

EFFECTS OF TRAINING ON EARLY CHILDHOOD SPECIAL EDUCATION
PARAEDUCATORS' USE OF EARLY LITERACY STRATEGIES
DURING BOOK READING

By

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EFFECTS OF TRAINING ON EARLY CHILDHOOD SPECIAL EDUCATION
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Abstract

Research has consistently shown a need for paraeducator training in tasks they are expected to perform under a licensed teacher's supervision. This study employed a single-subject design to examine the effects of teaching paraeducators shared book reading strategies. Participants included early childhood special education paraeducators and preschoolers. The intervention consisted of computer-based instruction on shared book reading and performance feedback by e-mail. Videotaped book reading sessions were coded to yield measures of (a) the paraeducators' strategy use, (b) the affective quality of the paraeducator-child book reading interactions, and (c) the children's engagement. Significant increases were shown in book reading knowledge on post-quiz scores. The paraeducators' strategy use also increased after they completed the HTML lesson. Moreover, the results revealed overall gains in the children's engaged responses. Paraeducators indicated a favorable attitude toward both components of the intervention procedure. Implications include ways to strengthen and support early literacy professional development.

“The fire of literacy is created by the emotional sparks between a child, a book, and the person reading. It isn’t achieved by the book alone, nor by the child alone, nor by the adult who’s reading aloud — it’s the relationship winding between all three, bringing them together in easy harmony.”

Mem Fox, *Reading Magic: Why Reading Aloud to Children Will Change Their Lives Forever*

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Chapter 1

Introduction

This chapter serves as an introduction to the dissertation. It includes the following sections: (a) an introduction to the topic of early literacy, (b) the significance of the problem addressed in this study, (c) the purpose of the study, (d) the research questions that guided the study, and (e) a description of the organization of this dissertation.

Early Literacy

Justice and Pullen (2003) define emergent or early literacy as “the precursory knowledge about reading and writing that children acquire prior to conventional literacy instruction and that they bring to the task of learning to read” (p. 99). This knowledge is acquired during the preschool years for the majority of children (Dickinson & McCabe, 2001; Watkins & Bunce, 1996). As noted by Sulzby and Teale (1991) over two decades ago, the following four tenets can be drawn from emergent literacy research:

1. Literacy development begins early in the child’s life.
2. Children’s skills in listening, speaking, reading, and writing develop concurrently.
3. Literacy functions are an essential part of the learning process.
4. Young children learn to read and write by being actively engaged in their environment.

Because the early childhood years are the most important period for literacy development, the International Reading Association (IRA) and the National Association for the Education of Young Children (NAEYC) joined together to formulate and adopt a position statement entitled “Learning to Read and Write: Developmentally Appropriate Practices” that addresses early literacy development (IRA & NAEYC, 1998). While knowledge of early literacy has continued to increase since this position statement was issued, its key points remain

critically important for quality literacy instruction in today's early childhood settings and include the following experiences:

- positive, nurturing relationships with adults who foster reading and writing interest;
- print rich environments to provide opportunities to see and use written language for a variety of purposes;
- adults' daily reading of high quality books to individual children or small groups of children;
- teaching strategies and experiences that develop phonemic awareness, such as songs, fingerplays, games, poems, and stories; and
- opportunities to engage in play that incorporates literacy tools, such as writing grocery lists in dramatic play; and firsthand experiences that expand children's vocabulary, such as trips in the community and exposure to various tools, objects, and materials.

Significance of the Problem

Learning to read is the one of most important and foundational accomplishments of childhood. The number of children entering kindergarten without adequate literacy and language skills has been steadily increasing since the 1950s (Gallagher, Frith, & Snowling, 2000; Hart & Risley, 1995; O'Connor & Jenkins, 1999) and the prevalence of reading difficulties among school-age children continues to be a matter of national concern.

