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## Cross-Age Peer Tutoring in Dialogic Reading: Effects on the Language Development of Young Children

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CROSS-AGE PEER TUTORING IN DIALOGIC READING:  
EFFECTS ON THE LANGUAGE DEVELOPMENT OF YOUNG CHILDREN

A Dissertation Presented

by

ITSUKO JAMIE UDAKA

Submitted to the Graduate School of the University of Massachusetts Amherst in partial  
fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

SEPTEMBER 2009

School Psychology

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## DEDICATION

To my supportive parents, who have encouraged me to reach as high as I could, and who  
never lost faith in me.

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ABSTRACT

CROSS-AGE PEER TUTORING IN DIALOGIC READING:  
EFFECTS ON THE LANGUAGE DEVELOPMENT OF YOUNG CHILDREN

SEPTEMBER 2009

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There are certain ways of reading to young children that are more effective than others in increasing language, vocabulary, and building early literacy skills. Dialogic reading is a method to enhance shared book reading by providing a context for dialogue and interaction between the adult and the child. Dialogic reading has been shown to have positive effects on young childrens' early literacy and language skills. Thus far, parents and teachers have used these techniques in the home and school in one-on-one or small group settings. However, results have been variable due to inconsistent implementation.

The purpose of this study was to examine the effects of implementing dialogic reading techniques in a preschool setting via cross age tutoring by fifth grade students. Students in preschool and fifth grade were recruited from a school in Eastern Maryland. Fifth graders served as tutors and were trained to use dialogic reading techniques with preschool students in the same school. The tutoring dyads met three times a week for 30 minutes for 8 weeks.

Preschoolers' receptive and expressive language skills as well as their readiness to begin school were assessed before and after the intervention, and fifth grader's attitudes towards reading prior to and after the intervention were measured. Data on the preschool students were analyzed using an Analysis of Covariance and the results indicated significant changes in receptive, expressive and school readiness in comparison to the control group with medium to large effect sizes (.402 - .640). Furthermore, data on tutor attitudes toward reading were analyzed using two-sample paired t-tests. Results revealed an increase in positive attitudes toward recreational reading, with an effect size of .653, and an increase in general reading attitudes with an effect size of .421. Finally, teachers reported observable differences in their students and expressed interest in continuing this project. Fifth graders maintained adequate treatment integrity and felt positive about their experiences. Preschoolers reported positive experiences in reading with their tutors. Further interpretation of results, implications for practice, and future directions are discussed.

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## CHAPTER 1

### STATEMENT OF THE PROBLEM

#### School Readiness and the National Education Goals

The issue of school readiness to enter kindergarten gained national attention with the adoption of the National Education Goals. Goal 1 states that, “by the year 2000, all children will start school ready to learn” (National Education Goals Panel [NEGP], 1995). Being ready to learn, also known as school readiness is a multidimensional concept that includes a child’s physical well-being, motor development, social and emotional development, approaches toward learning, language development, cognition and general knowledge (Kagan, Moore, & Bredekamp, 1995). This goal is followed by three major objectives, which state that (a) all children should have access to high quality preschool programs, (b) the parent is a child’s first teacher, and (c) the physical and mental health of all the children are important (NEGP, 1995). The goals and objectives represent a comprehensive plan to enhance learning opportunities for all young children.

Entry into kindergarten is a critical point at which concerns about school readiness may come to be realized. That is, children come into kindergarten with different experiences and skills, and these differences in their skills when they enter appear to be related to their future achievement in school. For example, Connell and Prinz (2002) found that the child’s level of academic readiness at school entry has indirect effects on their later academic achievement and social-emotional adjustment. Furthermore, children who start off developing well in kindergarten tend to maintain that advantage as they move into higher grade levels (Boethel, 2004).

According to the National Association for the Education of Young Children [NAEYC] (1995), educators need to recognize the inequities in early life experiences, as well as individual linguistic and cultural differences in the child's development and learning, as both affect readiness to begin school. Thus, in order to improve school readiness for all children, efforts must begin before students are enrolled in school. These efforts include supporting families, educating parents, expanding access to health care, and raising the quality of early care and educational opportunities (Shore, 1998).

Readiness can be seen as an interactive process or a set of relationships in which the child, the family, the community and the school interact in ways that support or fail to support a child's development (Boethel, 2004). In fact, Goal 1 and its objectives acknowledge that preparing children for school is a community wide effort, and that all children are entitled to early experiences that will foster optimal development (Kagan, et al., 1995). However, despite the creation of the National Goals, the attention that has been raised, and the efforts to involve the community, there are still a large number of children that are not prepared for academic lessons when they enter formal schooling (Huebner, 2000).

#### Early Education: Preschool

There is a consensus among researchers that early childcare and educational programs can make a substantial difference in improving children's readiness for school (Boethel, 2004). And, for policy makers, one of the main attractions of preschool programs is their potential for prevention of crime problems and the reduction in social costs (Temple & Reynolds, 2007). Preschool programs may be a cost effective way to prevent learning problems rather than waiting until late adolescence or adulthood to offer

costly and less effective treatments and trainings. Furthermore, the demonstration of the long-term benefits of early childhood programs on the cognitive, social and emotional development of children and the impact of these programs on society have motivated policymakers to make early childhood initiatives a priority (Clifford et al., 2005). As a result, the early education system in the United States has experienced much growth, and within a brief span of time, national investment in early childhood education has increased exponentially (Clifford et al., 2005). This investment has enabled many children to gain access to some sort of early education program. In fact, approximately three fourths of young children in the United States participate in a preschool program (Barnett & Hustedt, 2003).

With the growing number of parents working full time jobs outside of the home, preschool and early education programs are increasingly serving children from all backgrounds and there is a need for affordable childcare (Boethel, 2004; NAEYC, 1995). Thus, there is a range of early education programs in the United States. Some early education programs are operated by private organizations, whereas some are childcare centers that are run by relatives in the providers' home. Furthermore, there are programs in public schools as well as federally based initiatives such as Head Start (Barnett & Hustedt, 2003; NAEYC, 1995).

Unfortunately, not all programs are equal in their quality of educational experiences provided. Rather, many are inconsistent, of low quality, have poorly compensated staff, and the best programs are generally too expensive for most of the families to afford (Barnett & Hustedt, 2003). Even those preschool programs that have

met the proposed NAEYC standards for quality early childhood programs still vary greatly in classroom and teacher attributes, and in program quality (Clifford et al., 2005).

NAEYC policies convey a belief that the society and the nation as a whole will benefit from the provision of high quality, affordable, early childhood educational services. Unfortunately, many childhood programs lack sufficient funds and resources. As a result, the well being and healthy development of millions of children may be at risk (NAEYC, 1995). In comparison to children in lower quality settings, those children in higher quality classrooms have more advanced language development, pre-math skills, social skills, more positive attitudes toward their childcare experiences, and have warmer relationships with their teachers (Helburn, 1995).

#### Language and Vocabulary Development

As one of the dimensions within the school readiness construct, the development of language is one that is often associated with conventional definitions of early learning and school success (Kagan, et al., 1995). Language ability is a highly valued aspect of early development and learning, as language and vocabulary skills are necessary in order to function effectively across a broad range of activities (Kagan, et al., 1995). With language, children can communicate and interact with others, and represent their thoughts, feelings and experiences. Furthermore, language plays a role in the development of other competencies in the dimensions identified within the school readiness construct such as the development of social emotional competence, cognition and general knowledge (Kagan, et al., 1995).

According to Soifer (2005), the purpose of language is communication. We use language for many purposes according to our needs, the needs of the listener and the

environment. It enables us to express a range of ideas about objects, events and relationships. Furthermore, language is socially based, as it is an agreed upon set of symbols and rules by the community (Soifer, 2005; Kagan, et al., 1995).

Language development also has been a primary focus of attention because of its relationship with literacy skills, reading, and future academic achievement. According to Adams (1990), one of the main factors that influence becoming a good reader is one's oral language ability. In fact, Spira, Bracken, and Fischel (2005) found that a child's facility in basic oral language skills contributed to their capacity for reading improvement. Although all the children in the Spira, et al. (2005) study were deficient in their early reading skills in first grade, those who made substantial improvement by the fourth grade all had strong oral language skills.

An important component of oral language skills is vocabulary knowledge. A large and rich vocabulary is strongly related to reading proficiency and school achievement and is the hallmark of an educated individual (Beck, McKeown, & Kucan, 2002). When young children are beginning to learn to read, those who have a large number of words in their oral vocabularies have an easier time analyzing and representing individual sounds of those words (Lehr, Osborn & Hiebert, 2004). By comparison, if the words are not in the child's oral vocabulary, then they have more difficulty in reading the words and their comprehension is hindered (National Reading Panel [NRP], 2000).

Vocabulary knowledge and growth is strongly influenced by the oral language environment and one's experiences in reading (Beck et al., 2002; Stanovich, 1986). In fact, most early learning of vocabulary takes place through the oral environment (Beck, et

al., 2002). The more oral language experiences children have in their early years, the more words and word meanings they acquire (Lehr et al., 2004). Young children who hear a lot of language and are encouraged to use and experiment with language tend to achieve early reading success, whereas children who have limited experiences with language often have difficulty in learning to read and remain at risk for reading and learning problems later on in school (Storch & Whitehurst, 2002).

The source of later vocabulary learning for children shifts from the oral environment to written contexts (Beck et al., 2002). However, the written context is a less effective vehicle for learning new words as it lacks many of the features of oral language that supports learning new vocabulary, such as intonation and body language (Beck et al., 2002). Furthermore, the children who are most in need of vocabulary development do not engage in much reading, and even if they did, it has been suggested they would generally avoid those books that contain difficult vocabulary words (Beck et al., 2002).

### Emergent Literacy

Language and vocabulary development are crucial to later academic and reading success, and are important components of emergent literacy (Spira, et al. 2005). Emergent literacy refers to the early skills, knowledge, and attitudes that are known to be developmental precursors to conventional forms of reading and writing (Whitehurst & Lonigan, 1998) and later academic success (Spira et al. 2005). Two broad classes of skills within emergent literacy are important for later reading performance: code related skills and oral language skills (Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998). Code related processes include skills such as phonological awareness, letter naming,

decoding, emergent writing and print awareness. Oral language processes encompasses a variety of skills including vocabulary, syntactic and semantic knowledge, conceptual knowledge and discourse processes (such as memory, comprehension and storytelling).

Research indicates that children with less developed emergent literacy skills, including oral language and vocabulary are at a substantial risk for not only academic difficulties but also for behavioral and emotional problems (Connell & Prinz, 2002; Lonigan, et al, 1999). There is also evidence that a good start on reading through the development of emergent literacy skills is associated with successful reading in the later elementary grades (Poe, Burchinal & Roberts, 2004, Snow & Páez, 2004; Stanovich, 1986, Storch & Whitehurst, 2000). In fact, children with smaller vocabularies, less practice in using language, and little familiarity with the functions and the uses of print are at a high risk of literacy failure (Snow & Páez, 2004). One of the most salient conclusions from the research on emerging literacy and beginning reading is that all of these skills develop from being taught as well as talked to, during the early years of life.

Initial reading failure is difficult to overcome and can lead to overall deficits in academic skill development as the student progresses through the grades (Snow & Páez, 2004; Stanovich, 1986). Stanovich (1986) introduced the concept of the “Matthew effect” in reading achievement, where the gap between the proficient readers and struggling readers increases unless there is some intensive intervention to close the gap. This theory, based on a biblical passage, finds that in terms of reading or academic development over time, poor readers become poorer, while richer, or more advanced students become richer (Stanovich, 1986). Thus, when children start school behind academically, it becomes increasingly more difficult for them to catch up to their peers as

they progress in school. Therefore, adopting a model of prevention is important to ensuring that children enter formal schooling with emergent literacy and language skills that will enable them to benefit from formal reading instruction.

Young children learn most of their emergent literacy skills in the first few years of life. They learn language, knowledge about print and its functions, vocabulary, phonemic awareness and understanding about oral and written language (Adams, 1990). Because emergent literacy begins prior to formal schooling, the home environment plays an important role in developing the child's readiness to begin school (Kassow, 2006). However, children come to school from different backgrounds and different experiences with language and literacy, which has been acquired within the contexts of their home and the community within diverse cultural and linguistic environments (Kagan et al, 1995).

#### The Role of the Family in Children's Readiness

As previously stated, children arrive to school from a wide range of settings and experiences. Some come from early educational programs, and many come from home where they were cared for by parents, friends, and relatives. Therefore, in essence, the home is the child's first educational setting, and parents and families serve as the child's first teachers. Society has assigned parents and the family the task of socializing children, and before children begin to spend time with others outside of the home, almost everything they learn comes from their families (Hart & Risley, 1995).

Families can do many things to support their children's learning and motivation to learn. These include providing opportunities for learning within the community, providing books and other materials, reading and telling stories, expressing high

expectations, and encouraging learning (Boethel, 2004). In fact, reviews of several studies indicate that the home environment, including background factors and interactions between the children and other family members, are strongly associated with the children's skills and abilities upon entry to kindergarten and their readiness to learn (Boethel, 2004; Connell & Prinz, 2002; Hart & Risley, 1995).

For example, in a longitudinal study of 42 children and their families from different socioeconomic groups, Hart and Risley (1995) found that children at 3 years of age, grow to be like their parents in activity level, vocabulary knowledge, language, and interaction styles. The researchers also found that children who were exposed to a higher number of words scored higher on vocabulary measures in comparison to those who were exposed to less words, and this difference in vocabulary use at age 3 was predictive of measures of language skill at ages 9 and 10. Thus, the impact of the family, the home environment, and those early experiences before children enter formalized schooling are unquestionable.

### Shared Book Reading

The literacy environment created in the home plays a crucial role in a child's emerging skills and in their readiness to learn to read (Kassow, 2006; Teale & Sulzby, 1986). The home literacy environment consists of the child's participation and exposure to literacy through activities (Kassow, 2006), and is rooted within social, cultural, and literacy practices of the parents within the home. Children interacting with adults in the home and observing them reading, writing and modeling literacy are important aspects of the environment (Teale & Sulzby, 1986). The availability of materials for the children to draw and write on, the number of books in the home, visits to the library and the

bookstore, opportunities to practice writing and reading independently, and engaging in book reading with adults are also salient components of the home literacy environment (Kassow, 2006; Teale & Sulzby, 1986). Thus, there are a range of opportunities within the home that allow children to participate in literacy activities, and these activities are often supported by the parents.

One area of the home literacy environment that has received careful attention in the literature has been parent-child shared book reading (Kassow, 2006). Storybook reading is a familiar and enjoyable routine for many families with young children (McNeill & Fowler, 1999), and this activity may be the single most important activity for young children in building the knowledge and the skills that are required for reading (Adams, 1990). Reading aloud to children is an entertaining activity that comes naturally to most parents, which can influence children's knowledge of print and their readiness for school (Adams, 1990; Fletcher & Reese, 2005; Teale & Sulzby, 1986). However, the frequency of book reading as well as the role of writing and reading play different roles in different families and as a result, young children have different experiences with print (Kassow, 2006; Teale & Sulzby, 1986).

When parents read to their children, they are actively involved with their children's language development as they are communicating with them about the text. Many studies have found that when parents read books to their young children, it increases the children's development of expressive language skills, language comprehension, vocabulary, oral language complexity, and narrative skills (Zevenbergen & Whitehurst, 2003). Longitudinal research also has demonstrated the relationship between early experiences with shared picture book reading and later skills (Crain-

Thoreson & Dale, 1999; Zevenbergen & Whitehurst, 2003), which illustrates the effects from early-shared book reading throughout the children's lives.

Shared book reading provides a great context for practicing language (Crain-Thoreson & Dale, 1999). When adults read with young children they have a tendency to talk in more complex ways than when they are caretaking or playing, and often label, comment, and ask questions about the pictures in the storybooks when reading (Dale, Crain-Thoreson, Notari-Syverson & Cole, K., 1996; Fletcher & Reese, 2005).

Furthermore, storybooks introduce children to novel vocabulary words, and in fact, young children can learn new words from as little as one exposure in a book read aloud (Elley, 1989). Interactions around storybooks gives children the opportunity to examine print, develop curiosity about text and the meaning of the text, and observe the adult modeling reading behaviors (Adams, 1990).

Shared book reading experiences offers more than just an opportunity to develop language, vocabulary and school readiness skills. It also provides an opportunity for parents and young children to interact and communicate with each other over a shared task, which strengthens emotional ties (Huebner, 2000). Furthermore, simultaneously with the opportunity for emotional closeness, reading books to children can increase their interest and enthusiasm for reading (Fletcher & Reese, 2005). When a child loves to read, he or she will increase their frequency of engaging in this activity, which in turn increases their opportunities to practice reading and improve their vocabulary and language skills.

Many researchers tend to utilize a Vygotskian framework (Vygotsky, 1978) when interpreting and analyzing book reading interactions and the effect it has on language

development (Fletcher & Reese, 2005). Shared book reading offers both social and contextual support for the development of language. Vygotsky proposed that the language that is used during social interaction is critical for the child's development (Vygotsky, 1978). During picture book reading, the adult can begin to understand the child's level of language and teach in the child's zone of proximal development, the distance between the child's current language level and their potential to learn new vocabulary (Crain-Thoreson & Dale, 1999; Fletcher & Reese, 2005). Furthermore, the adult can monitor a child's understanding of the text through questioning. If the child does not understand a word or a concept, the adult can use the pictures as a scaffold to create bridges from the written text to the child's experiences (Crain-Thoreson & Dale, 1999).

### Dialogic Reading

Unfortunately, not all parents and teachers take full advantage of shared reading to help children's language development (Crain-Thoreson & Dale, 1999). Research has demonstrated much variability in the way in which adults approach this activity (Whitehurst et al., 1988) and there are certain ways of reading to children are more effective than others at building early literacy skills (Zevenbergen & Whitehurst, 2003). For example, often the adult simply reads the text and the child's role is to listen quietly and sit still, which may not provide the opportunity for much social interaction and conversation (Crain-Thoreson & Dale, 1999). When children are active participants in the reading experience, they demonstrate greater language gains than when they listen passively to stories. To help adults exploit the potential of shared book reading, Whitehurst et al., (1988) developed a set of instructional techniques called dialogic

reading that uses shared book reading to provide a context for dialogue and interaction between the adult and the child.

Whitehurst et al., (1988) based their strategies on three general principles that became the core components of the techniques. The first principle is the use of evocative techniques by the parent that encourages the child to talk about the pictures through prompting and open-ended questioning. The second is the use of feedback by the adult through using expansions, modeling, corrections and praise to show the differences between what the child said and what he or she could have said. The last principle reflects the importance of an adult's sensitivity to the child's abilities and thus the techniques used should show progressive change. For example, the child should be able to identify the name of an object before he/she is asked to talk about the actual object.

The goal of dialogic reading is for the child to become the storyteller and for the adult to facilitate, expand, and respond to the child's verbalizations. Adults use techniques to encourage discussion and interaction with the child. The techniques are based on the idea that practice in using language, feedback regarding language and appropriately scaffolded adult-child interactions in the context of picture book reading all facilitate language development. Through scaffolding, adults encourage the child to say just a little more than he or she would naturally do, and as a result the child's language skills are thought to develop rapidly and spontaneously (Zevenbergen & Whitehurst, 2003).

The techniques in this intervention are summarized by the acronyms CROWD and PEER. PEER strategies remind adults to Prompt the child to talk about the story and label objects in the book, Evaluate the responses given by the child, Expand on the

child's verbalization through repeating and adding information, and encourage the child to Repeat what was said (Zevenbergen & Whitehurst, 2003). CROWD strategies reflect the types of prompts that can be used during reading to encourage conversation and interaction with the child (see Appendix A).

Dialogic reading has been demonstrated to have positive effects on the language and emergent literacy skills of children (Zevenbergen & Whitehurst, 2003). This intervention has been effective in increasing the language skills of typically developing children from upper, middle, and lower socio-economic families (Huebner, 2000; Lonigan & Whitehurst, 1998; Whitehurst, Arnold, et al. 1994; Whitehurst, Epstein, et al., 1994; Whitehurst et al., 1988) in both home and school settings (Lonigan & Whitehurst, 1998; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein, et al., 1994). The use of dialogic reading procedures has also been found to be effective for children with language delays (Crain-Thoreson & Dale, 1999; Dale, et al., 1996) and in multicultural settings as in a Mexican daycare and in Hong Kong (Fung, Chow & McBride-Chang, 2005; Valdez-Menchaca & Whitehurst, 1992).

#### Intervention Agents

Parents are a natural resource and an obvious choice to implement dialogic reading techniques in the home. They are motivated to help their children, they know their children's interests and personalities well, and they have the opportunity to interact with their children in various ways and in many different contexts (Dale et al., 1996). The more frequently parents read to children dialogically the more gains the children will make (Whitehurst, Epstein et al., 1994). Although most parents believe that reading with their child is important, they are often too consumed with the demands of daily life to

engage in this activity consistently (Whitehurst & Lonigan, 1998; Zevenbergen & Whitehurst, 2003).

Many families do not have sufficient time to engage in book reading with their young children (Adams, 1990). With the increase in single parent homes and homes in which the adults must work to adequately support their families and maintain their employment, extra time to sit and converse about a book is hard to find (Huebner, 2000). In fact, Teale, (1986) found that there is an absence of storybook reading in the home, and that it is not a widespread practice among families. Further, the Teale study results indicated that most families only engaged in activities such as reading stories less than two minutes a day, whereas some children did not experience literacy related activities at all.

There are several barriers to effectively implementing dialogic reading with families within the home. Some barriers include the lack of time to engage in storybook reading, difficulty in controlling and understanding how frequently this intervention occurs when in the home setting (Fung, et al., 2005; Huebner, 2000; Lonigan & Whitehurst, 1998; Whitehurst & Lonigan, 1998), and the difficulty in controlling the quality of the story book reading. However, this information is important, as the degree of implementation is crucial for the successfulness of the intervention (Fung, et al., 2005). Overall, it may be difficult to get all parents with young children involved in dialogic reading (Lonigan & Whitehurst, 1998).

One antidote to the infrequent experiences with books and shared reading in the home is to offer these experiences in preschool (Whitehurst, Epstein et al, 1994). Through enhancing the quality of the environment for language development and

preliteracy skills in childcare settings, young children can gain experiences that they may not be able to gain if the responsibility is only left to those in the home (Whitehurst, Arnold, et al., 1994).

Dialogic reading techniques also have been shown to produce positive effects when implemented by adults in the classroom in small groups (Lonigan & Whitehurst, 1998; Whitehurst, Arnold, et al., 1994; Whitehurst, Epstein, et al., 1994). However, there have been several barriers and limitations to implementing this powerful intervention in school settings. Researchers have suggested that the current organization of early childhood programs is not ideal for this intervention to take place (Whitehurst, Arnold, et al., 1994).

To begin with, in preschool settings, the administration of the intervention typically occurs in small groups rather than in a one teacher to one child arrangement. This is because there is a lack of adults to lead the children in one-on-one shared reading activities. In fact, there is even a lack of adults to break the children up into small groups (Lonigan & Whitehurst, 1998; Whitehurst, Arnold, et al., 1994; Zevenbergen & Whitehurst, 2003). Generally, in day care centers, there are two adults, and it is rare for more than one adult to be engaged in teaching at the same time. Usually, one adult will be prepping, cleaning, or working with individual children who are having behavioral difficulties while the other adult is responsible for instructing the group.

Furthermore, when reading dialogically in small groups, each child in the group will not have as many opportunities to practice language skills and respond as they would in an one-on-one setting (Zevenbergen & Whitehurst, 2003). Thus, studies have found that overall, conditions in which the intervention was implemented only in the childcare

centers had the least effect on the children's language and vocabulary development (Cutspec, 2004; Lonigan & Whitehurst, 1998; Whitehurst, Arnold, et al. 1994; Whitehurst, Epstein, et al., 1994; Zevenbergen & Whitehurst, 2003).

