervention   Book A or Book B

Session#: Date:		
Child Initials	**Present or Absent**	**Notes**

Appendix F. *Dialogic Reading Fidelity Checklist*

Dialogic Reading Intervention Fidelity Checklist
Pigs A Plenty, Pigs Galore
Book A

Reader Observed: _____   **Date:** _____

Person Observing: _____

Intervention Component	Circle Response (Y = Yes, N = No)		
Before the Book Reading			
Researcher invited children to the reading area.	Y	N	
Researcher states the title of the book.	Y	N	
Researcher states the author of the book.	Y	N	
The researcher invites interest in the book by asking appropriate question (e.g., *What do you think this book is about?* or *What do you think galore means?*)	Y	N	
Pauses 5 seconds	Y	N	n/a
Repeats Prompt (if required)	Y	N	n/a
Evaluates	Y	N	
Expands	Y	N	
Asks child to repeat	Y	N	
During the Book Reading - Researcher asks five prompts related to book targeted vocabulary & 5 oral language prompts and implements PEER hierarchy for each.			
Prompt 1: *What is next to the man's chair?*	Y	N	
Points to picture	Y	N	
Pauses 5 seconds	Y	N	n/a
Repeats Prompt (if required)	Y	N	n/a
Evaluates	Y	N	
Expands	Y	N	
Asks child to repeat	Y	N	
Prompt 2: *What happened to the man?*	Y	N	
Points to picture	Y	N	
Pauses 5 seconds	Y	N	n/a

Repeats Prompt (if required)	Y	N	n/a
Evaluates	Y	N	
Expands	Y	N	
Asks child to repeat	Y	N	
Prompt 3: *What are the pigs pouring in the sink?*	Y	N	
Points to picture	Y	N	
Pauses 5 seconds	Y	N	n/a
Repeats Prompt (if required)	Y	N	n/a
Evaluates	Y	N	
Expands	Y	N	
Asks child to repeat	Y	N	
Prompt 4: *Who are these two big pigs?*	Y	N	
Points to picture	Y	N	
Pauses 5 seconds	Y	N	n/a
Repeats Prompt (if required)	Y	N	n/a
Evaluates	Y	N	
Expands	Y	N	
Asks child to repeat	Y	N	
Prompt 5: *How are these pigs coming to the house?*	Y	N	
Points to picture	Y	N	
Pauses 5 seconds	Y	N	n/a
Repeats Prompt (if required)	Y	N	n/a
Evaluates	Y	N	
Expands	Y	N	
Asks child to repeat	Y	N	
Prompt 6: *What is happening here?*	Y	N	
Points to Picture	Y	N	
Pauses 5 seconds	Y	N	n/a
Repeats Prompt (if required)	Y	N	n/a
Evaluates	Y	N	
Expands	Y	N	

Asks child to repeat	**Y**	**N**	
Prompt 7: *What instrument is this pig playing?*	**Y**	**N**	
Points to picture	**Y**	**N**	
Pauses 5 seconds	**Y**	**N**	**n/a**
Repeats Prompt (if required)	**Y**	**N**	**n/a**
Evaluates	**Y**	**N**	
Expands	**Y**	**N**	
Asks child to repeat	**Y**	**N**	
Prompt 8: *These pigs are all eating pizza. What do you like to eat?*	**Y**	**N**	
Points to picture	**Y**	**N**	
Pauses 5 seconds	**Y**	**N**	**n/a**
Repeats Prompt (if required)	**Y**	**N**	**n/a**
Evaluates	**Y**	**N**	
Expands	**Y**	**N**	
Asks child to repeat	**Y**	**N**	
Prompt 9: *Where are the pigs brushing their teeth?*	**Y**	**N**	
Points to picture	**Y**	**N**	
Pauses 5 seconds	**Y**	**N**	**n/a**
Repeats Prompt (if required)	**Y**	**N**	**n/a**
Evaluates	**Y**	**N**	
Expands	**Y**	**N**	
Asks child to repeat	**Y**	**N**	
Prompt 10: *Of pigs and pigs and pigs some more, of pigs aplenty,* _____	**Y**	**N**	
Points to picture	**Y**	**N**	
Pauses 5 seconds	**Y**	**N**	**n/a**
Repeats Prompt (if required)	**Y**	**N**	**n/a**
Evaluates	**Y**	**N**	
Expands	**Y**	**N**	
Asks child to repeat	**Y**	**N**	
Total yes responses from pages 1 & 2 _____	**Comments:**		

/ Total yes + no responses from pages 1 & 2 X 100 = % fidelity of implementation	

Appendix G. *Comparison Group Fidelity Checklist*

Comparison Group
Fidelity Checklist

Reader Observed: _____   **Date:** _____

Person Observing: _____   **Book Observed:** _____

Intervention Component	Circle Response (Y = Yes, N = No)	
Before the Book Reading		
Researcher invited children to the reading area.	Y	N
Researcher states the title of the book.	Y	N
Researcher states the author of the book.	Y	N
Researcher does NOT ask any introduction questions.	Y	N
During the Book Reading		
Researcher reads pages 1-4 of the book with no elaborations.	Y	N
Researcher reads pages 5-8 of the book with no elaborations.	Y	N
Researcher reads pages 9-12 of the book with no elaborations.	Y	N
Researcher reads pages 13-16 of the book with no elaborations.	Y	N
Researcher reads pages 17-20 of the book with no elaborations.	Y	N
Researcher reads pages 21-24 of the book with no elaborations.	Y	N
Researcher reads pages 25-28 of the book with no elaborations.	Y	N
Researcher reads pages 29-32 of the book with no elaborations.	Y	N
After the Book Reading		
Researcher asks no additional questions related to the book.	Y	N
Total yes responses _____/ Total yes + no responses X 100 = % fidelity of implementation	**Comments:**	