After reviewing prediction studies of children who are at risk for reading difficulties, Snow, Burns, & Griffin (1998) and Strickland and Riley-Ayers, (2006) identified a number of the factors that place children at risk for reading difficulties. These factors included children who:

- have acquired less knowledge and skill pertaining to literacy during the preschool

years, through a lack of appropriate home literacy experiences (i.e., reasons may vary, although children who reside in families of low income are particularly likely to be at risk for this situation);

- attend schools at risk for higher percentages of students with reading difficulties;
- reside in homes that are considered “language poor” families who are likely to use fewer and different words in their everyday conversations, and the language environment is more likely to be controlling and punitive;
- have parents with histories of reading difficulty;
- are from culturally and linguistically diverse families, which may include (a) children who are English Language Learners with limited proficiency in spoken English or (b) children who speak a dialect of English that is different from how English is spoken in schools;
- have acquired less knowledge and skill pertaining to literacy during the preschool years due to an intellectual disability;
- lack age-appropriate skills in literacy related cognitive-linguistic processing, especially phonological awareness, confrontational naming, sentence/story recall, and general language ability;
- have been diagnosed as having specific early language impairment;
- are deaf or hard of hearing; and,
- have a primary medical diagnosis in which reading problems tend to occur as a secondary symptom.

Increasing Poverty and Linguistic Diversity in the United States

Research conducted by Lyon (1996) over 16 years ago, indicated that as many as one in five children struggled to learn to read, with the consequences extending beyond childhood into

adult life. Taking into account the factors that place children at risk for reading difficulties, the current increase in poverty statistics, and the increasing linguistic diversity of the U.S. population, the National Center for Children in Poverty (Addy & Wright, 2012), indicates that the number of children struggling to learn to read exceeds the number cited by Lyon (1996).

Children from low-income families. According to the National Center for Education Statistics (2001), disadvantaged children were three times more likely to score in the bottom quartile on reading, math, and general knowledge assessments at school entry than their more advantaged peers. These gaps were most pronounced between children from low socioeconomic backgrounds and children of middle and upper income families. Klein and Knitzer (2007) reported more recent, but very similar data. Before entering kindergarten, the average cognitive scores of preschool-aged children in the highest socioeconomic group are 60 percent above the average cognitive scores of children in the lowest socioeconomic group. At four years of age, children who live below the poverty line are 18 months below what is normal for their age group's cognitive development; by age 10 that gap is still present. For children living in the poorest families, the gap is even wider (Klein & Knitzer, 2007, p. 8).

This disparity in early literacy experiences is a key cause of the gap between children of families with low-incomes and their more advantaged peers (Lee & Burkam, 2002). Statistics provided in 2007 by the National Center on Childhood Poverty (NCCP) indicate that the percentage of children living in families with low-incomes had begun to increase beginning in the year 2000, after a 10-year decline (Stebbins & Knitzer, 2007). The most current NCCP (2012) report of the 2010 statistical data indicates that the proportion of children living in families with low-incomes has continued to rise. The percentage of children living in families with low-incomes (i.e., both poor and near poor) has increased from 40% in 2005 to 44% in

2010. During this time period, the overall number of children of all ages increased by about two percent, while the number of children who were living in families with poor or low-incomes increased by 11% and 17%, respectively. Further, while children under the age of six represented 33% of the population in 2010, this age group was disproportionately living in families with low incomes. Forty-eight percent of the children under three years of age, or 5.7 million children, lived in families with low-incomes, and 48 percent of children ages three through five, or 5.8 million children, lived in families with low-incomes.

Children in non-English speaking families. In view of the factors that place children at risk for reading difficulties, it is important to note that children from families for who English may not be their first language, is also increasing. For example, according to a 2010 census brief, the Hispanic population in the United States increased 43% from April 1, 2001 to April 1, 2010 (Ennis, Ríos-Vargas, & Albert, 2011). Poverty data provided by the National Poverty Center (n.d.) revealed the following facts that described how poverty differs across subgroups.