In addition, teachers have reported difficulties in using these techniques in groups, as it requires their careful attention to ensure that all children have opportunities to respond and answer questions (Zevenbergen & Whitehurst, 2003). Another barrier to implementation is that many day care centers approach child learning through a developmental philosophy rather than an instructional one (Lonigan & Whitehurst, 1998; Whitehurst, Arnold, et al., 1994), and as a result it can be difficult to motivate the staff to use a technique that is created to explicitly teach the children specific skills.

Researchers presume that one of the main factors to consider in comparing the effectiveness of home and school based interventions is group size, and that one-on-one book reading is the most effective (Crain-Thoreson & Dale, 1999; Valez-Menchaca & Whitehurst, 1992). Therefore, in order to maximize dialogic reading in preschool settings and add more one-on-one time, researchers suggest that schools should use adult volunteers or older school aged children instead of teachers to implement the intervention (Whitehurst, Arnold, et al., 1994).

#### Cross-Age Peer Tutoring

In school settings, one alternative to adult led instruction is peer mediated interventions, which in some instances have been shown to provide a cost effective and powerful method that produces positive academic, behavioral, and social outcomes for students with and without disabilities (Ryan, Reid & Epstein, 2004). This method of intervention requires students to implement instruction for their peers as opposed to the

more traditional method of having adults and teachers lead the instruction (Hoff & Robinson, 2002). Several techniques are considered to come under the umbrella of peer-mediated interventions: peer modeling, peer monitoring, classwide peer tutoring, peer-assisted learning strategies, class-wide student tutoring teams, peer counseling, peer mentoring, peer tutoring and cross-age peer tutoring (Topping & Ehly, 1998).

Peer-mediated interventions utilizes positive peer influence and provide a context for students to work together cooperatively to achieve common goals (Utley, Mortweet, & Greenwood, 1997). One such peer-mediated intervention, cross-age tutoring has been used frequently to increase the academic, social and behavioral skills of students (Cohen, Kulik & Kulik, 1982; Greenwood, Carta & Hall, 1988). Cross-age tutoring is a peer teaching program in which the tutor, under the guidance of an adult, helps the tutee learn or practice a skill or concept. The tutor and the tutee are usually about two or more years apart from each other, with the tutor being the older one of the pair. This peer-mediated intervention has been shown to be effective for populations of all ages and disabilities (Hattie, 2006; Jacobson et al., 2001; Maher, 1986; Morrison et al., 2000; Topping, Campbell, Douglas & Smith, 2003).

Peer tutoring interventions have an intuitive appeal as they provide one-on-one instruction that is sensitive to the learner's pace and level of understanding (Utley, et al., 1997). This one-on-one format is conducive to learning as it provides more opportunities for practicing and responding, increases engaged time, and the learner receives immediate, corrective feedback (Cohen et al., 1982; Gaustad, 1993).

Cross-age tutoring has been found to be beneficial for both tutors and tutees (Cohen, et al., 1982; Labbo & Teale, 1990). For tutees, these programs have been

effective in increasing their academic skill level, such as in reading and in math (Davenport, Arnold, & Lassmann, 2004; Hattie, 2006; Labbo & Teale, 1990; Topping, Campbell, Douglas & Smith, 2003). Furthermore, tutees have increased in their self-esteem and have reported more positive attitudes toward the subject they are being tutored in (Labbo & Teale, 1990; Topping et al., 2003).

Tutors have been shown to benefit academically from the time spent reviewing and practicing material with their tutees, their self-esteem rises when they see their tutees improve, and they report more positive attitudes toward the academic subject (Labbo & Teale, 1990; Topping et al., 2003). Tutors have reported believing they are making a meaningful contribution (Gaustad, 1993). Cohen et al., (1982) observed in their literature review that seven out of nine studies reported that students who participated as tutors had more favorable self-concepts than students who were not tutors after the intervention period. This program is also beneficial for counselors and teachers, as cross-age tutoring provides unique methods and opportunities to reduce problem behaviors, allow individualized instruction, help motivate students, build academic skills, and bridge the gap between the teacher and the student (Utley et al., 1997).

With the many benefits associated with peer-mediated interventions such as cross-age tutoring, these cost effective interventions have increased in popularity (Cohen et al., 1982; Davenport et al., 2004; Greenwood, Maheady & Delquadri, 2002; Labbo & Teale, 1990). Interventions that utilize other students in the school as intervention agents relieves some of the pressure on teachers to meet the diverse needs of all the students in their classroom, and provides a method for differentiating instruction (Davenport et al., 2004; Greenwood, Maheady & Delquadri, 2002).

### Purpose of the Study

Children come into kindergarten unprepared for academic lessons (Huebner, 2000). This is a critical point, as children who start off developing well in kindergarten tend to maintain that advantage as they move into higher grade levels (Boethel, 2004). One such area of readiness that must be considered is a child's vocabulary and oral language skills, as these skills are essential for communication, and because research has shown that one of the main factors that influence becoming a good reader is one's oral language ability (Adams, 1990). One method in which to increase a child's vocabulary and language skills is through shared-book reading (Adams, 1990). Unfortunately, not all parents and teachers take full advantage of this activity to help children's language development (Crain-Thoreson & Dale, 1999). Research has shown that the use of dialogic reading, a set of strategies created by Whitehurst et al., (1988) to increase the verbalizations of children through practice, feedback and scaffolded adult-child interactions in the context of picture book reading, has been shown to positively affect a young child's language, vocabulary and preliteracy skill development; all important precursors to entering formal schooling (Crain-Thoreson & Dale, 1999; Dale, et al., 1996; Fung, Chow & McBride-Chang, 2005; Huebner, 2000; Lonigan & Whitehurst, 1998; Whitehurst et al., 1988; Whitehurst, Arnold, et al. 1994; Whitehurst, Epstein, et al., 1994; Valdez-Menchaca & Whitehurst, 1992). Thus far, parents and teachers have used these techniques in the home and at school in one-on-one or small group settings. However, the implementation of this method has been inconsistent, and results have varied.

The purpose of this study was to examine the effects of implementing dialogic reading techniques in a preschool setting via cross age tutoring. By implementing

dialogic reading in a preschool via cross-age tutoring, fidelity of implementation can be monitored, the frequency of the intervention can be controlled, and it can be applied one-on-one, which has been stated to be one of the most important components of the intervention to ensure effectiveness (Crain-Thoreson & Dale, 1999; Valez-Menchaca & Whitehurst, 1992). Furthermore, by using a cross-age tutoring format to deliver the intervention, there could be positive effects on the older children who were participating in the intervention as tutors.

### Research Questions

The research questions to be investigated and the hypothesis were as follows:

- 1) What is the effect of the use of dialogic reading techniques on young children's vocabulary and readiness to begin school when implemented in a school setting and embedded within a cross-age tutoring program, in comparison to young children who do not participate in the cross-age tutoring program?
  - a. **Hypothesis:** Young children who participated in the cross-age tutoring program will show more gains in both expressive and receptive vocabulary as well as be more ready for school in comparison to those children who did not participate in the program and instead participated in everyday instruction by their classroom teacher.
- 2) How does functioning as a cross-age tutor influence the reading attitudes of the fifth grade students that participated in the cross-age tutoring program?
  - a. **Hypothesis:** Children who participated in the cross-age tutoring program as tutors will increase in their positive attitudes toward reading at the end of the tutoring sessions.

- 3) Given the implementation of cross-age tutoring of dialogic reading, to what extent do the participating teachers and the students rate the techniques and the program as socially acceptable?
- a. **Hypothesis:** Teachers and students who participate in the cross-age tutoring program will rate the techniques and the program as socially acceptable.

## CHAPTER 2

### LITERATURE REVIEW

The purpose of this chapter is to review and critically summarize literature in the following areas: preschool participation and its effect on a child's development, the role of emergent literacy skills in reading acquisition, the outcomes of parent-child shared book reading, the outcomes of dialogic reading interventions, and finally, the effects of cross-age peer tutoring interventions on the tutors as well as the tutees.

#### Article Selection

Studies published in journals from 1988 to the present were considered for inclusion in this literature review. In analyzing the research pertaining to preschool, the following keywords were entered into the PsychInfo, Academic Search Premier, PubMed and ERIC databases: emergent literacy, language development, effects of preschool, and phonological awareness. The following keywords were entered into the databases to derive a list of resources that pertain to the intervention: peer tutoring, cross-age peer tutoring, dialogic reading, and shared book reading. The reference lists of the articles found through the database searches were then evaluated to identify additional articles to be included in this literature review.

#### Brief Statement of the Problem

The purpose of the current investigation was to examine the effects of implementing dialogic reading techniques in a preschool via cross age tutoring. Dialogic reading is an intervention that has been shown to positively affect a young child's language, vocabulary and preliteracy skill development; all important precursors to benefiting from formal schooling (Crain-Thoreson & Dale, 1999; Dale, et al., 1996;

Fung, Chow & McBride-Chang, 2005; Huebner, 2000; Lonigan & Whitehurst, 1998; Whitehurst et al., 1988; Whitehurst, Arnold, et al. 1994; Whitehurst, Epstein, et al., 1994; Valdez-Menchaca & Whitehurst, 1992). By implementing dialogic reading in a preschool via cross-age tutoring, fidelity of implementation can be monitored, the frequency of the intervention can be controlled, and it can be applied one-on-one, which has been stated to be one of the most important components of the intervention to ensure effectiveness (Crain-Thoreson & Dale, 1999; Valez-Menchaca & Whitehurst, 1992). Furthermore, by using a cross-age tutoring format to deliver the intervention, there could be positive effects on the older school children who are participating in the intervention as tutors.

#### Importance of Preschool

There is a consensus among researchers that early childcare and educational programs can substantially improve children's readiness for school (Boethel, 2004). Furthermore, preschool programs appear to demonstrate great potential for prevention of future crime problems and results in a reduction in social costs (Temple & Reynolds, 2007). Preschool programs may also be a cost effective way to prevent learning problems rather than waiting until late adolescence or adulthood to offer costly and less effective treatments and trainings. The demonstration of the long-term benefits of early childhood programs on the cognitive, social and emotional development of children and the influence of these programs on society have motivated policymakers to make early childhood initiatives a priority (Clifford, et al., 2005).

There have been multiple studies conducted on the short term and long term effects of early childhood programs on cognitive, social, and school outcomes of children

at risk for school failure (Barnett, 1995). However, the extent of the benefits produced by early childhood programs in children's cognitive development, socialization and school success is controversial (Barnett, 1995). Whereas some studies found that there were initial gains from attending early childhood programs (Gormly Jr., Gayer, Phillips, & Dawson, 2005; Lee, Brooks-Gunn & Schnur, 1988), children who attended were still behind that of their peers a year later (Lee et al., 1988), and other studies found initial boosts were maintained through age 21 (Campbell, Pugello, Miller-Johnson, Burchinal & Ramey, 2001). Connell and Prinz (2002) however, found mixed evidence of childcare exposure on social skills development as well as on school readiness outcomes.

Barnett (1995) conducted an analysis of 36 studies that examined the short and long term effects of preschool attendance on children from low income families. He divided the 36 studies into two categories. The first category consisted of 15 studies that looked at the effects of researcher developed, intensive model programs. The second category consisted of 21 ongoing, large scale programs including Head Start and state and local programs.

The model programs reported favorable results overall. There were cognitive ability gains at some point during or after the children's participation in the programs, and in most cases, the effects were sustained until school entry. Furthermore, five of the studies found statistically significant effects on the children's achievement beyond the third grade. All but one of the model program studies found there were lower rates of students in special education as well as lower rates in grade retention. Although only a few studies looked at the socialization of the students, two found improved classroom behavior in students enrolled in their early educational program, and another two found

that their students were rated as better socially adjusted in comparison to their non-participation peers. In the large scale studies, only one found effects on tests of linguistics and cognitive ability, and effects were variable in academic achievement. Whereas some studies found no effects at all, some found initial effects although they generally faded by the third grade.

Lee, Brooks-Gunn and Schnur, (1988) and Campbell, Pungello, Miller-Johnson, Burchinal and Ramey, (2001) both looked at the effects of relatively well know early childhood educational programs; Head Start and the Abecedarian Project respectively. They both found gains in their target populations, however, children in these studies were more disadvantaged overall and were mostly of African American decent. Thus the results may not be generalizable as these research projects were conducted with specific populations, in specific programs. In particular the Abecedarian Project (Campbell et al., 2001) was an intensive intervention that began at infancy, under the watchful eyes of researchers, and thus may not be replicable under typical community circumstances.

Lee, Brooks-Gunn & Schnur (1988) compared students from Head Start to children enrolled in other preschools, as well as to children who did not attend any childcare, a year after their graduation from preschool. They used four measures, and found that participation in Head Start produced significant one year gains on some of the measures for these children. However, exposure to Head Start did not entirely close the gap between the children who participated in Head Start and those in the two comparison groups. Although Head Start children experienced the greatest gains overall, their absolute means were still below those of the other groups after the experience.

Similar to the Lee, Brooks-Gunn and Schnur (1988) study, Campbell et al., (2001) found short-term boosts in cognition as well as academic achievement in their participants. The Abecedarian Project sample included 111 infants where 57 were randomly assigned to the treatment group and 54 were randomly assigned to the control. The treatment was an intensive, early educational program in which students participated for eight hours a day for five days a week, 50 weeks per year. Teacher turnover was low, and there were low teacher-child ratios ranging from 1:3 for infants and 1:6 for five year olds. Data were collected when children were 6.5, 8, 12, 15, and 21 years of age, and at all times, standardized IQ tests were administered. At ages 8, 12, 15, and 21 standardized achievement tests were included in the data collection.

The cognitive growth curves over the years showed that patterns of change in cognitive test performance differed between the groups during the early childhood treatment phase with intervention children having steeper rates of increase. However, after the early childhood years, cognitive growth curves became parallel between the groups and were characterized by a linear decline. It was also found that students who participated in the treatment achieved higher reading and math scores than those in the control group. However, overall reading scores across participants when they were between the ages 8-21 were generally flat in terms of levels of change, and thus the patterns of change over time did not vary as a function of treatment. Both groups experienced a steep decline in standardized math scores, particularly between the ages 8-12, with a more gradual decline from 12-21.

Thus, this study indicates that intensive early childhood education can have long lasting effects on cognitive and academic development. The findings suggest that

enhancements in cognitive development mediated school performance, however, cognitive functions accounted for only approximately half of the intervention effects on academic achievement. The authors hypothesize that higher cognitive functioning at the end of the program allowed the children to enter school with a greater degree of school readiness, which led to an increased likelihood of early school success, which then increased the likelihood of later success.

Gormley Jr. Garyer, Phillips, and Dawson (2005) also looked at the effects of a preschool program on students' cognitive and academic growth. However, these authors looked at students enrolled in Oklahoma's universal preschool program and used a regression-discontinuity design to reduce the threat of selection bias. Differing from the other studies, their sample included a variety of ethnicities and children from differing socioeconomic backgrounds; which ranged from students who received free and reduced lunch to children with no lunch subsidies at all. Their participants included 1567 incoming preschool students in the control group and 1461 students who had just completed their preschool education in the treatment group. This study found statistically significant effects of the program on tests of pre-reading, reading skills, prewriting, spelling skills, math reasoning and problem solving abilities. The largest effects were found in letter sound identification with an effect size of .79 and in spelling and applied problems with effect sizes of .64 and .38 respectively.

Connell and Prinz (2002) not only looked at the school readiness of their subjects, but also looked at their social and communications skills development. This study differed from the others in that the authors focused on two primary variables; length of exposure to childcare and parent-child interactions. The subjects included 47

kindergarten students, all African American and from low-income families. Children differed in preschool settings and the number of hours spent in childcare per week. The parents were surveyed on their child's preschool experience and were observed for interaction quality. The kindergarten teachers completed rating scales, and students' school readiness was assessed in the spring of kindergarten.

Results indicated that parent child interaction quality was significantly associated with higher ratings of social skills, overall communication skills, and receptive communication after accounting for demographics and childcare involvement. It was found that earlier involvement in childcare was positively correlated with greater cognitive and communications skills, and these children received higher ratings on social skills. However, increased involvement in childcare per week had a moderate negative impact on social skills ratings, although it was associated with enhanced performance on cognitive tasks when looking at the trends. This study had several weaknesses. Their sample size was small, and thus there was a limitation in the statistical power to detect small effects from childcare exposure. Furthermore, the authors assessed the children's childcare exposure retrospectively, from the parent report, and this could be biased or inaccurate. However, the authors conclude that family and childcare settings each play an important role in the development of a range of readiness related outcomes.

Overall these studies can be taken to indicate that early childhood programs in general have positive and important effects on the cognitive and the social development of all children, particularly disadvantaged children, immediately in the short term. Long term effects appear to be variable, and those effects depend upon program quality, and the intensity of the intervention. The evidence suggests also, that early education

programs may also reduce retention, special education rates, and increase positive socialization effects. Therefore researchers emphasize the importance of universal preschool education in order to ensure all children are ready to learn when they enter formal schooling (Gormley Jr. Garyer, Phillips, & Dawson, 2005). In addition to understanding the importance of preschool participation, a related area, emergent literacy and language development, also appears to be a critical component of school readiness.

### Emergent Literacy and Language Development

Literacy is a cultural phenomenon and is an integral part of today's society. Children who start off schooling with good literacy skills often continue to do well in reading as they advance through the years (Cunningham & Stanovich, 1997; Spira, Brachen & Fischel, 2005; Snow & Páez, 2004; Stanovich, 1986) whereas oftentimes, children who start off poorly do not catch up to their average peers, and the gap between them grows larger (Stanovich, 1986). Thus, there is a focus today on emergent literacy. Emergent literacy refers to the early skills, knowledge, and attitudes that are presumed to be developmental precursors to conventional forms of reading and writing (Whitehurst & Lonigan, 1998) and later academic success (Spira et al., 2005). Research indicates that children with less developed emergent literacy skills, including oral language and vocabulary are at a substantial risk for not only academic difficulties but also for behavioral and emotional problems (Connell & Prinz, 2002; Lonigan et al., 1999).

Multiple studies have examined the effects of early literacy acquisition, the components of early literacy, as well as the effect of language development on children's later literacy skills. Researchers agree that emergent literacy skills and the development of language are important. However, the relationship between the different emergent

literacy skills, including the development of language and vocabulary, and later reading ability is often debated (Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg & Poe, 2003; Lonigan, Burgess & Antony, 2000; Poe, Burchinal & Roberts, 2004; Storch & Whitehurst, 2002; Spira, Bracken & Fischel, 2005; Whitehurst & Lonigan, 1998).

According to Poe, Burchinal, and Roberts (2004), the role of oral language in emergent literacy skills can be organized into two views. The first view, which Poe et al., (2004) supports, is known as the cumulative language perspective. This perspective is also endorsed by Dickinson et al., (2003), and Spira, Bracken and Fischel, (2005). This view suggests that a variety of language skills interact with literacy knowledge and phonological knowledge, and all three are important components of learning to read. Furthermore, this view suggests that a variety of skills in language such as vocabulary, phonological awareness, and syntax are interrelated skills that lay the foundation for emergent literacy and other reading skills. The second view, the phonological approach, is supported by Whitehurst and Lonigan, (1998), Lonigan Burgess and Antony, (2000), and Storch and Whitehurst (2002). These authors argue that vocabulary and oral language skills are important in the emergence of phonological sensitivity, however, vocabulary and language skills play an indirect role whereas phonological skills play a direct role in learning to read.

The first view is supported by Dickinson et al., (2003), and states that language, phonological awareness, and book knowledge are all important components in learning how to read. These authors conducted a study that examined the pattern of interrelationships among language, literacy, and print knowledge in 533 Head Start children. Results indicated that receptive language, early print knowledge, and phonemic

sensitivity were significantly interrelated. Using a regression analysis, it was revealed that vocabulary and phonological sensitivity were equally early predictors of later literacy skills. These authors also found that vocabulary had more of an influence on the literacy growth of children with intact phonological sensitivity than it did among young children with low phonological sensitivity. Furthermore, phonological sensitivity was less of a predictor of early literacy in children with low vocabulary in comparison to children with normally developing vocabulary skills. Thus this study suggests that among normally developing children, literacy is supported by a variety of language skills. However, this study also suggests that teachers should strive to support children's development in early literacy skills by instructing so that children acquire language abilities as well phonological skills equally.

Poe, Burchinal and Roberts (2004) conducted a study to examine the extent to which language skills, phonological awareness and print awareness skills at kindergarten predicted reading skills in second grade. These authors had a sample consisting of 77 African-American children. They used a longitudinal regression model to identify the direct and indirect relationships between phonological awareness and language skills through repeated assessments collected at three points in time; prior to when the children entered kindergarten, at the end of kindergarten, and at the end of the second grade. However, due to the authors limited sample size as well as their focused population, their results may not be replicable in the general population.

Analysis showed that language as well as phonemic knowledge is important to the acquisition of later reading skills, as both provided independent as well as a shared prediction of reading later on. At kindergarten entry through second grade, language had

a direct association with reading, and those language skills best predicted reading skills in the second grade. Findings suggested that phonological skills in kindergarten were most strongly related to successful beginning reading; whereas there was strong evidence that language skills were most strongly related to later reading skills in second grade. Once the children acquired the skills to decode the words, their language skills provided the skills they needed to comprehend what they were reading. The results suggest that both skills are important for children to become successful readers, and that a direct association exists between language and reading, not an indirect association through phonemic awareness, as the phonological approach suggests. Thus early reading interventions should focus on equally developing language and phonological awareness skills.

Spira, Brachen and Fischel (2005) also conducted a study examining the effect of emergent literacy skills on the progression of reading of the poorest readers. In this study, behavioral attributes were also used to predict reading improvement. The sample consisted of 146 children in Head Start who later attended public elementary schools, and their progress was followed through fourth grade. The students in this study had, on average, reading scores in first grade below the 30<sup>th</sup> percentile.

These authors strongly agree that language skills and their development should be a focal point of preschool. Specifically, they found that the second grade was a turning point for predicting later reading achievement. Children who had a relative strength in phonological awareness, oral language, print knowledge, and positive behaviors in kindergarten were more likely to show improvement after initial reading difficulties in first grade. In particular, children who showed the most improvement by fourth grade

possessed stronger oral language skills in kindergarten, which may have helped them to compensate for their weak decoding skills by using their strengths in oral language to decode on the basis of context. Although language skills may have contributed to the improvement in reading, phonological awareness is also important in learning to decode. This study was unique in that the authors also examined the impact of behavioral control in the classroom. They found that a child's classroom conduct played a role in their improvement in reading. However, the relationship between behavior and reading ability was unclear as behavior problems could be a consequence of the child's frustration with reading, or it could be that the behavior difficulties interfere with learning, and thus increasing the difficulty in learning to read.

Whitehurst and Lonigan, (1998) developed a model that supports the direct role of phonological processing abilities in reading, and the indirect role of language. According to these authors, there are two distinct domains of emergent literacy; outside-in skills (the ability to understand language, the contextual uses of language, vocabulary, and storytelling skills) and inside-out skills (the ability to manipulate the units of language into sounds and those sounds into print). These authors suggest that these skill domains are influential at different points in a child's process of reading acquisition. They suggest that inside-out emergent literacy skills are crucial in the earliest stages of reading acquisition, when the focus is on decoding text. Outside-in skills are also important, but play the greatest role when children are learning to comprehend text for meaning rather than in the initial decoding stages, and therefore impact learning to read indirectly.

Lonigan, Burgess and Anthony (2000) support the model developed by Whitehurst and Lonigan (1998) and in their research, they examined the development of

emergent literacy and early reading longitudinally in two samples of preschool children as well as the joint and predictive significance of these emergent literacy skills. Specifically this study examined the relationship between phonological sensitivity, and letter and print knowledge on later reading abilities. The authors employed structural equation modeling to address questions about the nature of preschool phonological sensitivity, the independence of different emergent literacy skills and the developmental significance of these skills across time from early preschool through first grade. Two groups of participants were used in this study. Group one consisted of 96 younger students between 2 and 5 years of age, and group two consisted of 97 older preschoolers around 4 and 5 years of age. All students were assessed on phonological sensitivity, oral language, cognitive skills, letter knowledge, print tasks, and decoding skills.