1. The poverty rate for all persons masks considerable variation between racial/ethnic subgroups. Poverty rates for blacks and Hispanics greatly exceed the national average. In 2010, 27.4% of blacks and 26.6% of Hispanics were poor, compared to 9.9% of non-Hispanic whites and 12.1 percent of Asians.
2. Poverty rates are highest for families headed by single women, particularly if they are black or Hispanic. In 2010, 31.6% of households headed by single women were poor, while 15.8% of households headed by single men and 6.2% of married couple households lived in poverty.
3. There are also differences between native-born and foreign-born residents. In 2010, 19.9% of foreign-born residents lived in poverty, compared to 14.4% of residents born in the

United States. Foreign-born, non-citizens had an even higher incidence of poverty, at a rate of 26.7%.

Children Who Experience Reading Difficulties Related to Disabilities

Young children with special needs are also at risk for reading difficulties. As noted earlier in this chapter, among the identified factors that place young children at risk for reading difficulties (Snow, Burns, & Griffin, 1998; Strickland & Riley-Ayers, 2006) and disability related factors were identified. An article by Justice and Kaderavek (2002) presented several techniques for structuring shared storybook reading interactions to promote emergent literacy development for young children with disabilities. These authors discussed research that has reported that children with disabilities tend to acquire emergent literacy skills at a rate slower than their same-age peers and that “delayed emergent literacy typically includes all key areas of emergent literacy, including print awareness, phonological awareness, alphabet knowledge, and metalinguistic awareness” (p.9). The remainder of this section offers a brief discussion of several of the disability categories most likely to experience education by a general early childhood special educator or early childhood educator (i.e., not a specialist such as a deaf educator or teacher of the visually impaired).

Children with intellectual and developmental disabilities. Children who experience intellectual and developmental disabilities, particularly when their disabilities are considered severe, are often not expected to read (Mirenda, 2003). These children clearly present additional challenges associated with the acquisition of literacy skills. However, the acquisition of the literacy skills and the ability to read can be directly associated with one’s quality of life and self-determination (Wehmeyer & Schalock, 2001) and are increasingly viewed as educational skills that must be addressed. Research investigations have reported successful

outcomes when investigating strategies for addressing the acquisition of literacy skills for this very broad group of children and youth (cf. Otaiba & Hosp 2004; Erickson, Koppenhaver, Yoder, & Nance, 1997; Kennedy & Flynn, 2003; Koppenhaver & Erickson. 2003)

Children with learning disabilities. Statistics shared in a publication by the National Center for Learning Disabilities, *The State of Learning Disabilities: Facts, Trends and Indicators* (Cortiella, 2011) reported that two and one-half million American public school students were identified with learning disabilities in 2009, which is approximately 5% of the total public school enrollment. These students comprise 42% of the 5.9 million school-age children with various disabilities who qualify for special education services. Of the school age students identified as having a learning disability (LD), 45% have reading skill deficits and 44% have math skill deficits and, “on average, students with LD are 3.4 years behind their enrolled grade level in reading and 3.2 years behind in math” (p. 15).

Interestingly, students who are classified as Hispanic and students who are classified as black are over-represented in the LD population in schools. Statistics from a 2005 survey conducted by the U.S. Census Bureau, *U.S. Survey of Income and Program Participation* (SIPP) and included in the National Center for Learning Disabilities publication, *The State of Learning Disabilities* (2011) indicated, “people living in poverty are more likely to report having learning disabilities than the rest of the population. Families below the poverty line reported that 4.1% of their children (ages 6-17) have learning disabilities. For families that were not poor, that figure was 2.7% (p. 8).”

Children with speech and language disorders. The results of a study conducted by Bishop and Adams, (1990) indicated that literacy acquisition is compromised if a child’s speech production is not intelligible by 5.5 years of age, particularly if syntactic and semantic

difficulties are present (Bishop & Adams, 1990). Persistent, mild speech production difficulties that continue beyond the age of 6 years are also associated with difficulty in the acquisition of literacy skills (Nathan, Stackhouse, Goulandris, & Snowling, 2004).