It was found that a large component of children's reading skills in kindergarten and first grade can be predicted by their preschool skills. Together, phonological sensitivity and letter knowledge accounted for 54% of the variance in kindergarten and first grade children's decoding abilities. Other emergent literacy skills such as print concepts, and knowledge of environmental print, did not emerge as uniquely important for children's later reading. However, only one measure of print concepts was used, which may have affected the results. These authors state that language development indirectly influences the acquisition of phonological processing, decoding, and later reading abilities and that only 17% - 25% of the variance in phonological sensitivity can be explained by early phonological skills and the effects of early language skills. This finding suggests that the origins of the majority of children's reading related phonological sensitivity are unknown.

Also of importance in the Lonigan et al. (2000) study was the high level of stability in children's phonological sensitivity. This stability was present from upper preschool through first grade. However, very early phonological sensitivity was not a strong or unique predictor of phonological sensitivity in the late preschool period. This indicates that phonological sensitivity may be present earlier in development and is not the result of formal reading instruction. The high level of stability of emergent literacy skills from late preschool to early grade school, coupled with the lower degree of stability of emergent literacy skills from early to late preschool suggests that efforts should be directed toward the preschool years, where significant growth appears to occur, when the children are between 3 to 4 years of age.

In research similar to that of Lonigan, Burgess and Anthony (2000), Storch and Whitehurst, (2000) examined the role of code related and oral language precursors in the development of reading ability in 626 children from preschool through fourth grade. They also looked at the effects of multiple emergent literacy skills on reading achievement through elementary years as well as the changing nature of reading from the beginning of formal reading instruction through the fourth grade. Similar to the previously reviewed study, Storch & Whitehurst, (2000) found a relationship between oral language and code related skills; which included print concepts, phonological awareness, grapheme knowledge, sound correspondence and the beginning forms of writing in preschool. However, this relationship diminished as the children began formal schooling. In kindergarten, print knowledge and phonological awareness were important, whereas in grades one and two, code related skills began to influence reading

achievement. However, by second grade, reading comprehension became important in reading tasks.

The researchers that support the phonological awareness view found that phonological processing skills play a more visible, direct role in early reading achievement, but are determined by child's oral language ability. However, similar to the authors that advocate for the cumulative language approach, results suggest that preschool is an important stage of development where children can begin to access early literacy skills, and it is during this time that oral language must be incorporated as an integral part of instruction and must be continued through elementary school to help children foster early reading skills. Thus, all researchers agree that language is important. The cumulative language and phonological approaches are not as discrepant as they may appear on the surface. Whether the effect is indirect or direct, both approaches emphasize the idea that early education programs should incorporate activities that focus on the development of phonological sensitivity and oral language in young children. One way that such activities can occur is through shared storybook reading.

#### Shared Story-book Reading

The literacy environment created in the home plays a crucial role in a child's emerging skills and in their readiness to learn to read (Kassow, 2006; Teale & Sulzby, 1986). One area of the home literacy environment that has received attention in the literature has been parent-child shared book reading (Kassow, 2006). Storybook reading is a familiar and enjoyable routine for many families with young children, and this activity may be the single most important activity for young children in building the knowledge and the skills that are required for reading (Adams, 1990). Research on the

possible effects of shared book reading has centered on the frequency with which children are read to (Bus, vanIJZendoorn & Pellegrini, 1995; Crain-Thoreson & Dale, 1992; Scarborough & Dobrich, 1994) as well as the quality of book reading such as through dialogic reading techniques (Reese & Cox, 1999).

Bus, vanIJZendoorn and Pellegrini (1995), conducted a review of empirical research related to the frequency of parent-preschooler reading. These authors examined 33 studies published between 1951 and 1993. After a meta-analysis, it was found that variables in the home environment contributed to different outcomes for children. Children who were interested in reading elicited more reading from the parents, and parents who read to their children were more likely to enjoy reading themselves, own more books and take their child to the library more often. To test the overall effects of the relationship between the frequency of parent-child shared book reading and the outcome measures (language skills, reading skills/emergent literacy, or reading achievement of school aged children), these authors utilized Cohen's  $d$  to test the difference between group means. The combined effect size across all studies was  $d = .59$ , which indicates a moderate relationship between the frequency of shared book reading and overall literacy skills for young children. The effect sizes for the frequency of shared book reading and language skills, emergent literacy, and reading achievement were at  $d = 0.67$ ,  $d = 0.58$ , and  $d = 0.55$  respectively. They all indicated that the effect of shared book reading was moderate. When the authors looked at the socioeconomic status and frequency of book reading, there were no significant differences between the groups, which suggests that the effects of the frequency of parent child shared book reading was associated with literacy skills across socioeconomic groups. Overall, Bus et al. (1995),

found through their meta analysis, that the frequency of shared book reading was positively related to literacy outcomes for young children.

Scarborough and Dobrich (1994) also conducted a review of empirical research on the influence of shared book reading on the development of language and literacy skills. First, these authors found that parents read to their children an average of 4.5 to 10.5 times per week, and that children from low income families were read to less frequently than children of middle income parents. These authors found that the frequency of shared book reading when the children were in their preschool years accounted for about 7% of the variance in their emergent literacy skills at their entry to formal schooling, 7% of the variance in their language development, and 8 % of the variance in their reading achievement from when they were in kindergarten to third grade. This result is similar to Bus, vanIjzendoorn and Pellegrini (1995) who also found that the frequency of shared book reading accounted for about 8% of the variance in children's literacy achievement later on. Scarborough and Dobrich (1994) also looked at the quality of shared book reading, and found that this factor accounted for only 4% of the variance in a child's emergent literacy skills. In examining different intervention studies that attempted to modify the quality of parental book reading, Scarborough and Dobrich reported mild associations accounting for 3% to 8% of the variance in childrens' language and literacy skills. Results may have been impacted however, by the use of parental input in the majority of the studies, which may have been affected by social desirability biases, which produces an inflated estimate of the frequency of reading, and may produce an inaccurate account of the quality of the reading activities. Furthermore, the authors noted that the methods in which the preschooler's reading, language and

literacy abilities were measured were considerably varied across studies, and the methods in which to measure the quality of book reading, albeit control the quality of book reading were varied as well. Finally, in looking at the quality of parent-child book reading, it is always a challenge to decide which aspects of parental behavior are the most relevant and/or modifiable with regard to fostering language and literacy development, and this variability may have affected the outcomes.

Crain-Thoreson and Dale, (1992) examined both the frequency and the quality of reading and their effects on children's language and literacy skills. This study focused on whether early talkers tend to become early readers, and if not, what experiences would determine who did become early readers. In this study, data were collected on 25 children when they were 20 months, 24 months, 2.5 years old, and 4.5 years of age. Information on early verbal ability, exposure to instruction in letter-sound correspondences, and exposure to literacy via storybook reading with parents were collected. Other data collection measures included language samples, standardized measures, and parent questionnaires. Results revealed that although the children were able to maintain their verbal precocity, they were not likely to read early in comparison to the mean performance of broader samples of children. This suggests that learning to read requires multiple skills, not just verbal skills. Other results indicated that exposure to direct instruction in letter-sound correspondences during the preschool years was positively associated with more developed phonological awareness, invented spelling, word decoding and concepts of print prior to kindergarten entry. Story reading with parents also played a role in literacy and language development, where the child's level of engagement was more predictive of language, cognitive, and literacy outcomes, more

so than specific parental reading styles. However, the authors surmise that engagement is a measure of how effectively children have learned how to learn. Therefore, children who have more opportunities to read stories with their parents, and who are engaged so that they can learn something from that experience appeared to have more well developed emergent literacy and language skills. Although this study has limited power due to the small sample size, and much of the data used were a result of parental input, both frequency of book reading and a child's engagement in the activity impacted the development of language and literacy skills prior to formal schooling.

Although much of the research on the possible effects of shared book reading has centered on the frequency of reading, according to Scarborough and Dobrich, (1994), more research on the effects of the quality rather than quantity of book reading is still necessary. One such study that focused on the quality of shared book reading was conducted by Reese and Cox (1999). These authors highlighted three different "demand styles" of reading. The describer style; a low demand style that focuses on describing and labeling pictures during the reading session, the comprehender style; a high demand method where the reader focuses more on meaning, inferences and predictions throughout the reading session, and the performance oriented style; another high demand style in which the story is read uninterrupted, and discussions are conducted before and after the story was read. Reese and Cox (1999) were interested in how the reading style would influence a child's emergent literacy skills. Subjects included 50 young 4 year old children from predominantly working class families. In a pretest posttest design, children were assessed on receptive vocabulary, print skills and story comprehension. Prior to the intervention, children were matched on their receptive vocabulary scores and randomly

assigned to the three reading styles. Each child was individually read 32 books by the same reader, two to three times per week for six weeks. In order to maintain fidelity of the reading styles, the readers adhered to strict reading protocols created to reflect the three different styles.

Results indicated that reading style was a unique predictor of the children's posttest vocabulary. One of the main findings was that a describer style of book reading with children appeared to provide overall benefits for receptive vocabulary and print skills in comparison to the other two reading styles. However, these overall benefits must be considered in the context of significant interactions between reading style and children's preexisting skill levels. Children with higher initial vocabulary benefited most in their vocabulary development from a performance oriented style, whereas a describer style was most beneficial in increasing the print skills of children who had higher initial story comprehension levels. The reading style uniquely explained 17% of the resulting variance in children's vocabulary scores. Overall, the results suggest that reading interventions need to be tailored to children's individual skill levels in the different areas. Specifically, results suggest that if vocabulary skills are to be targeted, children with low initial skills would benefit most from a describer style of reading, and if print skills are to be enhanced, then children with high comprehension skills may benefit most from a performance oriented approach. However, this study had a relatively small sample size and did not take into account the effect of the frequency of book reading. Furthermore, the lack of a control group made it difficult to surmise how much learning occurred naturally without the interventions.

Each of the studies reviewed in this section indicated that participating in shared book reading produced positive effects in young children. When the authors examined the socioeconomic status of families, parent child shared book reading was associated with literacy skills across socioeconomic groups. A specific type of shared book reading, dialogic reading, is reviewed and discussed in the following section.

### Dialogic Reading

Dialogic reading is a set of instructional techniques in shared book reading, developed by Whitehurst et al., (1988) which not only uses descriptions and comprehension checks, but also uses discussions, and tailors the reading to the child's initial skill level. The goal of dialogic reading is for the child to become the storyteller and for the adult to facilitate, expand, and respond to the child's verbalizations. Adults use techniques that are based on the idea that practice in using language, feedback regarding language and appropriately scaffolded adult-child interactions in the context of picture book reading all facilitate language development. Through scaffolding, adults encourage the child to say just a little more than he or she would naturally do, and as a result, the child's language skills are thought to develop rapidly and spontaneously (Zevenbergen & Whitehurst, 2003).

### Middle and Upper Class Population

Whitehurst et. al (1988) first described dialogic reading in a 1-month home based intervention that was created to help parents read picture books to young children. The researchers had a sample of 29 children between 21-35 months of age from middle class families which were randomly divided into an experimental and control group. All the participating parents were European American mothers. The treatment program lasted 4

weeks where parents in the treatment group altered their reading style and parents in the control group were only told to read to their child as usual. The mothers in the experimental condition were taught the techniques in two half-hour trainings where they received instruction, modeling, and direct feedback. Examination of reading frequency data revealed no differences between the two groups. Audiotapes were used in order to examine fidelity as well as to collect data on the mean length of utterances among the children. Children in the treatment group showed significant gains in their expressive vocabulary as assessed by the Expressive One-Word Picture Vocabulary Test [EOWPVT],  $t(27) = 2.513, p = .009$  (one-tailed) where they were approximately 6 months ahead of those in the control group. According to the Expressive Language subtest of the Illinois Test of Psycholinguistic Abilities [ITPA], the treatment group had an 8.5 month gain in expressive language fluency  $t(27) = 3.941, p = .0005$  (one tailed) in comparison to the control group. According to the Peabody Picture Vocabulary Test-Revised [PPVT-R] results favored the experimental group but were not statistically significant  $t(27) = 1.555, p = .0655$  (one-tailed). Finally at a 9-month follow up assessment, only gains in the expressive language skills were maintained.

One limitation in this study was that the experimental group parents may have known that they were in a special program and thus, this may have caused a Hawthorne effect. Furthermore, parents in the control and experimental group may have behaved in ways to influence their children's vocabulary and language that may have not been assessed in the study. In addition, there may have been preexisting differences despite random assignment. This was difficult to assess as the populations were not pretested. The researchers were concerned with pretest sensitization, and were concerned of

parental coaching on items that were missed on the pretest. Therefore this was a posttest only design.

Arnold et al. (1994), attempted to replicate and extend the work by Whitehurst et al., (1988). The researchers extended the results of the original dialogic reading study by developing and evaluating a videotape training package for teaching dialogic reading techniques. Mothers of 2 year old children were trained through either videotape or through direct training. A third group consisted of mothers who read to their children as usual, which served as a control group. Similar to Whitehurst et al. (1988), the children and their families in this study were from upper and middle class European American families and the intervention lasted for 4 weeks. This study had 63 children of ages 24-34 months. Children were pretested on the Reynell and the PPVT-R. At the end of the intervention period, the children's language skills were evaluated using the EOWPT, the verbal expression subtest of the ITPA-VE, and the PPVT-R.

Significant differences were found on the EOWPVT,  $F(1, 59) = 7.35, p = .009$ , and ITPA-VE,  $F(1, 59) = 6.83, p = .01$ , when comparing the video training group to the control group. There were no significant differences on the PPVT-R,  $F(1, 58) = 3.03, p = .09$  between the intervention groups and the control group. Consistent with expectations, the direct training group outperformed the control group on the ITPA-VE,  $F(1, 59) = 5.38, p = .02$ , but did not differ on any of the other outcome measures where the  $p > .29$ . In comparing the video training group with the direct training group, there were significantly higher scores of those in the direct training group on the EOWPVT,  $F(1, 59) = 7.36, p = .009$  and the PPVT-R,  $F(1, 58) = 7.39, p = .009$ . The results overall indicated that there were positive effects on the expressive language of children who

participated in the intervention. Furthermore, although there were effects of the intervention in the direct training group, the effects did not match the gains of the group in Whitehurst et al. (1988) study. The authors surmise that those differences could have been a function of the differences in the trainers and the approach to teaching the techniques. For example, one trainer may have focused on the open-ended questions more than another. Data also indicated the mothers produced more simple “what” questions, and fewer repetitions of their children’s words than did mothers in the previous study.

Overall, these studies suggest the positive influence of dialogic reading on language skills of children from high and middle socio-economic classes, particularly in expressive language, and that language skills can be enhanced via this intervention within a relatively short intervention period.

#### Head Start Population

Dialogic reading also has been studied in Head Start settings. Whitehurst, Epstein, et al. (1994) and Whitehurst et al. (1999) conducted studies on the emergent literacy skills of young children in this setting. These studies differed from the studies conducted on the upper and middle income students in that the intervention was more structured where “hints” or prompting techniques were added onto book guides developed for each text. These studies also added a dialogic reading program conducted in the classroom, as well as a home and classroom condition. Additionally, a sound letter awareness program was included in the classroom setting where children were introduced to letter sound relationships.

Whitehurst, Epstein et al. (1994) conducted their study with 167 preschool children who attended four different Head Start centers. Classrooms were randomly assigned to two conditions; either an intervention condition, which included dialogic reading at home and in the classroom, in addition to a classroom based sound and letter awareness program, or a control group. Children were pretested on the PPVT-R, the EOWPVT, the expressive subscale of the ITPA, and subscales from the Developing Skills Checklist [DSC] which measures emergent literacy skills. Caregivers completed the Stony Brook Family Reading Survey to assess home demographic and literacy related variables and the Quick Test, which is a test of adult IQ. Children in the intervention group were read to using dialogic reading techniques three to five times per week and received one on one reading at home. Each book had a book guide and recall prompts at the back of the book. A phonemic awareness curriculum was also added to the intervention. Fidelity was obtained through daily logs, surveys and observations.

As there were many measures administered to each child, a data reduction procedure was used to decrease the number of statistical tests conducted to assess the intervention effects. Using principal components analysis, the data were reduced to four factors: Language, Writing, Linguistic Awareness and Print Concepts. Highest factor loadings on the Language factor were the three standardized language tests and the narrative subscale of the DSC. A multivariate analysis of covariance was conducted using pretest factors as a covariate and four posttest factors as development variables. Gender was included as a variable in this analysis. Results indicated that girls performed better than boys on the Writing factor,  $F(1, 150) = 11.77, p = .0008$ , and boys performed better than girls on Language,  $F(1, 150) = 3.48, p = .064$ . Children in the intervention

group performed significantly higher than children in the control on Writing,  $F(1, 150) = 7.98, p = .005$ , Print Concepts,  $F(1, 150) = 10.35, p = .002$ , and Identification of Sounds and Letters  $F(1, 150) = 5.70, p = .018$ . Effect sizes for Writing and Print Concepts were in the medium effect size category at .516 and .624 respectively. It was also found that the extent to which parents complied with the reading program at home was related to children's scores on the Language factor (.51). The effects on language were limited to children whose parents were actively involved in the reading program. Classroom based interactive reading did not; by itself generate increases in children's language skills.

Overall, this study demonstrated that an emergent literacy intervention composed of dialogic reading and a phonological awareness program can influence the writing and print concepts knowledge of children enrolled in Head Start. The authors concluded that the failure to find significant intervention effects on the language factor (as other studies have found significant effects) may suggest that children may need more one on one reading interactions to make substantial gains in language skills through dialogic reading.

Whitehurst et al. (1999) replicated the study conducted by Whitehurst, Epstein, et al. (1994), where they not only followed up the original cohort but reported on a new cohort of Head Start children. The sample consisted of 127 children from the original sample and 153 children in the new sample. Children in Head Start centers were pretested on the PPVT-R and the DSC. These students were post tested after the intervention and had a follow up a year later on the DSC, PPVT-R and the EOWPVT-R. In addition, at the end of first grade, and at the end of second grade, these children received a follow up on the word reading subscale of the Stanford Achievement Test – Eighth Edition, and on the word attack subscale of the Woodcock Reading Mastery

Tests-Revised. The intervention was the same as the Whitehurst, Epstein, et al. (1994) study, with the intervention group receiving dialogic reading at home and at school, in addition to a phonemic awareness curriculum.

Results indicated that scores increased significantly between posttest and kindergarten follow-up and those in the intervention condition performed better than those in the control condition. Specifically, children in the intervention obtained higher scores on test of language, knowledge of letters and sounds, and writing by the end of their kindergarten year than children in the control condition. However, it was also found that the intervention did not generalize to reading scores in the first and second grades. The authors suggested a primary reason for this is that reading ability in early elementary school appears to be strongly related to skill components at the preschool level such as identification of sound and letters, and blending; the decoding aspects of reading, rather than semantic and narrative knowledge that were the targets of the dialogic reading intervention.

Although both studies demonstrated the positive influences of dialogic reading and phonemic awareness curriculums in Head Start, it is difficult to say that it was only the influence of the dialogic reading program that altered the childrens' language and emergent literacy skill development. In the Whitehurst, Epstein, et al. (1994) study, it was found that language differences were not significant, although Writing and Print Concepts were, which are the skills that are specifically targeted in phonemic awareness activities rather than in dialogic reading techniques; which focuses more on comprehension and vocabulary.

## Low Income Population

Whitehurst, Arnold, et al. (1994) conducted one of the studies on the effects of using dialogic reading techniques with children from low-income families who attended subsidized day-care centers. Subjects included 73 children who were assigned to one of three conditions: (a) school plus home condition, (b) school condition, and (c) control condition. Children in the intervention conditions participated for 6 weeks. These students were pretested using the PPVT-R, EOWPVT-R, the expressive subscale of the ITPA, and Our Word, an expressive vocabulary test created by the examiners. Post-testing occurred after the intervention period had ended and a follow up was conducted 6 months after post-testing.

Results indicated there was substantial variability in the fidelity with which teachers followed the program. In fact, the difference in reported reading frequency across centers was statistically significant  $F(4, 43) = 86.87, p < .001$ . This finding was important, as correlations between the outcome measures and the frequency with which individual children were reported to have participated in the dialogic reading sessions at school were significant on the Our Word and the EOWPVT. There was also variability in the fidelity of implementation at home for students in the school plus home conditions.

An ANCOVA was conducted for each of the post-test measures as well as the follow up tests. On the EOWPVT, significant positive effects were found for the two intervention groups in comparison to the control  $F(1, 49) = 10.72, p = .002$ , and differences were found between the school plus home condition and the only school reading condition  $F(1, 49) = 4.39, p = .041$ . On the six month follow up, although the two intervention groups still had significant results in comparison to the control group

$F(1,34) = 6.30, p = .017$ , the contrast between the two reading conditions were not significant,  $F(1,34) = 2.12, p = .156$ . On the PPVT-R, and the ITPA there were no significant differences between the groups. On the Our Word, the two reading conditions versus the control was significant,  $F(1, 50) = 4.91, p = .031$ , but there were no differences between the two reading conditions  $F(1, 50) = 2.74, p = .104$ . It was found however, that of the five day care centers, those who were most compliant with the intervention, had children who performed significantly better in the post-test measures in comparison to those students enrolled in the day cares that did not follow through with the intervention. Specifically, of the five daycare centers that participated in the program, one center only minimally complied with the intervention. Overall, the authors found that the combination of teachers and parents resulted in the largest effects on children's skills; however the design of the study did not allow a determination of the relative contribution of teachers versus parents to the effects of the combined intervention as there was no condition where parents alone read to their children.

Lonigan and Whitehurst, (1998) also conducted a study on the effect of dialogic reading on the language skills of 91 children from low-income families. They contrasted the effects of a control group, a school-only condition, a home-only reading condition and a school plus home reading condition. This intervention also lasted for 6 weeks. The purpose of this study was to contrast the effect of school-only dialogic reading with that of home-only dialogic reading, which was not examined in the previous study. Children were pretested on the PPVT-R, EOWPVT, and the verbal expression subtest of the ITPA-VA. In addition, the verbal production of a subset of children was assessed during a semi-structured reading interaction at post-test. The students were pre-tested and then

randomly assigned within the classroom to one of the four conditions. Parent participation in the home reading condition was voluntary. Shared reading sessions were scheduled to occur daily in the school setting for 10 minutes per group.

Data analysis revealed substantial variability in the frequency that the teachers followed the intervention schedule as planned. The differences in reading frequency between centers was statistically significant,  $F(3, 43) = 102.98, p < .001$ , where reading was relatively frequent at two of the centers and infrequent at the other two centers. The correlation between the posttest EOWPVT and the frequency with which children in the school and the school plus home condition were reported to have participated in the school reading sessions was significant (simple  $r = .30, p < .05$ , partial  $r = .49, p < .001$ ). Parent frequency of reading was also variable but there were no significant relations between this variable and children's scores on the outcome measures.

An Analysis of Covariance was conducted on each of the posttest measures with the pretests used as covariates. Results of the analysis revealed that in the high compliance centers, the intervention groups scored significantly higher than the control group on the EOWPVT,  $F(1,79) = 4.57, p = .04$ , the school and home group scored higher than the control  $F(1,79) = 4.72, p = .03$  and the school group scored higher than the control  $F(1,79) = 2.96, p = .09$ . In fact the effect size in high compliance centers was .41. In the low compliance centers, the combined intervention groups did not score higher than the control group and the school group scored lower than all the other conditions. The PPVT-R at posttest revealed no significant effects, where all p-values were above .30. On the ITPA-VE, there were significant effects of the intervention where all intervention groups performed higher than the control group  $F(1, 79) = 4.57, p$

= .04. Scores in the home group were higher than scores in all the other groups. Finally, intervention effects were found on measures of spontaneous verbalization when reading an unfamiliar book with an adult. In high compliance centers, significant effects were found for children's mean length utterance, the total number of words produced, number of different words produced, and the number of different nouns and adjectives produced. There were minimal differences between the three intervention groups. In the low compliance centers there was only a significant effect in the number of different words used.

Overall, these results indicate that both parent led and teacher led dialogic reading can have positive effects on preschoolers' language skills. These effects were apparent particularly on expressive language measures. Children involved in school based interventions improved more in the compliant centers whereas they did not improve to a significant level in the less compliant centers. Within high compliance centers, children who were exposed to dialogic reading at home and school appeared to benefit more than those just exposed at home or just at school. The authors did not collect data on the demographics and the characteristics of the specific centers involved in the study, and therefore they could not offer a hypothesis as to why one center was more compliant than another.

#### International Populations

Dialogic reading interventions also have been implemented in international settings. Valdez-Menchaca & Whitehurst (1992) conducted a study that assessed the effectiveness of a 7 week dialogic reading program in a day care setting in Mexico. The subjects included 20 children from low-income families that were 2 years of age. All

subjects spoke only Spanish. The study was conducted at a public day care center that was shown to provide little linguistic experiences, and where educational materials and toys were scarce. Children were matched on pre-test scores and randomly assigned to experimental and control conditions. Children in the intervention group were exposed to dialogic reading by trained graduate students approximately 30 times for 10-12 minute sessions, and children in the control condition were given instruction in arts and crafts. Pre-test assessments included the PPVT-R, EOWPVT, and the Denver Developmental Screening Test. Post-test assessments included the PPVT-R, EOWPVT, and the Verbal Expression subscale of the ITPA. The children's spontaneous verbalizations were also evaluated using audio recorded interactions.

Data were analyzed using two-tailed t-tests on the standard scores. The analysis revealed significant group effects indicating higher performances by children in the experimental group on the PPVT-R,  $t(18) = 2.57, p = .019$ ; on the EOWPVT,  $t(18) = 3.06, p = .007$ ; and on the ITPA,  $t(18) = 3.38, p = .003$ . Analysis was also conducted using pretest covariates, which increased the effect of the intervention on the PPVT-R and the EOWPVT, with larger  $p$  values,  $F(1, 17) = 9.49, p = .007$ , and  $F(1, 17) = 10.13, p = .00004$  respectively. Effect sizes across all three standardized tests ranged from 1.29 to 2.08, and the mean was 1.56, which demonstrated that this intervention produced large effects on performance. Verbal production was also analyzed and indicated that children in the experimental group produced greater utterances than children in the control group  $F(1, 18) = 4.7, p = <.001$ .

One limitation to this study is the small sample size. Another includes the fact that these children were generally not read to by the adults in their home prior to the

intervention, and so it is difficult to separate the effects of dialogic reading with the increased frequency of reading. In addition, the interventionist was an advanced graduate student who interacted with subjects on a one to one basis, and this is not a practical method to administer this intervention, as the interventionist will usually be the teachers at the day-care or the parents of the children.

Another study on dialogic reading outside of the United States was conducted in Hong Kong with kindergarten and early primary school aged children identified as deaf and hard of hearing (Fung, Chow, & McBride-Chang, 2005). The intervention lasted 8 weeks. There were 28 children with moderate to severe hearing loss included in the study between the ages of 5 and 9. All participants were randomly assigned to one of three conditions: dialogic reading, typical reading, or control. Interventionists in the dialogic reading group were given Chinese storybooks and prompt questions that went with each book as a guide for the parents. Participants in this group were asked to read with their children twice a week for 15-20 minutes each time using the materials and the dialogic reading techniques. Picture cards were included to be used as materials to stimulate the children's story telling. The participants in the reading group were given the same storybooks but were not given prompts or other materials, and were asked to read the same set of books twice a week for 15-30 minutes each time. The control group parents were asked to read as they usually do through the 8 week period. This group also received the storybooks, but these were given to them after the program had completed. The Raven's Colored Progressive Matrices [RCPM], an assessment of cognitive development and the Peabody Picture Vocabulary Test – Third Edition [PPVT-III] were used as standardized measures, and questionnaires were utilized to evaluate children's

reading habits and parental practice with the intervention. Only the PPVT-III was used for the post-test measure.

Data analysis revealed a statistically significant difference in the change scores  $F(1, 18) = 4.7, p = <.001$  for children in the intervention group. Furthermore, there were significant differences on the posttest scores between dialogic reading and typical reading groups  $t(16) = 2.26, p = .05$ , and the dialogic reading group and control group  $t(17) = 2.05, p = .057$ . The partial Eta squared for this study was .276, which suggests a large effect of the dialogic reading treatment on PPVT-III scores. Data also found that in comparison to the control group, the typical reading group did not show great improvements. These results suggest that dialogic reading affects the receptive vocabulary of hard of hearing and deaf children in Hong Kong. In comparison to other research in dialogic reading, these findings showed similar results in the development of receptive vocabulary of young children. Some limitations were apparent in this study. Only self-reported frequency and duration of intervention were obtained and there were no other measures to ensure that dialogic reading was being done with fidelity. Furthermore, the sample size was extremely small, and only the PPVT-III was used as a measure of language skills. The authors also stated that in general, the dialogic reading group on their pretest was slightly higher than the other two groups, which may have accounted for their substantial growth at the end of the intervention period.

#### Language Delayed Population

Dale, Crain-Thoreson, Notari-Syverson and Cole (1996) conducted a study that focused on the effect of dialogic reading on preschool children with language delays. This was the first study on dialogic reading that focused on this population. There were

33 mother-child dyads that participated in this study. All children had mild to moderate language delays and were functioning at the 2 to 4 year level. The dyads were randomly assigned to a book reading program or a conversational program. The book reading program used dialogic reading techniques during storybook reading, and the conversational program used techniques to facilitate language development using descriptions, questions, expanding upon the child's utterances and asking open ended questions. Multiple sources of data were collected. In order to detect changes in parental use of language, their book reading and play interactions with their children were videotaped and coded. Child engagement and responsiveness were also coded. Furthermore, the McCarthy Scales of Children's Abilities and the Preschool Language Assessment Instrument were used to measure the children's ability and language as pretest measures.

Results indicated there were changes in the use of wh-questions, imitation and in the use of open-ended questions for the dialogic reading group, but only during the book reading activity. The comparison group also showed some growth in the use of expansions but only during play activities. These results were significant as the changes in parental behavior were specific to the context in which the behaviors were taught. Children's language and nonverbal behavior showed some changes also. Verbal responses to adult questions increased more in the dialogic reading group  $F(1, 30) = 12.61, p = .01$ . It was also found that both groups increased their mean length of utterances, but this increase was statistically significant only for the dialogic intervention group  $t(15) = 2.48, p .05$ . Overall, this study found more effects on the parent's use of language. Although the children in the dialogic reading program increased the mean

length of utterances, there were no overall changes in response to the adult questions. There are several limitations to this study. One limitation was the lack of standardized measures to compare growth at pre and post test. There was also limited monitoring of the intervention being implemented as the interventions occurred in the home. Finally, the intervention was not compared to a control group but to another language focused intervention and so the differences between the groups were not as significant. The authors state that dialogic reading with children with language delays has the potential for facilitating language, but the intervention must be monitored over longer periods of time, and the intervention needs to be conducted consistently for a stronger effect.

In order to gather more data on the effect of dialogic reading on children with language delays, Crain-Thoreson and Dale conducted another study in 1999. In this study, there were three different conditions to which 32 children with language delays were randomly assigned. The three groups included (a) parent instruction with one on one shared book reading, (b) staff instruction with one on one shared book reading, and (c) staff instruction without shared book reading (control). Pretest and post-test measures in this study included the Peabody Picture Vocabulary Test – Revised [PPVT-R], and the Expressive one Word Vocabulary Test- Revised [EOWPVT-R]. Children were also individually videotaped participating in shared book reading, at pre and post test. The intervention lasted for 8 weeks, and the authors modified the intervention by specifically teaching adults to pause to give children with language delays time to respond. Over the 8 weeks of the intervention children in the parent group or the staff instruction group participated in one on one shared book reading at least four times per week. Children in the control group only participated in group story time.

Results indicated there were some changes in adult book reading, within which acknowledgements, expansions, open-ended questions and wh-question use increased significantly. Verbatim reading, informational statements and insufficient time for responses decreased significantly. All conditions showed that the children's mean length of utterances increased, as well as the number of different words used. However, there were no statistically significant effects on the children's expressive and receptive vocabulary growth based on their group membership. This result contrasts with several dialogic reading studies in which there were significant effects, particularly in the children's expressive vocabulary scores (Arnold et al., 1994; Lonigan and Whitehurst, 1998; Whitehurst et al., 1988; Whitehurst et al., 1999; Whitehurst, Arnold, et al., 1994; Whitehurst, Epstein, et al., 1994; Valdez-Menchaca & Whitehurst, 1992). The authors suggested the lack of statistical significance may have been due to low power and the small sample size in the study. Furthermore, the intervention may just not be as powerful for vocabulary growth in children with language delays as it is for more typically developing children. Thus a longer intervention period may have been required to show significant growth.

Dialogic reading focuses on the quality of reading and the interactions that occur during paired story book reading, which has had positive effects on the language and emergent literacy skills of children (Zevenbergen & Whitehurst, 2003). This intervention has been effective in increasing the language skills of typically developing children from upper, middle, and low socio-economic families (Arnold, et al. 1994; Lonigan & Whitehurst, 1998; Whitehurst et al., 1988; Whitehurst et al., 1999; Whitehurst, Arnold, et al. 1994; Whitehurst, Epstein, et al., 1994) of children with language delays (Crain-

Thoreson & Dale, 1999; Dale, Crain-Thoreson, Notari-Syverson & Cole, 1996) and in multicultural settings as in a Mexican daycare and in Hong Kong (Fung, Chow & McBride-Chang, 2005; Valdez-Menchaca & Whitehurst, 1992). Dialogic reading strategies have been implemented under conditions exclusively using parents, teachers, or research assistants as the primary interventionist. In school based settings, however, it is interesting to consider whether older students might function as dialogic reading teachers with younger children. To ground this consideration, a brief review of literature on peer mediated interventions is presented next.

### Peer Mediated Interventions

Peer mediated interventions provide a cost effective and powerful method that produces positive academic, behavioral, and social outcomes for students with and without disabilities (Ryan, Reid & Epstein, 2004). Peer tutoring interventions have an intuitive appeal as they provide one-on-one instruction to students that are sensitive to the learner's pace and their level of understanding (Utley, et al., 1997). This one-on-one format is conducive to learning as it provides more opportunities for practicing and responding, increases engaged time, and the learner receives immediate, corrective feedback (Cohen et al., 1982; Gaustad, 1993). Under the umbrella of peer mediated interventions falls several techniques: peer modeling, peer monitoring, class-wide peer tutoring, peer-assisted learning strategies, class-wide student tutoring teams, peer counseling, peer mentoring, peer mediated tutoring and cross-age peer tutoring (Topping & Ehly, 1998).

Many studies in peer tutoring focus on the effects of this method of instruction on student's academic achievement. One such study was conducted by Fuchs et al. (1997).

These researchers studied the effects of peer-mediated instruction in math, and examined how students generated mathematical explanations during learning activities. There were three treatments implemented by the classroom teachers for 18 school weeks. Ten classrooms used peer-mediated instruction (PMI) in which the students were taught how to offer and request elaborated help [PMI – Elaborated]. Ten classrooms also used PMI and the students were not only taught how to offer and request elaborated help, but were also instructed on methods for providing conceptual mathematical explanations [PMI – Elaborated + Conceptual]. The control group consisted of 20 classrooms and used the same basal math program used across all 40 classrooms. The participating classes were second, third and fourth grade levels. Although all classes participated in this study, only four students from each class were identified for whom treatment effects would be assessed, due to lack of resources. These students were as follows: (a) a chronically low achieving student without disabilities, (b) a chronically low achieving student identified as learning disabled, (c) a student with average math performance, and (d) a student whose math performance was near the top of the class. Data were collected on the fidelity of PMI through direct observation. Furthermore the Comprehensive Mathematics Test was used to examine the math achievement of the students, and the quality of student interactions were assessed via in situ observations. Finally, there were structured videotaped sessions to collect systematic observation data on the tutors' style of interacting.

Data analysis revealed significant effects for the PMI groups  $F(2, 37) = 13.48, p < .001$  in comparison to the control group and the type of treatment  $F(1, 37) = 16.24, p < .001$ . The authors used the Fisher Least Significant Difference post hoc procedure and

found that the growth of the PMI- Elaborated + Conceptual group exceeded that of both of the other groups. It was also found that the growth of both intervention groups exceeded that of the control group. The effect sizes comparing the growth of the PMI-Elaborated + Conceptual and control groups was .73; comparing PMI-Elaborated and control was .42; and comparing the two PMI groups was .32. Other analysis revealed that more of the PMI-Elaborated +Conceptual tutors were judged to have helped their tutees in comparison to the tutors in the PMI-Elaborated group. In summary, students in both PMI conditions achieved better than students in the control condition. There were several limitations to this study. The most salient one was that the data collection focused on only four students per classroom. Another important limitation was that the authors only utilized one achievement measure to examine academic growth of the students.

Classwide peer tutoring is also a popular method in which to enhance the learning of students, and also falls under the umbrella of peer tutoring interventions. Classwide peer tutoring [CWPT] is a comprehensive instructional procedure or teaching strategy based on reciprocal peer tutoring and group reinforcement wherein an entire classroom of students is actively engaged in the process of learning and practicing basic academic skills simultaneously in a systematic and fun way. CWPT has been demonstrated to be flexible and adaptive, easy to implement, both time and cost effective, and it provides a fun, easy and effective way to teach and learn (Greenwood, Maheady & Delquadri, 2002).

For example, Bell, Young, Blair, and Nelson (1990) conducted a study investigating the effects of CWPT on the academic performance of students with

behavioral disorders as well as the performance of nondisabled students in a high school history class. There were a total of 59 students in the subject pool including 6 students identified as behaviorally disordered, 1 student that had a learning disability and 52 students without disabilities. This study was conducted in two separate periods of Ancient World Civilization which was taught by the same teacher. The dependent measures used were the percentage correct on consecutive history tests, and the social validity surveys that were administered to both students and the teacher. A multiple baseline design across settings was used, and a 4x2 factorial design was used to compare the differential effects of the intervention on the different groups of students (highest, middle, lowest performing students, and students with behavioral disorders). During the baseline phase, students were instructed by the teacher as they normally were. During the intervention phases, the students spent 20 minutes, three times a week engaged in tutoring. This time was made available by reducing the time students worked on study sheets in groups, and instead the sheets were studied in dyads using CWPT strategies. There was a chapter test each week during this period. Students earned points for their team if they followed the tutoring format and answered questions correctly on the weekly test.

Results revealed that during baseline, the children with behavioral disorders were scoring substantially lower than the students without disabilities. These differences averaged 26.8 lower for the first class and 29.6 percentage points lower for the second class. After the introduction of the intervention, these differences narrowed to a 3.6 percentage point difference for the first class and an 18 point difference for the second class. The results of a one-way ANOVA indicated that the mean percentage pretest

scores of the groups (highest, middle, lowest performing, and students with behavioral disorders) were statistically different  $F(3, 56) = 48.61, p < .01$ . However, when looking at the posttest scores using the pretest as the covariate, the results indicated that these scores of the groups failed to differ significantly  $F(3, 55) = .87, p > .05$ . This finding suggests there was a large difference between the different groups prior to the tutoring, but by the end of the intervention period, the differences between the groups were minimal. Furthermore, results indicated that all groups achieved statistically significant improvements in their posttest scores. The magnitude of improvement was the greatest for the students with behavioral disorders and lowest for the highest achieving group of students. Students and teachers indicated high levels of satisfaction with CWPT on the survey.

Fuchs, Fuchs, Mathes and Simmons (1997) also conducted a study on the effectiveness of a CWPT program, but their study focused on reading. There were 40 teachers who volunteered to participate, and their schools were divided into high level, middle level and low level schools. These schools were randomly assigned to Peer-Assisted Learning Strategies [PALS] or a no-PALS condition. Participating students were in grades 2 through 6. All the teachers identified three students in their reading class. These student types included a student with a learning disability, a nondisabled but low performing student, and an average achieving reader. Only those targeted students from the 40 different classes (120 target students) had data collected on them. The PALS instruction was conducted during regularly scheduled reading instruction, 35 minutes per day, 3 times weekly for 15 weeks. The roles of tutor and the tutee were reciprocal, and the pairings changed every four weeks. During the tutoring period, the students engaged

in partner reading with retell, paragraph summarizing and prediction. Pairs were assigned to teams where they could earn points. The no-PALS teachers conducted reading instruction as they normally would. Fidelity data were collected through the use of observation checklists and observations. Three subtests of the Comprehensive Reading Assessment Battery (words correct, questions correct and maze choices correct) were administered to the identified students. Finally, teachers and students were interviewed, questionnaires were filled out, and instructional plan sheets were completed and collected.

The results indicated a significant effect for the type of student, where the students with learning disabilities and low performing students performed reliably lower than the average students on all three subtests. In fact, the effect sizes across the types of students ranged from .22 to .56. Furthermore, according to the instructional plan forms completed by the classroom teachers, teachers in the PALS program planned for more one to one instruction and peer mediated activity, whereas no-PALS teachers planned for more teacher led, whole class instruction and independent seatwork. PALS teachers were also significantly more likely to plan for the incorporation of systematic reinforcement. Finally, a series of between subjects ANOVAs revealed that the teachers actually believed PALS was more beneficial to the children with learning disabilities and low performing students. Teachers believed that the achievement, self-confidence and social skills of lower achieving children with and without disabilities improved more than the average students. Students all had positive perceptions of PALS. There were several limitations to this study, but the most salient was that each school was assigned to PALS or no-PALS conditions rather than the two conditions existing within the same school.

Thus, the results may have been affected by the differences between the schools and not the mode of instruction.

Cross-age peer tutoring is another method of peer tutoring that has been used frequently to increase the academic, social and behavioral skills of students (Cohen, Kulik & Kulik, 1982; Greenwood, Carta & Hall, 1988). Cross-age tutoring is a peer teaching program in which the tutor, under the guidance of an adult, helps the tutee learn or practice a skill or concept. The tutor and the tutee are usually about two or more years apart from each other, with the tutor being the older of the pair.

Research in cross-age tutoring has focused mainly on helping struggling readers to read more fluently and to become more successful in reading. For example, Labbo and Teale (1990) as well as Wright and Cleary (2006), utilized cross-age tutoring to impact the reading abilities of struggling readers. Labbo and Teale (1990) had fifth graders read books to kindergarten children for eight weeks, meeting four times a week for 15 to 20 minutes. Their focus was to examine the effects of this intervention on the older tutors. Tutor and tutee dyads were made up of 20 fifth graders and their kindergarten partners. These dyads were randomly assigned to one of three groups: cross-age reading group (7 dyads), art partner group (7 dyads), and a control group (6 dyads). All students were pretested for reading achievement, self concept and reading attitudes using the Gates-MacGinitie Reading Test, the Piers-Harris Children's Self Concept Scale, the Teale and Lewis Reading Attitude Scales, and the Reading Interview. During the intervention period, the tutors collaborated with their teachers to discuss the intervention and develop strategies they would use to improve the reading lesson with their tutees.

Using an Analyses of Covariance with the Gates-MacGinitie pretest scores as covariates, it was found that scores for the Gates-MacGinitie posttest were significant,  $F(2,14) = 18.52, p < .001$  where the tutoring group scored higher than the art group ( $p < .006$ ), who in turn scored significantly higher than the control group ( $p < .002$ ). Although the Piers-Harris and the Teale-Lewis differences pre-post test were not statistically significant, when analyzing the tutoring group scores, it was found that their post test scores on the Piers-Harris were significantly higher than their pretest scores ( $t(6) = 3/04, p < .01$ ) which suggests a gain in self-confidence for these students. This investigation into cross-age reading had only a small subject pool and a very small control group. It is also important to recognize the extra time the tutoring group spent with their teacher in order to ready themselves for the actual intervention with the kindergarteners. The effect of this extra small group time for training purposes may have influenced the reading growth of the tutoring group. However, this issue was not addressed in the study.

Wright and Cleary (2006) also implemented a cross-age peer tutoring program with a slightly larger sample size across four elementary schools with 27 dyads. In this study, older tutors were selected to deliver a reading-rehearsal intervention to dysfluent younger readers. Across the four schools, students were selected from between the second and fourth grades. Curriculum Based Measurement probes were utilized to track tutor and tutee growth in reading rate over the course of the intervention, and a tutor training manual was prepared with step by step instructions. Tutors were trained in four sessions which each lasted for approximately 40 minutes. The tutoring program required the tutors to meet with their tutees individually for 20 minutes, twice a week. Treatment integrity checks were provided on a bi-weekly basis. Initial data revealed that only 1 of

the 47 tutees was instructionally fluent in reading text at his or her grade level, and that the median instructional reading level for the tutors was at the early third grade level. In fact 19 of the 27 tutors were found to be instructionally fluent in grade level text.

After the 21 week program, data were analyzed and it was found that the tutees' mean rate of reading fluency grew from 52 words to 70 words per minute, and the tutors' mean fluency rate increased from 73 to 86 words per minute. Using the ordinary least squares method, slope of improvement was calculated and it was found that the median rate of growth for the tutees grew from 0.4 to 1.05 words per week, and the tutors increased slightly from 0.4 to 0.55 words per week. The data suggest the tutees improved in their reading fluency to a rate that matched or approached that of typical readers at their grade level. One significant limitation of this study was the lack of a control group. Thus it is unclear as to whether the results were due to the intervention, or impacted by the school curriculum. Furthermore, as four different schools were used as part of the study, the results may have been skewed by one school performing well or not as well as the other schools. Finally, the authors suggest that acceptability data on the program should have been collected.

In a similarly reading focused research study, Davenport, Arnold and Lassmann (2004) attempted to analyze the effect of cross-age tutoring on the reading attitudes of the fifth grade tutors with learning disabilities and the kindergarten children with whom they were working. Ten fifth grade students were selected as tutors, and were paired with students from kindergarten classrooms. Each dyad met twice a week for 20 to 40 minutes for four weeks, and worked together using the Accelerated Reading Program at their school. The student dyads read pre-selected books and were tested for comprehension

using a computerized assessment program. The student pairs received points for correct answers. The results indicated that both kindergarteners and fifth graders expressed an overall positive attitude toward reading after the pre and post test of reading attitudes using the Elementary Reading Attitudes Survey. Specifically, fifth grade tutors showed a better attitude towards academic reading than recreational reading, whereas the kindergarten students showed a better attitude towards recreational reading than academic reading. In comparing the tutor's word recognition and reading comprehension pre and post intervention, it was found that in word recognition, four students improved by one grade level, three students went down a grade level and three students stayed the same. When looking at reading comprehension skill achievement, three students improved whereas seven students remained on the same grade level.

Overall, the cross-age tutoring program had positive effects on reading attitudes of both tutors and tutees. Low achieving older students were successful in tutoring their younger peers. Some academic gains were apparent, which suggest that the opportunities provided by the tutoring program may be related to that achievement. Teachers also reported that the tutors gained self-confidence, and other general education teachers asked to have peer tutors in their classes. However, there was an absence of an appropriate comparison group, and there was a lack of statistical analysis to determine if the growth was significant. Furthermore, there was little supervision during these tutoring sessions and data on the fidelity of the intervention was not collected. Finally, there were a small number of students that served as part of the study, as well as a very short time span to see the results of the intervention. These factors may have impacted the uneven tutor growth in reading achievement.

Cross-age tutoring not only benefits students with academic difficulties, but also impacts attitudes, self-concept, and self-esteem (Davenport, Arnold & Lassmann, 2004; Labbo & Teale, 1990). Studies conducted by Cochran, Feng, Cartledge and Hamilton (1993) and Gumpel and Frank (1999) focused on not only the academic impact of participating in a cross-age tutoring program, but also on the social behaviors and self-perceptions of the student tutors as well as their growth in their social skills.

Cochran, Feng, Cartledge and Hamilton (1993) studied the effects of participating in a cross-age tutoring program on the achievement, social behaviors and self-perceptions of low-achieving African American males with behavioral disorders. Subjects included 16 students, 8 in the fifth grade, and 8 in the second grade, all from a self-contained elementary school for student with behavioral disorders. Four dyads were part of the tutoring program, and the other four dyads were monitored as comparison students. Data were gathered using sight words taken from sight words lists, teacher perceptions of social skills using the Social Skills Rating System, and self-perceptions of social skills using the student form of the Social Skills Rating System. The tutoring program was conducted for eight weeks, which consisted of 32 sessions.