In conclusion, early intervention programs as well as preschool or pre-kindergarten programs that provide educational experiences for young children who are at risk for educational difficulties are crucial in narrowing the literacy gaps at school entry. Children who enter kindergarten with limited early literacy skills become increasingly less able to benefit from instruction over time (Stanovich, 1986), and increasingly intensive intervention is needed as these children age (Justice, Mashburn, Hamre, and Pianta, 2008).

Value of Reading Aloud to Young Children

Nearly three decades ago, a report written for The National Commission on Reading stated that the single most important predictor of children's eventual success reading is that they were regularly read aloud to early in life (Anderson, Hiebert, Scott, & Wilkinson, 1985). The value of reading aloud to children continues to be well documented in the research literature (Elley, 1989; Snow, Burns, & Griffin, 1998; van Kleeck, Stahl, & Bauer, 2003; Whitehurst, Arnold, Epstein, Angell, Smith, & Fischell, 1994).

More specifically, reading books to young children aloud that involves interactions or dialogue with the child or children, is often referred to as shared book reading, or interactive shared book reading. This way of reading to young children has been shown to facilitate growth in their early literacy concepts, and includes improvement in areas such as print awareness, vocabulary, and sentence structure (Hargrave & Sénéchal, 2000; Whitehurst et al., 1994). Moreover, the adult-child interactions that take place during shared book reading further enhance the child's interest in and enjoyment of books and facilitate the child's language development

(Snow et al., 1998).

The positive effects of reading aloud on children's language and early literacy skills continue to gain attention among early childhood practitioners and researchers (Duursma, Augustyn, & Zuckerman, 2008). Given this growing body of evidence, the provision of high quality shared reading experiences during which the adult reader employs specific evidence-based book reading strategies is essential in early childhood educational and child care settings. It is imperative that the adults in early childhood settings have knowledge about and competence in using the techniques and strategies that will offer the most educational experiences, including effective book reading experiences for the young children in their care (Klein & Knitzer, 2007; Pianta, Mashburn, Downer, Hamre & Justice, 2008; Zevenbergen & Whitehurst, 2003).

Need for Explicit Training on Early Literacy Skills

Research has shown that children in early childhood programs can benefit when their teachers have received explicit training on how to implement specific early literacy instruction. For example, in a recent study on the quality of language and literacy instruction in preschool classrooms serving at-risk children, Justice, Mashburn, Hamre, and Pianta (2008), found that few teachers deliver high quality instruction, even when using a specific language and literacy curriculum. Podhajski and Nathan (2005) also found that when early childhood teachers were trained in how to enrich early literacy skills, the children showed a greater increase in these skills than the children who attended a center in which their teachers had not received the training.

Unfortunately, as noted by Hsieh, Hemmeter, McCollum, and Ostrosky (2009), many early childhood educators receive training for specific early literacy skills for the first time via professional development opportunities. Hence, attention to the means of delivering quality professional development experiences related to early literacy is critically important for early

childhood teachers as well as for the teaching assistants and the paraeducators who also have instructional roles in these classrooms (Ghere & York-Barr, 2007; Likins, 2002).

Professional Development for Early Childhood Paraeducators

The rising expectations for educational competencies coupled with an expanding number of early childhood programs have led to a major crisis in staffing, both in terms of the number of early childhood teachers and in the quality of their preparation. This situation has enhanced the need for quality professional development for early childhood paraeducators and early childhood classroom assistants (Ghere & York-Barr, 2007; Likins, 2002).