Pre and post test results for the tutee group show that those who participated in tutoring showed a greater increase in the number and percentage of new words they learned in comparison to their control group classmates. Whereas the tutees increased their sight words knowledge by 80 to 152 new sight words (22% - 48% increase), their comparison students only increased between 33 to 55 new sight words (14% - 22% increase). Tutors also showed a greater increase in their number of sight words in comparison to their control group peers. Tutors increased their sight word recognition by

35 to 62 new words (8% - 15% increase) where as their comparison peers learned between 20 to 36 new words (5% - 10% increase). After examination of the children's social behaviors, teachers felt that the tutees' social skills increased, that problem behaviors declined, and the tutees were rated as increasing in six points in academic competence whereas the comparison students decreased in academic competence by three points. The tutors were rated in a similar manner with the exception of academic competence where the tutors declined by 10 points where as their non-tutoring peers declined by 5. Thus, in summary, both tutors and tutees, when compared to themselves and to their non-treatment comparison peers, improved in sight word learning. Teachers and self reports suggest a generally positive impact of the tutoring program on the social behaviors. However, there were several limitations. The first is that this study did not examine the results for statistically significant differences. Second, the one primary outcome measure, the Social Skills Rating System, is a screening instrument and is not intended as a measure of behavioral change. Finally, the number of participants in this study was few, and it was a very select sample. Although the smaller sample makes it easier to control the fidelity of the treatment, it becomes difficult to generalize the intervention to the rest of the population.

In a similar study, Gumpel and Frank (1999) also examined the effects of a cross-age peer tutoring program on the social skills of children with social difficulties. However, there were only four participants in this study. Two of the participants were sixth grade boys and they tutored two socially isolated kindergarten boys in social skills. All data were collected on the playground by two observers twice per day during morning and afternoon recess. The observers coded no interaction or positive interaction using

momentary time sampling. There was high reliability between the raters which ranged from 85% to 95%. Data were analyzed in a single subject design, multiple baseline method with a baseline, intervention phase and a maintenance phase. Baseline data were collected prior to the intervention. The two older boys were trained for six to eight times in social skills. During the peer tutoring phase, each tutor met with his tutee four times per week and taught him to engage in positive social interaction, monitor themselves and observe the reaction of the environment. Finally, there was a maintenance phase, where there was no instructional feedback, and no contact between the tutors and the researchers.

Results indicated that positive interactions increased for all four boys during the intervention phase, and periods of no interactions decreased. During the maintenance stage, although the positive interactions and periods of no interactions fluctuated, the majority of the data points reveal that positive interactions were maintained. This study demonstrated that traditional cross-age tutoring can be expanded to the nonacademic domains of social skills training, which can positively affect the social skills of both the tutors and the tutees. However, this study did not address treatment integrity during the tutor-tutee training periods. Furthermore, it is difficult to determine the elements in the tutoring package that influenced the social behaviors. In addition as there were only four participants in this study, it is difficult to determine if this cross-age tutoring program will be beneficial, generally, for children with social skill deficits.

The research has demonstrated both tutors and tutees can benefit academically and socially from the time spent reviewing and practicing material together. With the many benefits associated with peer-mediated interventions such as cross-age tutoring,

these cost effective interventions have increased in popularity. Interventions that utilize other students in the school as intervention agents relieves some of the pressure on teachers to meet the diverse needs of all the students in their classroom, and provides a method for differentiating instruction (Davenport et al 2004; Greenwood, Maheady & Delquadri, 2002).

### Summary

Dialogic reading has been shown to be effective in increasing the language skills of typically developing children from upper, middle, and low socio-economic families (Arnold, et al. 1994; Lonigan & Whitehurst, 1998; Whitehurst et al., 1988; Whitehurst et al., 1999; Whitehurst, Arnold, et al. 1994; Whitehurst, Epstein, et al., 1994) of children with language delays (Crain-Thoreson & Dale, 1999; Dale, Crain-Thoreson, Notari-Syverson & Cole, 1996) and in multicultural settings as in a Mexican daycare and in Hong Kong (Fung, Chow & McBride-Chang, 2005; Valdez-Menchaca & Whitehurst, 1992). However, these strategies have been implemented under conditions exclusively using parents, teachers, or research assistants as the primary interventionist, and results have been variable due to the lack of control over the intervention as well as the inconsistency of the implementation. Research has demonstrated that older children can serve as the interventionist in a cross-age tutoring situation and that all children can benefit academically and socially from the time spent reviewing and practicing material together. Thus, in a school based setting, where older students might function as dialogic reading teachers with younger children, we can monitor the implementation of the intervention to ensure effectiveness as well as provide a cost effective method to

differentiate instruction, and meet the diverse needs of all the young children in the classroom.

## CHAPTER 3

### METHODOLOGY

The purpose of this chapter is to describe the methods used in conducting this research project. First, information is provided on the setting, the subjects and the method of subject recruitment. Next, the procedures employed are discussed, including the training procedures and the intervention. Then, the outcome measures are described, as well as the psychometric properties of the measures. Finally, methods to monitor treatment integrity will be discussed.

#### Setting and Participants

##### Setting

Participants were recruited from one elementary school in a large district of Eastern Maryland. This district is one of the 50 largest in the country and encompasses 77 elementary schools, 19 middle schools, and 12 high schools. There are more than 5,000 staff and teachers employed who serve 74,000 students. The ethnicity of the students in the district are as follows: 69% White, 22% Black, 5% Hispanic, 3% Asian or Pacific Islander, and fewer than 1% of the student population is of American Indian or Alaskan decent. In this district, 21% of the student population is eligible for free or reduced-price lunch.

The elementary school in which the study was conducted was randomly selected from a pool of six potential sites. All six elementary schools were selected prior to the investigation based on there being a preschool classroom as part of the school, proximity to the researcher's worksite, commitment of the school psychologist assigned to the site, as well as the commitment of the principal and the teachers.

Once the school was randomly selected from the six possible locations, the head of research in the district was contacted to obtain approval, and the principal of the selected school was contacted. Three separate meetings were held with the principal to introduce the program, the purpose of the research, the materials, and to plan the logistics of the intervention.

### Participants

Students enrolled in the randomly selected elementary school came from moderate to low income families, and there was a total school enrollment of 314 students during the 2007-2008 school year. In comparison to the whole district, this school had a predominantly Black population (74%). Other demographic data includes: 15% White students, 9% Hispanic students, and 2% of the students were of Asian/Pacific Islander decent. Within this school, 69% of the students were eligible for the free and reduced-price lunch program.

### Fifth Grade Student Tutors

Fifth grade students were recruited to take part as tutors in this study. Initially, it was expected that both fourth and fifth grade students would participate as tutors in the study, however after discussion with the teachers and the principal, it was decided that the fifth grade students would be selected to be tutors initially, and if more tutors were needed, then the fourth graders would be selected. After the initial screening of the participants, it was found that a sufficient number of fifth graders were available to be tutors. There were two fifth grade classrooms in this elementary school, and tutors were selected from both.

The fifth grade teachers nominated their students to be tutors based on pre-set criteria. According to Wright (2004), tutoring programs are most likely to be successful when tutors display good conduct, show motivation and investment, and possess a minimum level of academic skill to take part in the activities. Thus, teachers nominated students who were willing to work with younger children, who reliably followed a set of strategies during tutoring sessions, behaved appropriately when working with a younger child under limited adult supervision, and those who they thought would benefit from being a tutor.

In addition to the characteristics listed above, the students needed to possess a minimum level of academic skill. In this case, the tutors needed to possess a minimum level of reading fluency in order to participate in the tutoring program. As this elementary school was one of the schools in the district that utilized Curriculum-Based Measurement, oral reading fluency [CBM-ORF]; (Deno, Mirkin & Chiang, 1982) to screen, monitor, and differentiate reading groups, winter benchmark scores were utilized to assess the students' reading fluency levels. Technical adequacy information as well as a description of this screening measure is provided in Appendix B. In order to participate as a tutor, students were expected to read a minimum of 115 words correctly in a minute on a fifth grade reading benchmark reading probe. Meeting this criterion placed them in the Low Risk category according to published benchmark levels of oral reading fluency. It also placed those students in the marginally fluent level, indicating they could read the material independently and gain meaning from the text without support.

A total of 18 fifth grade students were selected by their teachers and met the above criteria. They took home a consent form to their parent or guardian, and the forms

were all returned within a week. There were three males and fifteen females who participated as tutors. The ages of the tutors ranged from 9 years 11 months to 11 years, 3 months and the median and mean ages were 10 years 6 months and 10 years 5 months, respectively. CBM scores on fifth grade winter benchmarks ranged from 118 words per minute to 211 words per minute. The median and mean scores were 148 and 157, respectively. Of the fifth grade tutors, 4 students were White, 3 students were of Latino decent, and 11 students were African American. Of those, three students were bilingual in Spanish and English and were thus paired with Spanish speaking preschoolers who participated in the program but did not meet the criteria for inclusion in the study. All the fifth grade students participated willingly in the trainings, and filled out the Elementary Reading Attitudes Survey [ERAS] (McKenna & Kear, 1990) on the last day of their training and again on the last day of the intervention.

#### Preschool Aged Tutees

Of the three preschool classrooms in this school, two of the teachers volunteered their classrooms for this study. These preschool classrooms were randomly assigned to the treatment or the control conditions. Students who had been diagnosed as having severe developmental disabilities, children who had a minimal understanding of the English language, and those students that the teachers believed would have difficulty in working with an older student without adult supervision were not included in this study. Participating students were typically developing children between the ages of 4 and 5 who attended the all day preschool program in the elementary school building. All students who participated in the study were fluent in the English language, and were able to behave appropriately with an older student without direct adult supervision. Once the

students who met the criteria for inclusion in the study were identified, consent forms were sent home to their parents or guardians.

The classroom randomly selected for the intervention had 18 students. Three students were new to the country and had minimal understanding of the English language. Therefore, although they participated in the program, they were not included in the data collection and the research study. Of the 15 preschool students in the treatment group, one student was White, one student was of Latino decent, and there were 13 African American students. In the control group, 13 students met the criteria for inclusion in the study. Of those 13 students, there was one White student, one Asian student, two students of Latino decent and nine African American students.

#### Procedures

This investigation was conducted between January and March 2008 during the spring semester of the school year. Prior to the intervention the participating preschool classrooms were randomly assigned to the treatment or no treatment conditions and all preschool participants were administered the AGS- Early Screening Profile [AGS-ESP], (Harrison, et al., 1990), the Peabody Picture Vocabulary Test – Fourth Edition [PPVT-4], (Dunn & Dunn, 2007), and the Expressive Vocabulary Test – Second Edition [EVT-2], (Williams, 2007) by trained graduate students in school psychology and by the school psychologist at the intervention site.

Selected tutors were trained in the techniques and in the Read Together Talk Together (RTTT) program over three 60-90 minute sessions. On the last day of the training sessions, all the participating fifth grade students were administered the Elementary Reading Attitudes Survey [ERAS] (McKenna & Kear, 1990) in a group

setting. The administration of the survey took approximately 10 minutes, and the instructions were read aloud by the administrator.

The lead investigator met with the participating teachers and the principal of the school to match the preschool students to their tutors prior to the start of the intervention. Once the dyads were assigned, the lead investigator met with all the participating teachers to schedule a time for the tutoring activities.

During the intervention period, fifth grade tutors met with their tutees on Monday, Thursday and Friday, at the same time, from 12:35-12:55 every week. However, due to school holidays and pre-planned field trips, some weeks only had two sessions. Thus in order to maintain the planned number of intervention sessions (24), the intervention period was extended one more week, which then totaled 22 possible intervention days.

Prior to the daily tutoring sessions, the tutors had an opportunity to collect their materials as well as look over the self-monitoring checklist that they were to complete at the end of that session. The tutors transitioned from recess to the preschool area independently, where their materials were kept on a shelf. They collected their materials prior to meeting their tutees in the preschool classroom. The preschool classroom teacher or her substitute was present at all times in order to supervise the intervention. A kitchen timer was set in the classroom for 20 minutes to ensure the intervention lasted for the designated time. After the tutoring session, the tutors completed their self-monitoring checklists, put their materials away, and transitioned back to their own classrooms.

The trainer consulted with all the participating teachers bi-weekly via email or in person to ensure their comfort with the process. Fidelity of the intervention was

monitored through observations by a trained observer or through audio recorded sessions, and through the daily self-monitoring checklists completed by the tutors.

After the intervention period, the fifth grade participants in the treatment condition were administered the ERAS in a group setting as the post-test measure. For preschool post-test measures, the same three measures as the pretest were administered to students in both the treatment and the control conditions. In order to assess the social validity of the intervention, participating teachers were surveyed and interviewed, preschool students in the treatment condition were interviewed about their feelings about their experiences, and all the tutors were surveyed and interviewed about their experiences being a tutor.

#### Independent Variable

The independent variable in this study was the dialogic reading techniques administered to preschoolers in a cross-age tutoring format by older students. The older students received training over three, 60 to 90 minute sessions, where the fundamentals of tutoring, basic early childhood behavior management, and dialogic reading techniques were covered. The materials from the Read Together Talk Together Program [RTTT] were used as part of the tutor training as well as in the intervention.

#### Read Together Talk Together

In collaboration with Pearson Early Learning and the National Center for Learning Disabilities, Whitehurst and his colleagues created the RTTT kit, a commercially available dialogic reading program (Pearson Early Learning, 2002). In using this package, adults are taught methods in which to read and talk to children through prompting, expanding on answers, and praising the children.

This packaged program has versions available for children ages 2 to 5 in both English and in Spanish, and comes with 20 picture books, teacher and parent guiding notes, a program handbook, and training videos. Each picture book in the kit is accompanied by a guiding note card, which provides a summary of the story, tips for introducing the story and reading it aloud, as well as a list of prompts and vocabulary words that the adults can use when reading the book with young children. In the notes, recall questions are available to aid the adult in asking questions to check for understanding. The program guide is a 24-page instructional manual, which shows the interventionist how to use dialogic reading techniques. The guide discusses how to get started, summarizes some of the research behind dialogic reading, provides reading tips for the classroom and home, describes the components of dialogic reading, and provides some interactive activities. Furthermore, this packaged program comes with two videos, one for parents and one for teachers that demonstrates dialogic reading techniques and how these techniques can be used to have conversations with children about the book.

Some of the materials available in the RTTT kit were used by the tutors in the intervention. The picture books that come in the kit were read together by the tutors and the tutees in the treatment condition. In this study, 15 picture books were selected from the RTTT kit to be used by the tutors, via a screening procedure. That is, to be included in the study, the book had to be written completely in the English language, as the intervention was conducted by students whose language was primarily English. Furthermore, the included books all met the criteria of having a mean and median readability at the third grade level, because they were to be read by the fifth grade students comfortably and fluently.

In order to calculate readability of the picture books, the OKAPI On-Line Manual, on the website <http://www.interventioncentral.org/htmldocs/tools/okapi/okapi.php> was utilized. This web-based program allows the user to enter a text sample and analyze the passage with either the Spache or Dale-Chall Readability Formula. In this case, the Spache Readability Formula was selected as it was designed for assessing the readability of primary texts through the end of third grade. In order to obtain a mean and median for the readability of each book, text samples were randomly selected at the beginning, middle and end of the book and analyzed. Each sample was between 100 and 150 words in length, as suggested by the OKAPI! On-Line Manual, and a mean and median were taken (see Appendix C for results).

#### Cross - Age Tutoring Training

Once the fifth grade tutors were identified, they were provided with two 60 minute trainings and one 90 minute training session during the school day. The sessions consisted of direct instruction, brainstorming activities, partner activities and feedback sessions.

The first session covered an introduction of the intervention including information on the times, days, and what the tutors would be doing each day of the program. In order to teach tutoring behaviors, a partner activity was conducted. Dialogic reading materials were introduced and the RTTT parent training video was utilized to introduce the intervention as it has been shown to be an effective method of training adults to read dialogically with their young children (Blom-Hoffman, O'Neil-Pirozzi, & Cutting, 2006). Finally, the CROWD and PEER techniques and the materials that were created based on the RTTT kit were introduced. Specifically, the types of prompts (CROWD) that could

be used were introduced through direct instruction and then practiced in small groups. Students had an opportunity to look through the materials to be utilized during the sessions.

The second session reviewed what was previously learned, and the PEER techniques were taught more thoroughly. In large and small groups, the students practiced prompting, how to compliment their student when they provided a correct answer, and how to redirect a student when they answered incorrectly. Furthermore, in small groups, students practiced expanding on the answers prompting the tutee to repeat the correct answer. Finally, students broke up into groups of two and three and practiced the techniques using the materials created for the intervention. One student role played the reader, one student was the preschool student and the last one was an observer who utilized observation checklists in order to provide immediate feedback.

The final training session lasted for 90 minutes. First, skills taught over the last sessions were reviewed. Second, what was to happen on each day of intervention, what was to happen when students are absent, and self monitoring checklists were reviewed. Third, the group brainstormed potential problems and solutions, as well as basic behavior management strategies. For approximately 45 minutes, students practiced dialogic reading techniques using the materials provided to them in groups of 2 or 3 students. Finally, for the last 15 minutes of the training session, the fifth grade students were introduced to their preschool tutees and they had the opportunity to interact with them in a casual play setting. The training ended with a question and answer session, some brainstorming activities on what the tutors should expect when they start, the materials

for the following week were passed out, and the fifth graders completed the Elementary Reading Attitudes Survey [ERAS] as a pre-test measure.

### Dialogic Reading Intervention

The intervention was planned to take place three times a week, for 20 minutes per session, for 8 weeks. Thus, it was planned so that the tutees were exposed to this intervention a total of 24 times, which equaled approximately 8 hours of individualized intervention.

However, there were several conflicts during the intervention period. School vacation occurred one week after the intervention began, and there were several other school related events that conflicted with the planned intervention days. Therefore, on some weeks, only two sessions occurred, and the intervention was extended for another week in order to increase the number of sessions. The maximum number of sessions possible during this intervention period thus totaled 22 days, which equaled approximately 7 hours of individualized dialogic reading time per preschool student.

As the study was conducted in the natural school setting, absences were abundant and expected. To keep track of tutor and tutee absences on the days of the intervention, two fifth graders were given the job of monitoring attendance. These students were chosen from past attendance data indicating they had perfect attendance or close to perfect attendance. Prior to the sessions, these students took the attendance of the fifth graders as well as the preschoolers on a pre-made attendance sheet. Data indicated that 8 of the 18 fifth graders had perfect tutor attendance on the days of the intervention. Eight students missed one day of tutoring, one student missed two days, and another student, three days of tutoring. Of the 22 days of direct intervention, nine preschool students had

perfect attendance. There were five preschoolers who missed one day of intervention, and two students who missed two days. Another student missed three sessions and one student missed four sessions, as her family went to Florida for vacation. In looking at control group absences, seven preschoolers missed one day of school on the days of the intervention, two students missed 4 days, and one student missed 2 days of school.

A plan was created for students whose tutors or tutees were absent on the days of intervention. When a preschool student was absent, the fifth grade tutor assigned to that student had a plan to follow. First, the tutor checked to see if there were any preschool students without a tutor. If there was a preschool student whose tutor was absent, then the fifth grade student was responsible for using the reading materials of that absent tutor and read to the preschool student. If there were no tutor absences to fill, then the tutor observed another random dyad and completed an observation checklist.

When a tutor was absent, the preschool student was either paired with a tutor who had an absent student, or the preschool student was read to in a group of two by a dyad that was working on the same story. If there were no dyads reading the same story, then the teacher's aide continued the program and read to the student using the materials provided.

One difficulty in the application of this study, was the reliance on the teacher to organize the students when their partners were absent. On several of the days, the classroom teacher had a difficult time organizing the students and did not follow the plan. Therefore, on several occasions, preschool students whose tutors were absent were paired up with other random dyads. Thus, some preschool students were in small groups rather than one on one, and their program was somewhat interrupted as they were exposed to a

new book in the sequence. Thus the preschool students were not always exposed to the sequence of day one, day two, and day three in the book that was chosen for the week. In fact a few preschool students were only exposed to their assigned book twice in one week and in one case, only once during the week due to unplanned absences and disorganization.

Prior to the first week of intervention, the tutors received a randomly selected book from the 15 pre-selected ones to read through before the tutoring session began. Thus, the tutor had the opportunity to read the book prior to the first session in order to familiarize him or herself to the story beforehand. From the second week of the intervention, the tutor and the tutee worked together to select a book from a list of all the books available to read for the following week. This list had the title of the book as well as a colored picture of the book cover so that the preschool children could take part and understand the books they were choosing from. If either the tutor or their student were absent on the day they were selecting the book, then whoever was present independently selected the book to read the following week. Each dyad worked on one selected storybook per week, thus by the end of the intervention period, the dyads had an opportunity to be exposed to eight different storybooks.

On day one of the intervention, the tutor read the pre-selected book, including the title while pointing to each word as they read it. The tutor asked their tutee a question based on the picture on the cover of the storybook before beginning to read the story. While reading the book, the tutor used the PEER and CROWD techniques in order to encourage conversation, and at the end of the story, asked the recall questions that were provided.

On day two and three of the intervention, the tutors read the same book with their tutee while pointing to each word while reading it and used the prompts provided by the lead investigator, which were based on the RTTT notes. The RTTT guiding notes have a varying number of prompts for each story which all fit into the acronym CROWD, and a list of targeted vocabulary words for each page of the story. Prior to the implementation of the intervention, the prompts for each story were split in half and vocabulary words were split in half. During day two of the intervention, one half of the prompts and the vocabulary words were used by the tutors to guide the conversation, and the remaining ones were focused on during day three of the intervention. These prompts and vocabulary words, including the directions and steps to follow on each day of the intervention were provided to the tutors in pre-made binders that were specifically created for each of the 15 storybooks.

After each prompt or vocabulary word provided, the tutor followed up with the techniques of dialogic reading: expand, evaluate and repeat in order to encourage more conversation with their tutee. At the minimum, the tutors were expected to prompt their tutee using the prompts provided, however, they were encouraged to come up with their own prompts if they felt comfortable in doing so. At the end of the story, recall questions that were provided at the back of the binder were asked in order to assess the tutee's understanding of the story.

### Dependent Variables

Several dependent variables were used in this study, with specific ones related to each group of students. The dependent variable for this study for the fifth graders was the percentile scores on the Elementary Reading Attitudes Survey [ERAS], (McKenna &

Kear, 1990). The ERAS measures attitudes toward recreational and academic reading as well as overall reading attitude. The dependent variables for the preschool children were the AGS- Early Screening Profile [AGS-ESP], Cognitive/Language Profile (Harrison, et al., 1990), the Peabody Picture Vocabulary Test – Fourth Edition [PPVT-4], (Dunn & Dunn, 2007), and the Expressive Vocabulary Test-Second Edition, [EVT-2], (Williams, 2007). These tests were used to examine study outcomes on both expressive and receptive vocabulary skills, and readiness to begin school as measured by the Cognitive/Language Profile prior to and following the intervention.

To assess the social validity of the intervention, fifth grade teachers as well as the preschool teacher were administered a survey. Furthermore, the fifth grade tutors were surveyed and interviewed in order to examine their cross-age tutoring experience. The preschool aged tutees were interviewed as well. To evaluate how well the older students were able to implement this intervention, the tutors completed daily checklists and several fidelity checks were conducted.

#### Elementary Reading Attitudes Survey [ERAS]

The ERAS is a norm-referenced measure that has 20 statements about reading created by McKenna and Kear (1990). Ten of the statements refer to recreational reading while the other 10 statements are related to academic and school related reading. Each statement is followed by four pictures depicting facial expressions ranging from “very happy” to “very upset”, and students are asked to circle the picture that best expresses their feelings about the statement. The surveys can be administered in a group setting or individually to children in Grades 1 through 6.

To score the survey, the values 4 through 1 are assigned to the faces for a possible 80 points total for the overall reading score, with 40 points each for recreational and academic subscales. These raw scores can be converted into percentile ranks to compare them with a national normative sample, collected from 18,138 students in 78 school districts in 38 states. Internal consistency of the measures range between .74 and .89, and construct validity was established through comparing student characteristics (such as leisure activity choices and library card ownership) to the scores. It is reported that student scores varied predictably according to the characteristics.

#### AGS Early Screening Profiles [AGS-ESP]

The AGS-ESP (Harrison et al. 1990) is a screening tool for young children of the ages 2 to 6 years and 11 months. This measure has been nationally normed, built on a sample of 1,149 children. It can be used to test a large number of children quickly to evaluate the functioning of children, and identify those with possible problems that may interfere with development as well as children who are potentially gifted. The purpose of this screening tool is to identify those children who are at risk for later problems as soon as possible.

The AGS-ESP consists of seven different profiles that can be used separately or in various combinations. These Developmental Profiles include: Cognitive/Language, Motor, and Self-Help/Social profiles. In addition, this test includes Articulation, Home, Health History, and Behavioral profiles, assessed with surveys. For the purpose of this study, only the Cognitive/Language Profile was utilized as the focus was on the language and vocabulary development of the preschool children.

Immediate and delayed test-retest reliability coefficients were calculated for the AGS-ESP. The immediate test-retest coefficients fall between .78 and .89 where the profiles were re-administered between 5 to 21 days after the initial testing. The delayed test-retest coefficients fall between .73 and .83, in which the battery was re-administered between 22 and 75 days after the initial testing.

Validity evidence is demonstrated through the developmental progression in scores and through correlations and patterns of intercorrelations between the scales. Correlations with other measures such as the PPVT-R, the Kaufman Assessment Battery for Children, and Stanford-Binet Intelligence Scale have been conducted and the coefficients range from the .40s to .80s.

#### Peabody Picture Vocabulary Test- Fourth Edition [PPVT-4]

The PPVT- 4, (Dunn & Dunn, 2007) is a norm – referenced instrument used for measuring the receptive vocabulary of children and adults, ages 2 years 6 months through 90 years and older. Although its administration is untimed, it takes an average of 10 to 15 minutes to administer this measure. The PPVT- 4 contains items which samples words that represent 20 content areas such as actions and tools, and parts of speech such as nouns and verbs. This measure has parallel forms with each having 228 items divided into 19 item sets. Its primary purpose is to measure the understanding of the spoken word in standard American English and assesses vocabulary acquisition. This measure can be used to assess the response to vocabulary instruction, screen for verbal development, detect language impairments across age ranges, and can be used for diverse research purposes.

The PPVT-4 has age and grade norms available. The authors normed the test with a large sample that closely matched the 2004 Census data for demographic variables. The sample at ages 2 to 18 included representative proportions of populations with mental retardation, developmental delay, learning disabilities, emotional disturbances, attention deficit hyperactivity disorder, autism and people with speech and language impairments.

Reliability for this measure is high, as all forms are above .89. The internal consistency estimate is especially high with the coefficient at .94, alternate form reliability is at .89, and test-retest reliability is at .93. The high scores show that this measure yields consistent, stable and uniform results over time. Correlations with the other standardized vocabulary, language and achievement measures were conducted, and these ranged from .41 to .84.

#### Expressive Vocabulary Test- Second Edition [EVT-2]

The EVT-2 (Williams, 2007) is an individually administered, norm-referenced instrument that assesses expressive vocabulary and word retrieval of children and adults. The EVT-2 is available in two parallel forms (Form A and Form B), which contain example items and 190 test items arranged in increasing difficulty. For each item, the examiner presents a picture and reads a stimulus question, and the examinee responds with one word that provides a label, an answer to the specific question, or provides a synonym for a word that fits the picture. It is used to help in the detection of language impairments, measures word retrieval, monitors growth across time, can be used for research purposes, and can be used for direct comparisons between expressive and receptive vocabulary skills.

This measure can be utilized with people between 2 years, 6 months through 90 years and older and takes an average of 10-20 minutes to administer. The age-norm and grade-norm samples were designed to resemble the English-proficient population from ages 2:6 to 90+, and closely match 2004 Census data for demographic variables. The EVT-2 was 100% co-normed with the PPVT-4 (Dunn & Dunn, 2007).

Reliability for this measure is high as all split half reliability for forms A and B are above .93, alternate form reliability is at .87 and test-retest reliability is at .95. Correlation studies with other measures ranged from .50 -.82, and construct and content validity were obtained through comparisons with other measures and research within the literature.

#### Surveys and Interviews

Social validity evidence regarding the tutoring program was collected. An important dimension of social validity concerns the extent to which a treatment is acceptable to participants (i.e., clients and consultees). Acceptability refers to perceptions of whether treatment is fair, reasonable, or intrusive; appropriate for a given problem, and consistent with notions of what treatment should be (Kazdin, 1980).

All teachers participating in this study were asked to complete a survey created by the investigator to examine the social validity of the intervention (see Appendix D). The surveys were administered at the end of the intervention period. All the fifth grade tutors were also asked to complete a survey created by the investigator (see Appendix E). The questions on this survey probed the acceptability of the intervention, what the students liked and learned, as well as the effect of the training provided to them at the beginning of the study.

Finally, students from the tutor group and students from the tutee group were interviewed (see Appendix F). The tutors and the tutees were asked to talk about their overall experience in the study including what they liked, why they felt the way that they did, what they learned, what was difficult, and what they thought should be changed.

### Treatment Integrity

Fidelity of the implementation of the intervention was monitored. This is because, if the intervention is not implemented as planned and as intended, the findings attributed to the intervention are vulnerable to multiple interpretations (Gresham, 1989). There are several ways one can check to make sure the treatment was implemented with integrity. The treatment agent can self-monitor, feedback can be provided, or observations of the application of the treatment can be conducted to ensure that it is being implemented as intended (Gresham, 1989). In this study, direct observations and audio-taped fidelity checks on the use of the techniques were conducted, mastery of the techniques were tested, feedback was provided to the tutors, and self-monitoring procedures were implemented.

To begin with, the daily components of the treatment were operationalized and specified so that all tutors, teachers, and observers were clear as to what should occur on each day of the intervention. After the final day of the training, the tutors were each assessed on their mastery of the dialogic reading skills and the implementation of the intervention. Each fifth grade tutor was asked to read a story in a role play situation, use the materials provided, as well as use the PEER techniques during this mastery observation. The students were observed by the trainer using a checklist of the components of the intervention. The components included introducing the book to the

tutee, asking the prompts provided, and following the prompts with evaluate, expand, and repeat techniques as taught in the trainings (see Appendix G). The tutors were expected to follow the components of the intervention with 90-100 % accuracy in order for them to meet the mastery criteria. To evaluate the accuracy of implementation, the occurrence and nonoccurrence of each component was recorded during this observation, and the percentage of treatment components implemented correctly were calculated. All students received feedback on their performance, and met the minimum of 90% accuracy.

During the intervention stage, direct observations and audio-taped observations took place in order to ensure continuing fidelity. These observations took place during the first three weeks of intervention as well as during the last three weeks of the intervention. During each three week period, each fifth grade tutor was observed two times; once while they followed the intervention plan for day one, and the next when they were following the plan for either day two or day three. Each student was observed either by a human observer or by audio recording. Each dyad was observed at least once by a human observer during the six weeks of observation. The dyads were observed using the same observation form used during the mastery observation. Thus, including the initial mastery observation, each student dyad received a total of five observations.

Over the intervention period, if all the dyads of preschool students and fifth grade tutors, including the Spanish speaking dyads, had perfect attendance on the days of the intervention, there would be 396 direct sessions over the 22 days of intervention. However, when factoring in absences and days where preschool students did not receive direct one-on-one intervention, there were a total of 368 sessions. With a total of 90

observations, the student dyads were observed for approximately 25% of the total sessions conducted.

As a final check on intervention fidelity, during the intervention stage the tutors completed self-monitoring checklists. The checklists had the specific steps of the intervention, and the tutors reviewed it prior to working with their tutee as a reminder (see Appendix H). The checklists were contained in a personalized binder created for each tutor and were filled out individually after the intervention, every day that the intervention took place. The students completed these to enhance compliance with the intervention steps as well as to assess the fidelity of the implementation. These pages were collected bi-weekly by the lead investigator. As a final fidelity enhancement measure, to ensure that major problems were not occurring, and to make sure that all the students were feeling comfortable with the process, the teachers all had direct access to the lead investigator via phone and email.

### Data Collector Training

#### Pre and Post-Test Data Collection

Data collectors were needed in this study to collect the pre and post-test data prior to the implementation of the intervention and after the intervention ended. The data collectors consisted of graduate students in school psychology programs and the school psychologist assigned to the school. All data collectors were trained on the administration and the scoring of all the measures utilized in the study. After the instruction, the data collectors role-played the data collection session, with one person acting as the administrator, one person acting as the child, and the third, an observer who scored the test along with the administrator. The administrator and the observer

compared their scores at the end of the administration. Each data collector administered and scored each test a minimum of three times to ensure ample practice.

### Fidelity Checks

Several observers were required to conduct audio-recorded and observation checks of the cross-age tutoring sessions to ensure fidelity of the implementation of the intervention. The observers in this study consisted of the lead investigator, a psychologist, and three graduate students from school psychology programs. These observers were trained in the procedures of dialogic reading and how to use the provided materials. The daily schedules that the children were following during the intervention period were introduced, and the checklists that needed to be utilized during the observations were presented. The observers role-played being the tutor and the tutee in order to familiarize themselves with the materials. Afterwards, the observers listened to three pre-recorded dialogic reading sessions and used the checklists to conduct their observations. After each observation, the observers compared their scores, and met 90% to 100% agreement.

After the study concluded, the cross-age tutoring materials were provided to all the teachers in the fifth grade classrooms so that they could train their students in the intervention if they choose to do so. The teachers of the preschool students were offered an opportunity to attend training on dialogic reading techniques to facilitate their use of the strategies in the classroom. In this way, those students in the control conditions had the opportunity to benefit from the intervention as well. The books and materials created for the intervention were donated to the school so that the school could continue to utilize the materials.

## CHAPTER 4

### RESULTS

The purpose of the current study was to examine the effects of implementing dialogic reading techniques in a preschool via cross age tutoring. Specifically, this study looked at the effects of the intervention on preschool children's vocabulary and readiness to begin school in comparison to preschool children who did not participate in the cross-age tutoring program, how participating in the intervention as a cross-age tutor influenced the reading attitudes of the fifth grade tutors, and how participating teachers and the students rated the social acceptability of the techniques and the program.

After initial data screening was completed, the following hypotheses were tested. First it was hypothesized that the preschool children who participated in the cross-age tutoring program would show greater gains in both expressive and receptive vocabulary as well as in readiness for school in comparison to those children who did not participate in the program but rather participated in everyday instruction with their classroom teacher. To test this hypothesis, an Analysis of Covariance (ANCOVA) on the difference scores of the control and treatment group were conducted on each of the three dependent measures using the AGS-Early Screening Profiles [AGS-ESP], Cognitive/Language Profile pre-scores as a covariate. Second, to examine the effect of participating as a tutor on reading attitudes, the tutor's percentile ranks on the Elementary Reading Attitudes Survey [ERAS] pre-intervention and post-intervention were analyzed using paired, two-sample t-tests. Finally, to evaluate how the teachers and students rated the social validity of the techniques and the program, analyses of interviews and questionnaires were conducted.

## Descriptive Statistics and Data Screening

Conducting a between groups analysis of two preschool samples requires several assumptions to be satisfied. First, there must be normality, which is the assumption that the population distributions are normal. The second assumption is independence, meaning the subjects within each treatment condition must be independent from one another. Finally, homogeneity of variance is assumed, in which the population distributions have the same variances. Prior to data analysis, the difference scores on each of the dependent measures, Peabody Picture Vocabulary Test – Fourth Edition [PPVT-IV], Expressive Vocabulary Test – Second Edition [EVT-2], and the AGS – ESP for each condition were examined through the Statistical Package for the Social Sciences (SPSS; SPSS Inc., 2007) to test for these assumptions of normality, homogeneity of variance and independence. Regarding the assumptions of normality, histograms were constructed and the skewness and kurtosis of the difference scores of the sample population's dependent measures were examined. Analysis indicated that the control group sample and the intervention group both fell within normal limits.

Table 1 contains data indicating the means and standard deviations of each preschool sample, for each of the different dependent measures. Table 2 contains the means, and standard deviations of the pre and post test scores of the fifth grade tutors under each of the measures of reading attitudes (Recreational Reading, Academic Reading, and Full Scale – Recreational + Academic).

Table 1: Means and Standard Deviations of Preschool Dependent Variables by Group

Condition (N)	<u>PPVT-2</u>			<u>EVT-2</u>			<u>AGS-ESP</u>		
	Pre	Post	Change (SD)	Pre	Post	Change (SD)	Pre	Post	Change (SD)
Control (13)	97.15	101.62	4.46 (1.761)	96.69	99.00	2.31 (2.323)	94.46	100.08	5.62 (2.142)
Treatment (15)	97.53	104.60	7.07 (1.387)	95.27	102.93	7.67 (1.915)	96.73	105.73	9.00 (2.000)

Table 2: Means and Standard Deviations of Fifth Grade Reading Attitudes

N	<u>Recreational Reading</u>		<u>Academic Reading</u>		<u>Full Scale</u>	
	Pre (SD)	Post (SD)	Pre (SD)	Post (SD)	Pre (SD)	Post (SD)
18	63.72 (18.14)	76.89 (21.98)	63.11 (25.11)	65.06 (25.49)	63.00 (24.60)	72.94 (22.56)

#### Fidelity and Interrater Agreement

The PPVT-4, EVT-2, AGS-ESP, and the ERAS protocols were checked for accuracy in scoring after the pre-test and the post-test administration of the measures. The lead investigator randomly selected three protocols from each pre-test measure as well as each post-test measure, and re-scored them. The lead examiner's scores were then compared to the original score, and the percentage of agreement was found to be 100%.

Further, to examine and ensure fidelity of the intervention, two methods to check fidelity were employed during the intervention period. First, all tutors were asked to complete a self-monitoring checklist after every intervention session. Second,

observations were conducted of each tutor several times throughout the intervention period.

According to the self monitoring checklists, tutors rated themselves as conducting the intervention with 88-100% accuracy. The tutors indicated that the step that they oftentimes missed was asking unscripted questions.

For the second method of ensuring fidelity, tutors were observed for accuracy of implementation of the techniques over three different periods. First, they were checked immediately after the training session. These accuracy checks were conducted one at a time with a trained observer following a script to ensure that all tutors were being exposed to the same situation and same questions. Accuracy of implementation ranged from 92% - 100%. Examination of the errors the tutors were making suggested the tutors at times were forgetting to complete the final step of the PEER process (Prompt, Evaluate, Expand, Repeat) in which they were expected to have the preschool student repeat the correct answer. The accuracy of this step ranged from 88-100%. The accuracy of the evaluate step ranged from 94%-100%, and the expand step ranged from 90-100%.

Observations for fidelity also occurred during the first three weeks of implementation. Each student was observed two times; once when following the intervention plan for day one and the next when the student was following the intervention plan for either day two or day three. Students were either observed by a trained observer in person, or observed via an audio recording. Nine students were observed by a human observer during these three weeks, and 27 audio taped observations were conducted. Observation forms created by the examiner were used when observing the students. Overall accuracy of implementation ranged from 81%-100%. Tutors

continued to make the most errors in the Repeat step. The accuracy of this step was found to range from 77% to 100% of implementation. In an attempt to ensure continued fidelity, a 20 minute refresher on the intervention with a focus on this Repeat step was conducted. Other data indicated that the Evaluate step was within the ranges of 88-100%, and the Expand step ranged from 83%-100%.

Finally, fidelity checks on each tutor were conducted during the last three weeks. Each tutor was observed two times during a day one session and either a day two or day three session during those three weeks. The nine students who were not observed in person over the first three weeks were observed in person during this period. The other observations were conducted via audio-recording. Accuracy of implementation ranged from 83%-100%. Although tutors continued to have difficulty with remembering the Repeat the correct answer during the intervention sessions, during these last few weeks data indicated the fidelity of this step ranged from 80-100%. The Evaluate portion of PEER was accurately implemented 87- 100% of the time and the Expand portion's fidelity ranged from 83-100%.

Data from the self-monitoring checklists as well as the observations showed fidelity of the intervention was maintained throughout the intervention period. Data also indicated that the Repeat step of the intervention was the most difficult for the tutors to remember and to implement. In summary, the obtained data indicate the tutors were able to implement the dialogic reading techniques with a high rate of accuracy.

#### Intervention Effects – Preschool Population

The primary consideration for this research is whether the use of dialogic reading techniques via cross-age peer tutoring produced differential effects in the preschoolers'

development, as compared to a control group. As such, the first question of this study asked whether the use of dialogic reading techniques affected a preschool child's vocabulary and readiness to begin school. Specifically, the changes in receptive vocabulary, expressive vocabulary and school readiness skills as measured by the PPVT-4, EVT-2, and the AGS-ESP were measured to examine the effects of the intervention.

In order to ensure the groups were equal prior to the intervention, pre-test scores on the AGS-ESP Cognitive/Language profile were used as a covariate. The adjusted means are reported in Table 3.

Table 3: Adjusted Means of Dependent Variables by Group

	N	PPVT-4	EVT-2	AGS-ESP
Control	13	4.509	2.253	5.667
Treatment	15	7.025	7.714	8.955

An Analysis of Covariance with pretest AGS- ESP scores as a covariate, to control the samples for their cognitive and language skills were conducted on each of the dependent measures and the results are reported in the following table (Table 4).

Table 4: Analysis of Covariance for Dependent Variables

	Df	F	p-value	$\eta^2$	Observed Power
PPVT-4	1,25	17.164	.000	.407	.545
EVT-2	1,25	44.349	.000	.640	.903
ESP	1,25	16.774	.000	.402	.535

The treatment group outperformed the control group on all of the dependent measures. The ANCOVA yielded statistically significant differences between the control and treatment groups in favor of the treatment group on the PPVT-4,  $F(1, 25) = 17.164$ ,  $p < .05$ , the EVT-2,  $F(1, 25) = 144.349$ ,  $p < .05$ , and the AGS- ESP,  $F(1, 25) = 16.774$ ,  $p < .05$ .

Effect size measurements provide information about the relative magnitude of the intervention on an outcome measure. If the effect size is large, it means that it is easier to see the differences. If an effect size is small, then there may be variability in the groups. Cohen (1992) states that a medium effect size represents an effect that is visible to a perceptive observer's naked eye.

The effect size for the PPVT-4 was a moderate one,  $\eta^2 = .407$ , which suggests that the intervention, in comparison to not receiving the intervention, produced a moderate change in receptive vocabulary skills. Similarly, the effect size for the AGS-ESP was moderate,  $\eta^2 = .402$ , and suggest that the intervention group in comparison to the control group had a moderate change in cognitive/language skills. Finally, the effect size for the EVT-2 was a slightly larger one,  $\eta^2 = .640$  where the intervention group produced a large change in their expressive vocabulary skills in comparison to the group who did not receive the intervention.

Thus, in summary, the dialogic reading intervention group significantly outperformed the control group on all three dependent measures of vocabulary and school readiness skills. The intervention had the largest effect on the changes in expressive vocabulary of the children, whereas the intervention had moderate effects on the receptive vocabulary and the school readiness skills.

### Intervention Effects - Reading Attitudes of Tutors

The second question addressed the reading attitudes of the fifth grade tutors who participated in the cross-age tutoring program. To examine this question, the Elementary Reading Attitudes Survey [ERAS] was administered prior to the intervention as well as on the final day of the intervention.

Potential changes in reading attitude were analyzed using two-sample paired t-tests on the percentile ranks obtained from the pre-test and post-test surveys. Specifically, obtained scores (summarized in Table 5) for recreational reading, which examines reading during free time and reading for pleasure; academic reading, which examines reading for the purpose of learning at school; and the full scale reading, which is the combination of recreational and academic reading scores, were analyzed.

Table 5: Paired Two-Sample T-tests on Fifth Grade Tutor ERAS

	Df	T	p-value	<i>d</i>	Observed power
Recreational	17	4.60	.0003	.653	.899
Academic	17	0.40	.0692	.077	.067
Full Scale	17	3.35	.0038	.421	.557

The attitudes of the fifth grade tutors changed in some areas after their participation as tutors in the intervention. For example, on the recreational reading scores, a statistically significant difference was found between the pre-test and post-test scores  $t(17) = 4.60, p < .0003$ , suggesting that the fifth grade tutors increased in their attitudes toward recreational reading after participating in the intervention. In fact, the

effect size is at .653, which suggests that participating in the intervention as tutors produced a large change in the tutors' attitudes toward recreational reading.

At the same time, the students did not appear to change in their attitudes toward academic reading. Here, there was only a 1.95 point change and the difference was not found to be statistically significant,  $t(17) = 0.40, p < .0692$ . However, when combining the recreational reading scores and academic reading scores into a full scale score, statistically significant differences,  $t(17) = 3.35, p < .0038$  were detected. The effect size was also large here at .557, which suggests that participating as tutors in the intervention produced a large change in the overall reading attitudes of the fifth grade tutors as measured by the ERAS.

Thus, in summary, after participating as tutors, the fifth graders significantly increased in their positive attitudes toward recreational reading, and very small changes in their attitudes toward academically focused reading. However, overall, fifth grade tutors, after participating in the intervention reported more positive toward reading in general when compared to how they felt about reading prior to the intervention.

#### Social Validity

The third and final question of this study focused on the social validity of the intervention. Here, all the participation teachers, the fifth grade tutors and the preschool participants were asked questions about their experiences participating in the cross-age tutoring intervention via surveys and interviews.

#### Fifth Grade Teacher Reports

To obtain teacher feedback on the intervention, both the fifth grade teachers and the preschool teachers were surveyed using a researcher made survey. The fifth grade

teacher surveys incorporated questions regarding the effort required to implement this intervention as well as what they observed in their students who participated as tutors. There were twelve questions with Likert type response formats that consisted of the options: Strongly Agree, Agree, Disagree and Strongly Disagree, and there were five open ended questions.

On the Likert style questions both teachers stated they understood the intervention and they had received enough information and training on the intervention. They also both reported that the components of the intervention were at an appropriate level for the fifth grade students and that participating as tutors had positive effects on their students, although one teacher rated this item more strongly than the other. Both teachers answered “Agree” to the statement “students attitude towards reading has changed when they began to use the strategies”, and both also “Strongly Agreed” with the statement “the students in my classroom seemed to enjoy the intervention”. Both teachers reported the books that were read by their students were appropriate and that participating in the intervention was likely to help the fifth graders be more successful in school. There was one conflicting response between the teachers concerning the time and energy it took to implement the intervention. One teacher said that she “Disagreed” with the statement, “This intervention takes up too much time and energy to implement” whereas the other teacher “Agreed”. Finally, both responded “strongly agree” to the statement, “I would recommend this cross age tutoring program to other teachers”, and they both “Agreed” with the statement, “Overall, I liked taking part in the cross-age tutoring program”.

On the open ended questions, the teachers stated they liked the idea of cross-age tutoring, and that many of their students seemed to become more responsible and showed

a lot of pride in being chosen to be part of the program. The students were motivated by the program and seemed to behave better than prior to becoming tutors, as it was motivating for them to be role models in the school. However, the teachers felt the training took too much time, and that the intervention was too frequent. Specifically, “The students being taken away from the class for 20 minutes at a time, three times a week seems a bit much.” One teacher suggested that the intervention take place once a week instead and be linked to a positive incentive for the students. They also suggested training all of the fifth graders so that they all have a chance to participate. Overall, they both stated that they would volunteer to participate again and that it seemed to benefit their fifth grade students.

#### Preschool Teacher Report

One preschool classroom teacher participated in the intervention and completed the survey. This survey was similar to the fifth grade teacher survey with ten questions of Likert-type responses and the options of answering Strongly Agree, Agree, Disagree, or Strongly Disagree. It also has five open ended questions. The questions focused on the teacher’s knowledge of the components of the intervention, and her perspective on how the intervention affected her students’ growth, particularly in the area of language development.