The roles and responsibilities of paraeducators, often referred to as paraprofessionals, have changed over the past thirty years when they were initially introduced in classrooms as teacher aides, and mainly performed clerical duties (Ghere & York-Barr, 2003; Likins, 2002; Pickett, 2008; Wagner, 2003). Specifically, paraeducator roles have shifted dramatically towards the provision of instructional support, thus a significant need exists for training in the instructional tasks that paraeducators are currently expected to perform under the supervision of a licensed teacher (Daniels, & McBride, 2001; Likins, 2002; & Wagner, 2003). As stated by Marilyn Likins (2002) in an article discussing the effective training of paraeducators:

“With the reauthorization of IDEA 97, appropriate training, skill development and supervision of paraprofessionals and teaching assistants has become a necessity, not an option, for states and school districts. Provisions in the No Child Left Behind Act (NCLB) of 2001 applied further pressure on states by establishing employment criteria for all paraprofessionals working in positions or school-wide programs funded by Title I.” (pp. 6-7.)

Purpose of the Study

The purpose of this study was to evaluate the impact of a professional development experience, which included a computer-delivered interactive lesson on the instructional strategies employed by early childhood special education paraeducators during small group book reading sessions. The professional development experience served as an instructional intervention package that employed a computer-delivered interactive lesson on dialogic reading, print referencing, and affective interactions for book reading to young children that was provided to the paraeducators between baseline and invention phases of the study. The intervention phase also provided the paraeducators access to CDs with videos to each of their book reading sessions and occasional criterion based feedback via e-mail.

The impact of the professional development intervention on the engagement of the children in the book reading sessions was also of interest. Additionally, because the paraeducators in this study were in classrooms led by early childhood special educators who held master's degrees, this study sought to determine the degree to which the paraeducators may be modeling good book reading practices as well as using specific strategies associated with dialogic reading and print referencing prior to the intervention.

Another purpose of this study was to partially replicate components of the Dennis (2010) study on the effects of training that employed a computer-delivered interactive lesson and coaching on effective book reading practices for young children on community preschool teachers' use of early literacy strategies. Unlike the participants in the Dennis (2010) study who were early childhood lead teachers in community programs, this study's participants were paraeducators in public school inclusive early childhood special education classrooms. Dennis's recommendations for procedural changes were, in part, addressed. Of particular interest to the

present study was the extent to which the modified computer-delivered interactive lesson increased the participants' use of book reading strategies along with access to videos of their session and minimal e-mail feedback by the investigator.

Research Questions

The following research questions were posed for this study:

1. Does the ECSE paraeducators' use of the computer-delivered multi-media instructional program, revised from the program employed in the Dennis (2010) study, result in an increase in their assessed knowledge of the book reading practices and strategies included in the program?
2. What dialogic reading and print referencing strategies do Early Childhood Special Education (ECSE) paraeducators, with limited or no formal preparation in early literacy instruction, naturally employ during book reading?
3. Does the intervention package (comprised of the computer-delivered multi-media instructional package, daily opportunities to view their book reading sessions on a CD, and criteria based e-mail feedback) result in an increase of the paraeducators' use of dialogic and print referencing strategies?
4. What affective interaction qualities and behaviors do ECSE paraeducators, with limited or no formal preparation in early literacy instruction, naturally employ when reading aloud to preschool children, as measured by a rating index for assessing the overall quality of the book reading interactions?
5. Does the intervention package result in the paraeducators improved use of affective interactional qualities and behaviors during the book reading sessions as assessed qualitatively by a rating scale?

6. Does the children's engagement increase during the book reading with the implementation of the intervention?
7. Do the ECSE paraeducators continue implementing the dialogic reading, print referencing strategies, and incorporating positive book reading interactions into the book reading sessions after all components of the intervention package have been terminated?

Organization of the Dissertation

This dissertation is organized into six chapters. Chapter 1 provides an introduction to the study topic and sets forth the research questions that guided the study. Chapter 2 provides a review of the literature of relevance to this study. Chapter 3 describes the study methods. Chapter 4 provides a comparison of the procedures employed in the Dennis (2010) and the present study. Chapter 5 reviews the findings gleaned from the analysis of the data. Chapter 6 summarizes and discusses the major findings, sets forth the study limitations, and offers recommendations for future research. Appendices with relevant study documentation are also provided.

Chapter 2

Literature Review

This chapter reviews literature in areas foundational to an understanding of this study's purpose, methods, and results. These include the following: (a) an introduction to components of early literacy, (b) a brief overview of the rationale for book reading that involves interactions with young children (c) an overview of two types of early literacy strategies, namely dialogic reading and print referencing, (d) qualitative features of reading books to young children, (e) the role and training of paraeducators, and (f) the use of technology platforms to support professional development in early childhood education.

As noted in Chapter 1, Justice and Kaderavek (2002) have explained that it is in the emergent literacy period that children gain important literacy prerequisites. These researchers have identified the important prerequisite skills that should be acquired during this period as an understanding of:

- the role of print as a communication device (print awareness),
- the sound structure of oral and written language (phonological awareness),
- the nature of letters and other print symbols (alphabet knowledge), and
- the vocabulary used to describe literacy constructs (e.g., word, spell, read; metalinguistic awareness) (p. 8).

Preschoolers who acquire adequate knowledge in the above areas most often emerge into better readers and writers than preschoolers who do not acquire adequate knowledge in these areas (Stuart, 1995). One of the best ways to implement the strategies that support these areas is through reading books aloud.

Qualitative Features of Book Reading

Research indicates that young children who enjoy being read aloud to develop early reading skills more quickly than those who do not; therefore, it is important to begin reading books aloud to children and exposing them to a wide variety of literacy materials during their preschool years (Fritjers, Barron, & Brunello, 2000). Some experts recommend that adults should begin reading aloud to children as soon as they are born. A publication prepared by The Early Childhood-Head Start Task Force titled *Teaching Our Youngest: A Guide for Preschool Teachers and Childcare and Family Providers*, provides excellent suggestions for reading aloud to young children (2002).

1. Oral book reading should be an enjoyable experience for the child.
2. Children should be read aloud to several times throughout the day.
3. Children should learn important early literacy skills by the strategies used during the book reading.
4. The children should be asked questions about the book while reading aloud to them.
5. Engage in a conversation with children about the book being read.
6. Select and read many different kinds of books aloud to children.
7. Choose books that help children gain knowledge about the world around them.
8. Reread the children's favorite books.

In order to provide meaningful and enriching shared book reading experiences with young children, it is important to consider the following factors: (a) the selection of books, (b) the seating arrangement of the adult and children, (c) the social context of the book reading experience, (d) the reading style of the adult, and (e) the adult-child conversations that occur during the book reading (Ezell & Justice, 2005).

Choosing Appropriate Books

In their book titled *Access for All: Closing the Gap for Children in Early Education*, Neuman, Greco, Celano, and Shue (2001) asserted that no tool is as vital to young children's literacy development as the book that is to be read aloud. According to these authors, the American Library Association recommends that about 300 titles of various book formats (i.e., hardcover, board, big books, paperback) should be included in preschool classroom libraries.

In her book, *Young Children and Picture Books*, Mary Renck Jalongo (2004) noted that the books typically used in early childhood settings are considered picture books, which, she explained are a genre of children's literature in which the pictures stand alone, or dominate the text, or the illustrations and the text are equally important. In addressing the value of high quality picture books, she stated:

“Teachers who share quality picture books with young children are promoting literacy in the fullest sense of the word. For this reason, exemplary early childhood educators have always made high quality children's picture books a central part of their curriculum.”

(p.1)

Picture Book Characteristics

Drawing from the literature on the characteristics of picture books for young children Jalongo (2004) summarized the characteristics of picture books as books that:

- present the story line in a brief and straightforward manner;
- contain a limited number of concepts that children can comprehend;
- provide text that is written in a direct, simple style;
- provide illustrations that complement the text (i.e. if text is used);
- most often average between 200 and 300 words; and,

- are typically about 32 pages in length.

Adults have a wide variety of picture books from which to select for reading aloud to young children. The kinds of picture books recommended for reading aloud with young children (“Reading is Fundamental” Choosing Books, 2011) include:

- alphabet and counting books;
- wordless books;
- pattern books;
- concept books;
- information books;
- traditional stories;
- books with finger-plays, poems, and songs; and,
- books with rhyme and repetition.