The teacher stated she was aware of the elements of this intervention and she had received enough information and training on the intervention. Furthermore, she agreed that “This intervention helps to increase my students’ oral language”, and “This intervention helps to increase my students’ vocabulary”. The teacher “Strongly Agreed” that “The students in my classroom seemed to enjoy the intervention”, “The books that

were read to my students were at an appropriate level”, and “I believe this intervention is likely to help the children be more successful in school”. Although she stated that she felt that the intervention required too much time and energy to implement, she “Strongly agreed” with the comments, “I would recommend this intervention to other teachers” and “Overall, I liked this intervention”.

In the open-ended questions, the teacher reported that she loved the older students coming into the classroom because she felt that it gave her students a mentor for the rest of the year. She loved that the students in her class were being read to at least three times weekly, as oftentimes, the parents of the children in her class did not provide this experience. She stated that her students looked forward to their reading buddies coming into class, and that they wanted to continue once the program had ended. She felt however, that the older students looked overwhelmed with the behaviors being exhibited by her preschoolers and that at times, it was difficult for her to monitor all the dyads by herself. Furthermore, sometimes, communication between the fifth grade teachers and herself was difficult, which resulted in some of the intervention sessions starting later than planned, which threw her class schedule off. After observing the tutors reading to the preschoolers, the teacher stated that she began to ask more questions of her students when reading with them. This teacher commented that maybe this intervention should be fit into all the preschool schedules, and that it should continue all year.

#### Fifth Grade Tutor Reports

All fifth grade students who participated as tutors in the intervention were asked to complete a satisfaction survey after the intervention period ended. Also, each tutor was interviewed regarding the intervention and how they felt after participating. The fifth

grade tutors were asked to either agree or disagree with 11 statements. All 18 tutors completed this survey.

Thirteen out of the eighteen tutors stated the directions were easy to understand. All but one student stated they understood how to use PEER and CROWD. Whereas sixteen of the tutors felt they could teach someone else how to use the materials, two of them felt they did not know how to teach others. In terms of the training, only one student felt they were not given enough initial training on the intervention. One student felt that being a tutor was difficult whereas the other seventeen students felt that it was quite easy. When asked about the books used during the intervention, seventeen students stated that the books were easy to understand and that the books were not boring. One student felt that the books were boring and difficult to understand. Sixteen students felt that they had good conversations about the book with their student, and two disagreed. All students agreed with the statement “I enjoyed taking part of this activity”, and seventeen out of the eighteen tutors said that they would encourage others students to take part in the intervention as tutors. One student did not agree with that statement.

Each tutor was interviewed by the lead researcher about her/his experiences in the tutoring program. Each interview took between five and ten minutes. In general, the tutor responses were positive. They all stated they enjoyed reading with their student. Many of the fifth graders responded that they liked having a “little sister or brother” in the preschool classrooms. Many of them also stated that they felt proud of themselves for being able to be a tutor and be role models for the younger kids. Some of the fifth grade tutors stated they enjoyed seeing their preschool student become more and more talkative as time passed, and become more accurate in their answers. When asked what they did

not like about reading with their partner, the students had a variety of responses. While some of them stated there was nothing they did not like, others stated they had a difficult time controlling the behaviors of their students. Several tutors stated the preschoolers just did not listen to them and did not focus on what they were doing, and this caused them some stress because at times, they did not know what to do. Some stated that they wished more adults were around to help them with the behavior management. Many of the students stated they learned how to read well with younger kids, how to be patient, and that they learned how to be like a teacher. Some stated they now understood what their own teachers went through when the class did not listen to them and behaved inappropriately, and that being a teacher was not easy.

Tutors also were asked for suggestions for program improvement. Some suggestions the students had included having (a) a more organized system of containing the equipment because there was confusion over materials, (b) more book choices, (c) a longer intervention period, and (d) the continuation of the project with the students in the other preschool class so that all preschool students could participate.

#### Preschool Student Interviews

The fifteen preschool students who participated in the study were interviewed by the lead researcher and by the preschool teacher. Each interview took between five and ten minutes time. Students stated that in general they liked reading with their tutor. They liked that they had a “special friend that says hi to (them) in the hall”, and many of the students liked the books that they chose to read together. One student stated that they now had a “new best friend” in the tutor. Most students could not identify an aspect of the program they did not like about reading. Only two of the fifteen students had

something to say about that. One stated that they wanted more books to read with their tutor, and the other student said that he wanted to switch tutors, “just for fun”. When asked what they learned from working with their tutors, the students provided positive responses such as “I learned that reading is fun”, and “I learned to listen good”. Some students commented specifically about the content of the books that they read such as, “I learned about frogs”, “I learned about firemen” and “I learned not to bring a frog to the library”. Most students also said that they wanted to read more often with their tutors and that they wanted to play with them sometimes instead of read with them. Overall, all preschool student responses were positive and they all wanted to spend more time with their tutors.

In summary, the analyses reported here support the following conclusions regarding the research questions posed. First, the young children who participated in the cross-age tutoring program showed more gains in both expressive and receptive vocabulary and were more ready for school in comparison to those children who did not participate in the program and instead participated in everyday instruction with their classroom teacher. Second, children who participated in the cross-age tutoring program as tutors experienced increased positive attitudes toward reading from the beginning to the end of the tutoring sessions. Third, teachers and students who participated in the cross-age tutoring program rated the techniques and the program as socially acceptable. These results will be discussed in the context of contemporary issues in early literacy, education and school psychology in the next section of this document.

## CHAPTER 5

### DISCUSSION

#### Introduction to the Problem

Dialogic reading has been shown to positively affect young childrens' language, vocabulary and preliteracy skill development; all important precursors to entering formal schooling (Crain-Thoreson & Dale, 1999; Dale, et al., 1996; Fung, Chow & McBride-Chang, 2005; Huebner, 2000; Lonigan & Whitehurst, 1998; Whitehurst et al., 1988; Whitehurst, Arnold, et al. 1994; Whitehurst, Epstein, et al., 1994; Valdez-Menchaca & Whitehurst, 1992). Implementing dialogic reading strategies with preschoolers via cross-age tutoring, as in the current study, can yield significant benefits. Furthermore, by implementing dialogic reading via cross-age tutoring, fidelity can be monitored, the frequency of the intervention can be controlled, and it can be applied with a one-to-one tutor-tutee ratio, which has been stated to be one of the most important components of the intervention to ensure effectiveness (Crain-Thoreson & Dale, 1999; Valez-Menchaca & Whitehurst, 1992). Furthermore, by using a cross-age tutoring format to deliver the intervention, there could be positive effects on the older school children who participated in the intervention as tutors.

Despite several limitations to this study, valuable conclusions can be drawn that will contribute to the present and future research conducted in the area of cross-age peer tutoring and dialogic reading programs and interventions. This chapter will present a summary of the results from the current investigation, a discussion of the results, the limitations to the study, the implications for practice, and directions for future research in this important area.

### Overview of the Study

The purpose of this study was to examine the effects of implementing dialogic reading techniques in a preschool setting via cross-age tutoring. The cross-age tutoring program was implemented in an elementary school in Eastern Maryland, with fifth grade students implementing dialogic reading techniques with preschool children within the school setting. Fifth grade students were selected by their teachers and the principal of the school to participate in this study. Preschool teachers volunteered their classrooms. These preschool classrooms were randomly assigned to the treatment or the control conditions. The classroom randomly selected for the intervention had 18 students, and 15 of those students met the criteria to participate in the study. The control group consisted of 13 students who met the criteria for inclusion in the study. Selected tutors were trained in the techniques and in the program over the course of three 60-90 minute sessions, and the tutoring dyads met three times a week for 15-20 minutes at a time for a total of 22 sessions. Data were collected prior to the intervention and after the intervention period on both the tutees and the tutors in the study.

### Interpretation of Analysis

#### Question 1: Language Development of Preschool Children

The first research question in this study was: What is the effect of the use of dialogic reading techniques on young children's vocabulary and readiness to begin school when implemented in a school setting and embedded within a cross-age tutoring program, in comparison to young children who do not participate in the cross-age tutoring program? To address this question data were collected pre and post intervention using a range of published, standardized instruments targeting both expressive and

receptive vocabulary skills, and readiness to begin school. Data were then analyzed using an Analysis of Covariance (ANCOVA) on the difference scores of the control and treatment groups on each of the three dependent measures using the AGS-Early Screening Profiles (AGS-ESP), Cognitive/Language Profile pre-scores as a covariate.

The results were overwhelmingly positive and the dialogic reading intervention group significantly outperformed the control group on all three dependent measures of vocabulary and school readiness skills. In fact, the effect sizes for the dependent measures were moderate to large, ranging from .402 for the school readiness measure to .640 on the expressive vocabulary. The intervention had the largest effect on the changes in expressive vocabulary of the children, whereas the intervention had moderate effects on the receptive vocabulary and the school readiness skills.

The results obtained in this current study were similar to the results of past studies on dialogic reading. The large and highly significant changes in the expressive language of children who participated in the dialogic reading intervention mirror those of other studies (Arnold et al., 1994; Whitehurst et al., 1988; Whitehurst, Arnold, et al., 1994; Lonigan & Whitehurst, 1998; Valdez-Menchaca & Whitehurst, 1992). However, although this current investigation found statistically significant growth in the receptive language of children in the intervention group, with a moderate effect size, this result is not as consistent with that of others studies in this field (Arnold et al. 1994; Whitehurst et al., 1988; Whitehurst, Arnold, et al., 1994; Whitehurst, Epstein, et al. 1994; Lonigan & Whitehurst, 1998). For example, in several studies, such as the study conducted by Whitehurst et.al (1988) the results on the receptive language measure favored the dialogic reading group, but was not statistically significant.

This investigation's results differed substantially from the results obtained by Dale, Crain-Thoreson, Notari-Syverson & Cole (1996), and Crain-Thoreson & Dale (1999) where there were no statistically significant effects on the children's expressive or receptive vocabulary growth. However, these two studies focused on the influence of dialogic reading on a population with language delays. Although both studies found some increases and changes in the utterances and the language use of children in the intervention group, the changes were not statistically significant. The contrast between these two studies and the current one may be due to the population studied. As the children in these studies were struggling with language delays, the intervention within the 8 week period may not have been as powerful as it was for more typically developing children. Thus, results in these studies may have differed given a more intensive intervention period that occurred more frequently and for a longer period of time.

In the current investigation, there were statistically significant differences on the AGS-ESP, where the intervention group outperformed the control group. Other studies on dialogic reading did not utilize such a measure to examine the cognitive/language profile of children as a measure of school readiness. The AGS-ESP Cognitive /Language Profile measures language, pre-academic skills, and seriation through both verbal and nonverbal measures, which were created to be good predictors of later academic achievement (Harrison, et al., 1990). Whitehurst, Epstein, et al. (1994) and Whitehurst et al. (1999) used the Developing Skills Checklist [DSC] which measures emergent literacy skills in the areas of language, writing, linguistic awareness and print concepts. These two studies not only incorporated dialogic reading, but also a phonemic awareness program into their study. Those results found that the intervention was effective in

increasing the language, writing, print concepts, and sound and letter identification in preschool children in comparison to those children in the control conditions. Although the current study did not incorporate a phonological awareness curriculum, there were positive gains in general school readiness for the intervention group as measured by the AGS-ESP. This result may be explained by the gains in expressive and receptive vocabulary as a result of participating in the dialogic reading intervention, as well as the children's exposure to early reading skills such as letter identification, and print awareness concepts that were automatically incorporated in to the program.

There may be several reasons as to why the current study found significant effects of the intervention on all of the preschool dependent variables whereas past studies did not find such significant results on all their measures. Some of the reasons include: (a) the purpose of dialogic reading, (b) one on one instruction through peer tutoring, and (c) treatment integrity and control.

### Dialogic Reading

Dialogic reading is a method of shared book reading to provide a context for dialogue and interaction between the adult and the child (Whitehurst et al., 1988). The interventionist encourages the child to talk about the pictures through prompting and open-ended questioning. The goal of dialogic reading is for the child to become the storyteller and for the interventionist to facilitate, expand, and respond to the child's verbalizations. Therefore, the focus of dialogic reading is in the ability to express and sustain a conversation around a storybook. By encouraging and prompting children to say a little more than he or she would naturally do, children gain vocabulary, increase in the number of words they use in their utterances, and they learn proper grammar through

repeating the interventionist. This increase in expressive language has been apparent in previous studies, and appears to be more significant in comparison to the changes in the childrens' receptive language growth after exposure to dialogic reading. This growth is also apparent in the current study, where the expressive language growth as measured by the Expressive Vocabulary Test – Second Edition, [EVT – 2] of the children in the intervention group was more powerful than their growth in receptive language as measured by the Peabody Picture Vocabulary Test – Fourth Edition, [PPVT -4] with effect sizes of .640 and .407 respectively. Although the intervention was effective in increasing both the expressive and receptive vocabulary development of the preschool children, there was a more pronounced effect on the expressive vocabulary growth, and this may have been due to the focus and purpose of dialogic reading.

#### One on One Instruction Through Cross-Age Tutoring

The present intervention was administered through cross-age tutoring. Cross-age tutoring allows children to practice a skill or concept under the careful guidance of an older student, and this method has been shown to be effective for a range of skills, across populations of all ages and disabilities (Hattie, 2006; Jacobson et al. 2001; Maher, 1986; Morrison et al., 2000; Topping, Campbell, Douglas & Smith, 2003). Peer tutoring interventions have an intuitive appeal as they provide one-on-one instruction to students that are sensitive to the learner's pace and their level of understanding (Utley, et al., 1997). This one-on-one format is conducive to learning as it provides significant opportunities for practicing and responding, for enhancing engaged time, and the learner receives immediate, corrective feedback (Cohen et al., 1982; Gaustad, 1993).

Past research in dialogic reading has shown that children who received dialogic reading in the home setting have shown greater improvement in their language skills than children who received the intervention in the school setting, and that children who received this intervention in both settings had the greatest gains in their language skills (Whitehurst, Arnold, et al., 1994; Whitehurst, Epstein, et al., 1994). These results suggest two things; one, that the more exposure to the intervention, the better the outcomes of the intervention, and two, that one on one intervention was more effective than group instruction for increasing the language development of preschool children. In fact, studies have found that overall, conditions in which the intervention was implemented only in small group situations had the least effect on the children's language and vocabulary development (Cutspec, 2004; Lonigan & Whitehurst, 1998; Whitehurst, Arnold, et al., Whitehurst, Epstein, et al., 1994; Zevenbergen & Whitehurst, 2003). Thus researchers presume that one of the main factors to consider in comparing the effectiveness of this intervention is group size, and that one-on-one book reading is the most effective (Crain-Thoreson & Dale, 1999; Valez-Menchaca & Whitehurst, 1992). Whitehurst, Epstein, et. al (1994) state that children may need one on one reading interactions to make substantial gains in language skills through dialogic reading.

With the use of this study's cross-age tutoring format, all children in the treatment condition had the opportunity to be exposed to dialogic reading one-on-one, where they had opportunity to ask questions, respond, and receive immediate corrective feedback. Furthermore, during the intervention period, the children received at a minimum, seven hours of individualized, one on one, dialogic reading intervention. This individualized

instruction conducted with fidelity was likely an important contributor to the powerful results.

### Treatment Integrity

Treatment integrity is the extent to which a treatment was delivered in the way that it was intended to be delivered (Gresham, 1989). Fidelity of the implementation of the intervention was monitored in this study, as without accurate implementation, it is unclear as to whether the intervention was responsible for any changes that occurred. If the intervention is not implemented as planned and as intended, the findings attributed to the intervention are vulnerable to multiple interpretations (Gresham, 1989).

There are several ways to increase integrity of the treatment, including, having the directions clearly laid out, conducting an observation of the implementation of the treatment, completing self-check lists, and through feedback (Noell, 2005). In this intervention, many methods in order to increase the integrity of the treatment were utilized in order to ensure that the intervention sessions were being implemented as planned. Specifically, the daily components of the treatment were operationalized and specified so that all tutors, teachers, and observers were clear as to what should occur on each day of the intervention. Also, after the final day of the training, the tutors were each assessed on their mastery of the dialogic reading skills and the implementation of the intervention. The tutors were expected to follow the components of the intervention with 90-100 % accuracy in order for them to meet the mastery criteria. In order to evaluate the accuracy of implementation, the occurrence and nonoccurrence of each component was recorded during this observation, and the percentage of treatment components implemented correctly were calculated. All students received feedback on their

performance, and met the minimum of 90% accuracy. Furthermore, during the intervention stage, direct observations and audio-taped observations took place in order to ensure continuing fidelity. These observations took place during the first three weeks of intervention as well as during the last three weeks of the intervention. During each three week period, each fifth grade tutor was observed two times; once while they followed the intervention plan for day one, and the next when they were following the plan for either day two or day three. Each student was observed either by a human observer or by audio recording. Each dyad was observed at least once by a human observer during the six weeks of observation. The dyads were observed using the same observation form used during the mastery observation. Thus each fifth grade tutor received a total of five observations. Finally, during the intervention stage, the tutors completed a self-monitoring checklist. The checklists had the specific steps of the intervention, and the tutors reviewed it prior to working with their tutee (see Appendix H).

In previous studies of dialogic reading there were compliance and integrity problems which may have influenced the overall results of the study (Arnold et al, 1994; Dale, Crain-Thoreson, Notari-Syverson & Cole, 1996; Fung, Chow & McBride-Chang, 2005; Lonigan and Whitehurst, 1998; Whitehurst, Arnold, et al, 1994). This influence was particularly apparent in the study conducted by Whitehurst, Arnold, et al. (1994). The authors found substantial variability in the fidelity with which teachers followed the program. In fact, the difference in reported reading frequency across preschool centers was statistically significant  $F(4, 43) = 86.87, p < .001$ , and the correlations between the outcome measures and the frequency with which individual children were reported to have participated in the dialogic reading sessions at school were significant on the Our

Word and the EOWPVT measures. It was found that of the five day care centers that participated in the study, those who were most compliant with the intervention had children who performed significantly better in the post-test measures in comparison to those students enrolled in the day cares that did not follow through with the intervention.

The treatment integrity for this current study was maintained throughout the intervention period. Data from the self-monitoring checklists indicated that tutors rated themselves as conducting the intervention with 88-100% accuracy, and observation data indicated that overall accuracy of implementation of dialogic reading throughout the intervention period ranged from 81%-100%. There were some difficulties in accuracy of the Repeat step of dialogic reading. The accuracy of this step fell within the ranges of 77%-100%. In order to ensure continued fidelity, a 20 minute refresher on the intervention, with a focus on this Repeat step was conducted half way through the 8 week period. Thus, data indicated that fidelity was maintained throughout the intervention period. Therefore, we can surmise that the intervention was implemented as planned and intended, and that the findings are attributed to the intervention.

#### Question 2: Reading Attitudes of Fifth Grade Tutors

The second question in this study was: How does functioning as a cross-age tutor influence the reading attitudes of the fifth grade students that participated in the cross-age tutoring program? To address this question, data were collected pre and post intervention using the Elementary Reading Attitudes Survey [ERAS], (McKenna and Kear, 1990). This norm referenced survey administered to the tutors prior to the intervention and after the intervention examined the changes in their attitudes toward academic reading, recreational reading, and overall reading. Data were analyzed using two-sample paired t-

tests on the percentile ranks obtained from the pre-test and post-test surveys.

Specifically, the scores for recreational reading, which looks at reading during free time and reading for pleasure; academic reading, which looks at reading for the purpose of learning at school; and the full scale reading, which is the combination of recreational and academic reading scores, were analyzed.

The results were generally positive and the fifth grade tutors had significant increases in positive attitudes toward recreational reading, which increased their overall positive attitude toward reading in general. However, the students did not appear to change in their attitudes toward academic reading. The effect size for recreational reading was at .653, which suggests that participating in the intervention as tutors produced a large change in their views of reading for pleasure and in their free time, and the overall reading attitude effect size was also large here at .557, which suggests that participating as tutors in the intervention produced a large change in the overall reading attitudes of the fifth grade tutors.

The results are similar to other studies that researched reading attitudes of students who participated in peer tutoring, reading interventions (Davenport, Arnold & Lassmann, 2004; Labbo & Teale, 1990). For example, Davenport, Arnold and Lassmann (2004) found that all participants in their cross-age tutoring program expressed an overall positive attitude toward reading after the pre and post test of reading attitudes using the Elementary Reading Attitudes Survey. However, differing from the current study, the tutors in this study showed an increase in academic reading attitude, and only a small increase in positive attitudes toward recreational reading, whereas in the current study, there was a significant increase in positive attitudes toward recreational reading, and only

a slight change in attitudes toward academic reading. Labbo and Teale (1990) focused on the effects of a reading fluency program on the tutor group. In this study, the tutors were assessed for reading achievement, self concept and reading attitudes using the Gates-MacGinitie Reading Test, the Piers-Harris Children's Self Concept Scale, the Teale and Lewis Reading Attitude Scales, and the Reading Interview. Results indicated there was an increase in self-concept although not to the statistically significant levels. There were no pre-post test differences in the reading attitudes of the tutoring group scores.

One potential explanation as to why the current study found significant changes in the tutors' attitudes toward recreational reading, and not academic reading may be that the intervention was not directly oriented toward academic reading or reading for the purpose of learning at school. Rather, the intervention appeared to be geared toward recreational reading, which includes reading for pleasure, and reading during free time. As the fifth graders were expected to read picture story books to younger children, the academic focus was not apparent, and thus their experiences in the program may have influenced their positive feelings toward recreational reading, which was more related to the intervention, and did not affect their feelings toward academic reading. In the Davenport, Arnold and Lassmann (2004) study, the tutors and tutees worked on a program that asked them to read together and then answer comprehension questions. This was a more academically focused program, and this focus may have influenced the student's attitudes toward academic reading, but not recreational reading. The differences in the results from Davenport, Arnold and Lassmann (2004) and Labbo and Teale (1990) studies on reading attitudes may also have been impacted by the population they were researching as well. Specifically, the two studies used tutor groups that were

struggling in reading whereas this current study assessed the reading attitudes of children who were fluent in reading. The students in this current study had high positive attitudes toward reading, both academic and recreational prior to the beginning of the intervention period, given that they were fluent readers to begin with.

Overall, cross-age tutoring programs have had positive effects on reading attitudes of both tutors and tutees. Teachers often reported that the tutors gained self-confidence, and other general education teachers asked to have peer tutors in their classrooms. Cross-age tutoring not only benefits students with academic difficulties, but also impacts attitudes, self-concept, and self-esteem (Davenport, Arnold & Lassmann, 2004; Labbo & Teale, 1990). In this current study on dialogic reading, results were very similar to previous studies in that the fifth grade tutors had significant changes in their positive attitudes toward reading in general and specifically, in recreational reading.

### Question 3: Social Validity

The third and final question of this study focused on the social validity of the intervention. Specifically, the question asked: Given the implementation of cross-age tutoring of dialogic reading, to what extent do the participating teachers and the students rate the techniques and the program as socially acceptable? To address this question, participating teachers, the fifth grade tutors and the preschool participants were asked questions about their experiences in the cross-age tutoring intervention. Data were collected via surveys and interviews. Fifth grade and preschool teachers were asked for feedback via surveys, fifth grade tutors were interviewed as well as surveyed for information, and each preschooler in the intervention group was interviewed.

Researchers have increasingly become more interested in the issue of social validity, or acceptability of the appropriateness, and effectiveness (Eckert & Hintze, 2000; Finn & Sladeczek, 2001; Wolf, 1978). Social validity was a term coined by Wolf (1978) that refers to, in this case, the social importance of the effects of the intervention. This is an important issue because there may be promising interventions that are too complicated or time consuming to be used effectively by consumers. In fact, without teacher and student motivation, and acceptability of the intervention, treatment integrity may become affected (Gresham, 1989). In particular, the complexity of the treatment, the time required for the implementation, the materials necessary, and the motivation of those involved are impactful in the integrity of the intervention being maintained. Therefore, it is essential to monitor the perceptions of those involved in the intervention, to assess whether the intervention was acceptable, and if it was perceived as important within the school setting.

Data indicated that overall, the teachers and all the students felt positive about the cross-age dialogic reading program. They overall felt well trained, and felt that the intervention was positive, fun, and educational. All the teachers reported that they would like to participate again, and most students stated similar sentiments. Some difficulties with the project were apparent however in the comments. Teachers had some difficulty with the organization of the intervention and the communication between the different grade levels. Fifth grade tutors stated that they struggled with the behavioral management component of the intervention.

Two of the essential components to ensure that treatment integrity is maintained are challenged in these comments. The complexity of the intervention, the planning and

the organization of personnel was impactful in the teacher's perception of the intervention, and the difficulty in implementing the intervention due to preschooler behavioral difficulties were impactful in the tutors' perceptions. In order to increase organization and coordination between the different grade levels, project managers should be utilized. In the current study, only one researcher was involved, and thus organization and management of the many classes and participants became difficult. With more project managers in place, this issue can be easily addressed. Furthermore, in this current study the tutors were introduced to behavior management issues and strategies as part of their final day of training. Behavior management issues were discussed and practiced for approximately 10 minutes on that day. According to tutor comments following the intervention period, they did not feel well equipped to implement these behavioral management strategies, and students commented that many times, they were at a loss and did not know what to do. It is clear that the training provided was insufficient in this regard. In order to increase tutor confidence in behavioral management strategies, training should be increased on this topic, and it may be important to increase the training to a full session of 45 minutes. However, even with these difficulties and the criticism of the dialogic reading intervention, teachers and students who participated in the cross-age tutoring program rated the techniques and the program as socially acceptable, and treatment integrity was at acceptable levels.

#### Limitations

Although this study contributes to the literature in the area of dialogic reading through the use of cross-age peer tutoring, the results must be interpreted with caution due to some limitations to the study. One of the most salient limitations to this study was

the small sample size. With only a total of 15 students in the intervention group and 13 students in the control sample, there was a possibility that this study would have low power, which would increase the chance of a Type 2 error, where the researcher incorrectly concludes that there is no relationship when in fact, a true one does exist. However, in this study, there were relatively strong, significant effects of the treatment, which suggests that a Type 2 error did not occur. However, due to the limited sample size, generalizability of the results is affected. This population was not representative of the general population of Maryland or the United States. Students were mostly from low-income families, and many of the students were from minority backgrounds. Without a more diverse and representative population, these results may not be generalizable to populations outside of this particular sample.

Other studies on dialogic reading and cross-age peer tutoring have also reported limitations in their sample size (Crain-Thoreson & Dale, 1999; Dale, Crain-Thoreson, Notari-Syverson & Cole, 1996; Fung, Chow, & McBride-Chang, 2005; Whitehurst et. al., 1988; Valdez-Menchaca & Whitehurst, 1992). This limitation may be frequent due to the high level of control that is necessary to implement this intervention. In this current study, only one researcher was present to ensure treatment fidelity, to oversee the trainings, and to organize the many players involved in the intervention. The need for control over this study required a smaller population.

A second limitation to the study is the reactivity of the preschool teacher to the knowledge that her class was in a study, what the study was measuring, and thus possibly improving her reading behavior. This reaction is also known as the Hawthorn effect. The preschool teachers were both exposed to the intervention, the purpose of the study, and

the research questions. Although data were not collected on how frequently the teachers read to the class prior to the intervention, during the intervention, or their specific reading practices, there may have been changes in these areas that influenced students' skill development. While this speculation makes it difficult to say with certainty that the cross-age tutoring intervention produced the changes in the intervention group, as both teachers had been exposed to the same information, it is hypothesized that the influence of the knowledge was controlled. However, as data were not collected, ultimately it is unknown as to what effect this knowledge was on the outcome of the study.

Another limitation to this study is that neither the effects of one on one reading without dialogic reading techniques, or of extra attention for preschool students were measured. Therefore it is difficult to conclude with absolute certainty that the significant results obtained in this current study was solely due to the dialogic reading intervention administered via cross-age tutoring.

#### Implication for School Psychologists

Despite the limitations of this study, the research does support conclusions that there are potential benefits to incorporating dialogic reading interventions implemented via cross-age tutoring within the school setting. Results of this study have indicated that dialogic reading techniques have powerful effects on the development of a young child's expressive and receptive language, and can also influence their readiness to begin formal education. This study has also demonstrated that older elementary school children can implement dialogic reading techniques in a structured manner with fidelity, and that by participating as a tutor, there is a positive increase in their attitudes toward reading. Furthermore, all participants found that this experience was pleasurable, helpful, and

teachers have reported interest in continuing this program. There are several benefits to implementing this intervention using older students. First, the frequent issue of the lack of interventionists in the school setting can be resolved by implementing this intervention via the cost-effective method of cross-age tutoring. Second, this is a potential universal level intervention that can be implemented across preschool and kindergarten students. Third, this intervention is a possible preventive measure of language delays and future reading failure.

While the cross-age tutoring intervention on dialogic reading was effective in this study, it is important to recognize that the creation of the materials, and the organization of the personnel, the students, and of the schedule was time consuming and effortful. The effort required for implementation of such a program into the daily activities of a school should be carefully considered by those responsible. Furthermore, in order to ensure the fidelity of the intervention, data must be collected, and the methods to collect this data are also complicated.

As the field of school psychology currently is experiencing a shortage of school psychologists, it is important that there is a heightened focus on the consultative model where we look for resources and services that can be utilized in effective and efficient ways (Curtis, Grier, & Hunley, 2004). Therefore, as school psychologists we may be most effective in implementing this intervention through (a) introducing this intervention to other professionals in the field, to the school or to clients, (b) training resource personnel such as teacher trainers and mentors, reading teachers, interns and administration on dialogic reading, cross-age peer tutoring, and this specific intervention, (c) assisting in the organization of the intervention, (d) providing on-going support and

monitoring of the intervention, and (e) assisting the school staff in the collection of data in order to assess the impact of the implementation of the intervention.

#### Directions for Future Research

As this current investigation was the first to implement dialogic reading strategies using older elementary school students as intervention agents, it focused mainly on if the tutors could follow through, with fidelity, the steps of the intervention, whether this method of intervention could be incorporated into the school setting, and if the effect of this method of intervention resulted in similar growth in the students as other studies in the field. Results indicated that the fifth graders were able to implement dialogic reading strategies with fidelity, that the intervention was socially acceptable and incorporated into the school setting, that there were positive influences on the reading attitudes of the tutors, and that the intervention affected the language development and the school readiness skills of the preschool participants. As this was an initial study, there are several important studies that should be conducted in the future to extend the literature on this particular method of dialogic reading.

Future studies could incorporate preschool students with disabilities, or a tutor population with disabilities, such as students with Attention Deficit Hyperactivity Disorder, or students with Learning Disabilities. As dialogic reading strategies focus on the dialogue surrounding the picture books, tutors with disabilities could potentially be effective interventionists if they are trained to focus on the conversation surrounding the book rather than on the words written on the page. Thus future studies could focus on the incorporation of students with disabilities in both the tutor and tutee groups, with an eye toward effects on both tutors and tutees.

The present study incorporated very structured manuals that were created for each picture book available in order to ensure that the intervention was implemented with fidelity and so that all students were exposed to the same questions and strategies. This structure was particularly important as the interventionists, for the first time, were other students in the elementary school. However, the creation of these manuals was time consuming and difficult. Therefore, it would be important to examine the amount of structure needed in this cross-age tutoring model in order for the intervention to be effective.

Also, the issue of time and effort should be considered in future work. This investigation incorporated an intervention that lasted for approximately 8 weeks. Most studies in the effectiveness of dialogic reading techniques implemented in the home, school, or home and school settings have been completed in 4 to 8 weeks of intervention, (Crain-Thoreson & Dale, 1999; Lonigan & Whitehurst, 1998; Whitehurst, et al., 1988; Whitehurst, Arnold et al, 1994). Yet, all of the studies thus far have concentrated on the application of dialogic reading techniques by an adult interventionist in the home, school, or home and school settings. As this study investigated the application of dialogic reading techniques with students as the intervention agents rather than adults, and because these students only had the opportunity to discuss the book and the words in the book three times a week for 15-20 minutes per session, the upper end of the intervention length was selected. However, positive effects of the intervention have been shown with only 4 weeks of implementation (Arnold et al., 1994; Whitehurst et. al, 1988). Therefore, future studies could focus on the length of the intervention, or the number of sessions or

hours necessary for optimal results, to begin to detail the cost-benefit assessment of dialogic reading interventions.

Finally, few studies in dialogic reading have followed the students longitudinally to examine the maintenance of the vocabulary and language skills obtained from the intervention, and these studies were limited to follow up within a year after the intervention concluded (Whitehurst et. al, 1988; Whitehurst et al., 1999; Whitehurst, Arnold, et al., 1994). Thus a future study could include a longitudinal follow up of the maintenance of the language skills obtained from the dialogic reading intervention at 6 months, 1 year, and possibly into the end of elementary school education.

#### Summary

In summary, this research adds to the current literature on the effectiveness of dialogic reading strategies in increasing the language development and school readiness of preschool students. This study also demonstrated that older elementary school children can implement dialogic reading techniques in a structured manner with fidelity, and participating as a tutor improved their attitudes toward reading. Furthermore, all participants found that this experience was pleasurable, helpful, and teachers have reported interest in continuing this program. Treatment integrity results suggest that with a structured manual, continued assessment and follow up, and appropriate training, the fifth grade tutors can effectively implement this intervention to preschool students. The cost-effective nature of the intervention contributes further to the development of socially valid, naturalistic interventions focusing on the language development of young children and provides continued support for using peers as intervention agents in schools.

## APPENDIX A

### PEER AND CROWD TECHNIQUES OF DIALOGIC READING

<b>Strategy</b>	<b>Description</b>	<b>Example</b>	<b>How does it help?</b>
<b>Prompt</b>	Reminding the child to identify items in the book and talk about the book.	“Look at this page, what is that called?”	<ul style="list-style-type: none"> <li>• focuses attention</li> <li>• engages child in story</li> <li>• helps child understand plot</li> <li>• builds vocabulary</li> </ul>
<b>Evaluate</b>	Statements that praise correct answers or correct child’s incorrect responses	“Yes, that is right, the dog is brown.”	<ul style="list-style-type: none"> <li>• prompts adult to correct child’s response and add information</li> </ul>
<b>Expand</b>	Repeating what the child says and providing additional information	“Yes, that is a dog. It’s called a German Shepard.”	<ul style="list-style-type: none"> <li>• encourages child to say more than they would naturally</li> <li>• builds vocabulary</li> </ul>
<b>Repeat</b>	Encouraging the child to repeat his/her response.	“Say that again. What do you call that animal?”	<ul style="list-style-type: none"> <li>• encourages child to use Language</li> </ul>

<b>Types of prompts</b>	<b>Description</b>	<b>Example</b>	<b>How does it help?</b>
<b>Completion prompts</b>	Fill-in-the-blank questions.	“When it rains we use our ____?”	<ul style="list-style-type: none"> <li>• encourages child to listen and use language</li> </ul>
<b>Recall prompt</b>	Questions that ask a child to recall a detail from the book.	“What did Lucy do when she was scared?”	<ul style="list-style-type: none"> <li>• builds a sense of story</li> <li>• helps child recall details</li> </ul>
<b>Open-ended prompts</b>	Statements that prompt the child to talk about the book.	“Now you tell me about this page.”	<ul style="list-style-type: none"> <li>• provides opportunity for child to use language</li> </ul>
<b>Wh -prompts</b>	What, where, and why questions	“What color is the ball?”	<ul style="list-style-type: none"> <li>• builds vocabulary</li> </ul>
<b>Distancing prompts</b>	Questions that ask the child to link events in the book to his/her own life experiences.	“You traveled on an airplane like Harry, where did you go?”	<ul style="list-style-type: none"> <li>• helps child make connections with real life</li> <li>• provides opportunity to use language</li> </ul>

## APPENDIX B

### CURRICULUM BASED MEASUREMENT-ORAL READING FLUENCY

In this study, curriculum based measurement [CBM] in oral reading fluency [ORF] was employed in the screening of the fifth graders prior to the implementation of the intervention, as they needed to possess a minimum level of reading fluency in order to participate in the tutoring program. In order to participate as a tutor, students were expected to read a minimum of 115 words correctly in a minute on a fifth grade reading benchmark reading probe. Meeting this criterion placed them in the Low Risk category according to published benchmark levels of oral reading fluency. It also placed those students in the marginally fluent level, indicating they could read the material independently and gain meaning from the text without support.

Curriculum based measurement is a set standardized, validated, and short duration tests that are used by special education and general education teachers to see the effect of their instruction or an intervention (Shinn, 2002). According to Shinn & Bamonto (1998), CBM measures are sensitive to growth, and can easily detect changes in a child's academic progress. Furthermore, they are curriculum referenced which means that the assessment directly tests from the curriculum, they are peer referenced, meaning that the scores can be compared across a peer group, and they are individually referenced, which means that the scores of the same child can be compared over time. CBM measures are indicators of healthy academic progress, similar to how your body temperature at any given time is an indicator of your physical health. Finally, these measures directly assesses the basic skills that educators and researchers believe are necessary to be successful in school. These basic skills include reading, writing, spelling and math computation.

Within all the measures, the oral reading fluency [ORF] measure has received much attention. In CBM-ORF, children are given 1 minute to read a grade level passage quickly and accurately. The examiner scores the number of words the child read correctly in that minute and compares that score to national, district, or school norms to assess whether the child is on a positive trajectory to becoming a fluent and good reader.

Marston (1989) summarizes several validity studies on CBM-ORF, and found that correlations with other published norm referenced tests had a large range, yet most of the coefficients were above .80. The results suggest that, given the extensive concurrent validity studies, oral reading fluency seems to be a valid measure of decoding and reading achievement. In addition, reliability estimates yielded impressive findings. Test-retest reliability estimates in intervals of 1 to 10 weeks ranged from .82-.97 with most estimates being above .90. Parallel form estimates ranged from .84-.96 with most correlations about .9. Finally, interrater agreement was at a .99, which all adds to the evidence of the reliability of the CBM-ORF measures.

## APPENDIX C

### BOOK LIST AND READABILITY

Storybooks included in study

No.	Book Title	Passage 1	Passage 2	Passage 3	Median	Mean
1	Whistle for Willie	2.85	2.92	2.55	2.85	2.77
2	Blueberries for Sal	3.60	3.17	3.58	3.58	3.45
3	Spike in the City	2.82	3.12	2.52	2.52	2.82
4	The Quilt Story	2.71	3.15	3.02	3.02	2.96
5	A Trip to the Firehouse	2.78	3.57	3.40	3.57	3.25
6	Construction Trucks	3.81	3.95	3.95	3.95	3.90
7	The Adventures of Taxi Dog	2.43	3.74	3.82	3.74	3.33
8	Can I Keep Him?	3.47	3.29	3.22	3.29	3.33
9	Cows Can't Fly *	3.05	---	3.55	---	3.33
10	The Dinosaur Who Lived in My Backyard	3.31	3.11	3.16	3.16	3.19
11	I Took My Frog to the Library *	4.49	---	3.14	---	3.82
12	Bunny Cakes	2.51	2.96	3.68	3.96	3.05
13	The Three Little Pigs	2.98	3.23	3.09	3.09	3.10
14	A Pocket for Corduroy	2.87	4.32	3.13	3.13	3.44
15	Frog	3.53	3.28	4.31	3.53	3.71

Storybooks excluded from the study

No.	Book	Passage 1	Passage 2	Passage 3	Median	Mean
16	No Jumping on the Bed	3.83	4.67	3.95	3.84	4.15
17	Goldilocks and the Three Bears	3.69	4.23	4.93	4.23	4.28
18	Isla **	3.45	3.72	3.86	3.72	3.68
19	The Old Man and His Door **	4.03	3.36	3.31	3.36	3.57
20	Hooray, A Piñata **	3.53	3.28	4.31	3.53	3.71

\* These books had below 300 words and thus a third passage could not be extracted for readability analysis. All the words in the picture book were inputted within the first and second passage analysis.

\*\* These books have met the readability requirement, but have Spanish words included within the text and were thus excluded.

APPENDIX D

TEACHER SURVEYS

## Fifth Grade Teacher Survey

**Thank you for participating in the cross-age tutoring program. I am collecting information on how acceptable the program was to you. I appreciate your time and commitment to this project. Please fill out this short survey. There will be no identifying information, so please feel free to be honest in your options about your experiences. Thank you very much.**

**Please circle the answer that most closely reflects how you feel about the statement.**

- 1) I am aware of the elements of this intervention  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 2) I have received enough information and training on this intervention  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 3) I believe that the components of this intervention are too difficult for my students to implement well  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 5) I believe that this experience had a positive effect on my students  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 6) My students' attitude towards reading has changed when we began to use the strategies  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 7) The students in my classroom seemed to enjoy the intervention  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 8) The books my students read were at an appropriate level  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 9) I believe this intervention is likely to help the children be more successful in school  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 10) This intervention takes up too much time and energy to implement  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 11) I would recommend this cross age tutoring program to other teachers  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 12) Overall, I liked taking part in the cross age tutoring program  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*

**Please answer these questions.**

- 13) What did you like about this program?

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13) What did you not like about this program?

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14) What are the potential benefits for your participating students?

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15) What suggestions do you have to make this program better?

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16) Other comments?

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**Preschool Teacher Survey**

**Thank you for participating in the cross-age tutoring program. I am collecting information on how acceptable the program was to you. I appreciate your time and commitment to this project. Please fill out this short survey. There will be no identifying information, so please feel free to be honest in your options about your experiences. Thank you very much.**

**Please circle the answer that most closely reflects how you feel about the statement.**

- 1) I am aware of the elements of this intervention  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 2) I have received enough information and training on this intervention  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 3) This intervention helps to increase my students' oral language  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 4) This intervention helps to increase my students' vocabulary  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 5) The students in my classroom seemed to enjoy the intervention  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 6) The books that were read to my students were at an appropriate level  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 7) I believe this intervention is likely to help the children be more successful in school  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 8) This intervention takes up too much time and energy to implement  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 9) I would recommend this intervention to other teachers  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*
- 10) Overall, I liked this intervention  
*Strongly agree*      *Agree*      *Disagree*      *Strongly disagree*

**Please answer these questions.**

11) What did you like about this program?

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12) What did you not like about this program?

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13) Did the way you read to the children in your class change as a result of your knowledge of the intervention, if so, how?

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14) What suggestions do you have to make this intervention better or easier to fit into your schedule?

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15) Other comments?

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## TUTOR SURVEYS

### **Fifth Grade Survey**

**Thank you for participating in the cross-age tutoring program. I am collecting information about your experiences in being a tutor/teacher. I appreciate your time and commitment to this project. Please fill out this short survey. There will be no identifying information, so please feel free to be honest in your options about your experiences.**

**Please circle the answer that most closely reflects how you feel about the statement.**

- 1) The directions are difficult to understand.  
*Agree*                      *Disagree*
- 2) I understand how to use PEER  
*Agree*                      *Disagree*
- 3) I understand how to use CROWD  
*Agree*                      *Disagree*
- 4) I can teach someone else to use the materials  
*Agree*                      *Disagree*
- 5) The training I got at the beginning did not teach me enough  
*Agree*                      *Disagree*
- 6) Being a tutor was easy  
*Agree*                      *Disagree*
- 7) The books we used were boring  
*Agree*                      *Disagree*
- 8) The books we used were difficult to understand  
*Agree*                      *Disagree*
- 9) I had good conversations about the book with my student  
*Agree*                      *Disagree*
- 10) I enjoyed taking part of this activity  
*Agree*                      *Disagree*
- 11) I would encourage other students to become tutors/teachers  
*Agree*                      *Disagree*

APPENDIX F

## TUTOR AND TUTEE INTERVIEW QUESTIONS

### Tutor Interview Questions

- 1) What did you like about reading with your student?
- 2) What did you not like about reading with your student?
- 3) What did you learn from working on this project?
- 4) Was there anything that was confusing during the training?
- 5) What suggestions would you give to make the experience and the training better?
- 6) Other comments?

### Tutee Interview Questions

- 1) What did you like about reading with your tutor?
- 2) What did you not like about reading with your tutor?
- 3) What did you learn from working with your tutor?
- 4) What would make reading with your tutor better?
- 5) Do you want to continue working with your tutor?

APPENDIX G

OBSERVATION PROTOCOL

**Observation form (day 1)**

Date: \_\_\_\_\_

Observer: \_\_\_\_\_

Title of Book: \_\_\_\_\_

**If you observed the step taking place, please check the box**

1) The tutor read the title of the book	
2) The tutor had the student repeat the title	
3) The tutor asked a question pertaining to the cover of the book	
4) The tutor followed up with Evaluating	
4) The tutor followed up with Expanding	
5) The tutor followed up by having the Student Repeat	
6) The tutor asked the recall questions	

**Did the tutor prompt the student, did they evaluate, expand and repeat afterwards?**

Prompts	Evaluate	Expand	Repeat
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			

Prompts	Evaluate	Expand	Repeat
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			

**Observation form (day 2)**

Date: \_\_\_\_\_

Observer: \_\_\_\_\_

Title of Book: \_\_\_\_\_

**If you observed the step taking place, please check the box**

1) The tutor read the title of the book	
2) The tutor had the student repeat the title	
3) The tutor asked the questions in the binder	
4) The tutor asked the recall questions	

**The tutor should prompt the tutee once or twice every two pages, check if they evaluated, expanded and repeated afterwards.**

Prompts	Evaluate	Expand	Repeat
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

Prompts	Evaluate	Expand	Repeat
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			

**Comments and observations:**

**Observation form (day 3)**

Date: \_\_\_\_\_

Observer: \_\_\_\_\_

Title of Book: \_\_\_\_\_

**If you observed the step taking place, please check the box**

1) The tutor read the title of the book	
2) The tutor had the student repeat the title	
3) The tutor asked the questions in the binder	
4) The tutor asked the recall questions	
5) Tutor and student selected a book for next week	

**The tutor should prompt the tutee once or twice every two pages, check if they evaluated, expanded and repeated afterwards.**

Prompts	Evaluate	Expand	Repeat
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

Prompts	Evaluate	Expand	Repeat
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			

**Comments and observations:**

APPENDIX H

TUTOR SELF-MONITORING CHECKLISTS

Name: \_\_\_\_\_

My student's name: \_\_\_\_\_

My Grade: \_\_\_\_\_

**My list of books**

Book Title	I read it on Day 1	I read it on Day 2	I read it on Day 3

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Title of Book: \_\_\_\_\_

### **Checklist-Day 1**

**Check to see what you did today when you were reading with your student.**

#### **Steps**

#### **Did I do this?**

1) I practiced reading the book for this week at home	
2) I read the title of the book	
3) My student repeated the title	
4) I pointed to the picture on the cover and asked the question	
5) I asked my student questions while I Read	
6) I evaluated my student's answers	
7) I expanded on my student's answers	
8) I had my student repeat what I said	
9) I asked the recall questions	

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Title of Book: \_\_\_\_\_

## **Checklist-Day 2**

**Check to see what you did today when you were reading with your student.**

### **Steps**

### **Did I do this?**

1) I read the title of the book	
2) My student repeated the title	
3) I asked my student the prompts in the binder	
4) I evaluated the my student's Answers	
5) I expanded on the my student's Answers	
6) I had my student repeat what I said	
7) I asked questions about the book on my own	
8) I asked the recall questions	

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Title of Book: \_\_\_\_\_

### **Checklist-Day 3**

**Check to see what you did today when you were reading with your student.**

#### **Steps**

#### **Did I do this?**

1) I read the title of the book	
2) My student repeated the title	
3) I asked my student the prompts in the binder	
4) I evaluated my student's answers	
5) I expanded on my student's Answers	
6) I had the my student repeat what I Said	
7) I asked questions about the book on my own	
8) I asked the recall questions	
9) I picked a book for next week with my student	

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