Matching children’s characteristics, skills and interests. When making book selections it is important to consider the ages and developmental levels and ethnicity of the children. It is also important to consider books that will support the child’s emerging skills and developing interests. Young children are often interested in adventure stories, stories about animals, and stories that describe a familiar experience, such as going to school or taking a trip to the grocery store. Given the limited background knowledge and language exposure that many children who are at-risk for developing reading difficulties possess, it is important to provide book sharing opportunities around a variety of topics and diverse perspectives, so that the interactive experience between the adult and child can help build the child’s vocabulary and expand his or her background knowledge (Ezell & Justice, 2005; Lonigan & Whitehurst, 1998).

There are a number of features in storybooks and informational books that differ.

Research has indicated that these differing features can play a role in children's language and literacy skill development (Moschovaki & Meadows, 2005). For example, in a comparison study that explored parent and child extra-textual talk during shared book reading with storybooks and informational books, Price, van Kleeck, and Huberty (2009) found that the interactive talk during the informational book sharing was longer in duration and higher in occurrence by both parents and children. Additionally, some children's books include various elements of diversity (Dollins, 2008). For example, children from diverse backgrounds are shown in one of the illustrations in the popular children's book written by Bill Martin, "*Brown Bear, Brown Bear, What Do You See?*"

Supporting early literacy skills. To facilitate interactions with print, early literacy experts suggest that the physical characteristics of the book, such as the page count, binding, and size of the print, should be considered when selecting books for shared book reading (Ezell & Justice, 2005). For instance, to help children learn more about color concepts and the related text for colors, the book titled *Red Bear* by Bodel Rikys (1991), presents one color word in bold print on each page. Similarly, the children's book *Freight Train*, by Donald Crews (1978), has only a few words printed on each page. At times, illustrators may use print as a way of labeling an illustration, or depict what a character is saying in a speech bubble.

It is equally important to consider the length and vocabulary level of the story when selecting books to read aloud to young children. New concepts and novel vocabulary words can be discussed prior to, during, or after the reading of the book.

Location of the Book Reading Experience

The location in which the reading of the book occurs should be warm, inviting, and child-friendly (Ezell & Justice, 2005). In individual shared book reading situations it is helpful

for the adult and the child to be comfortably seated in such a way so that both of them can view and handle the book together. While reading a book aloud to a small group of children it is important for the adult to position the book so that all the children involved in the book sharing activity can view the text and the illustrations in the book. Being able to see the illustrations of the book facilitates the children's ability to join in the book reading conversations.

Adult Book Reading Behaviors

The role of the adult is essential in scaffolding the child's early reading endeavors and providing a positive, enjoyable book sharing experience (Riley, 1996). Thus, it is important for adults to consider the way they read aloud to children by being aware of their reading behaviors. For example, the adults' reading pace, intonation, and expression can have an impact on how the child perceives the text (Dollins, 2008).

Justice & Kadarevak (2002) emphasized the value of the adult becoming familiar with a book prior to reading it aloud. While their suggestions for shared book reading address a single child, the same guidelines apply to reading to small groups of children. Specifically, these researchers suggested the following behaviors during shared book reading:

- Encourage the child to choose the reading location.
- Read the book with enthusiasm.
- Use a comfortable reading pace.
- Point out pictures and words in the story.
- Pause occasionally while reading and wait for the child to comment.
- Provide multiple opportunities for the child to handle the book (i.e., turning the pages).
- Direct the child's attention to specific words and illustrations.
- Follow the child's interests and make the experience enjoyable.

- Ask the child to “read” the book.

A significant feature related to the adult’s reading style is that the adult ensures the active participation of the child (Dickinson & Smith, 1994). As previously discussed, the child’s level of interest and time spent being actively engaged in the book reading opportunities have been found to have a significant positive correlation with reading achievement and predictive of later language ability (Fletcher & Reese, 2005).

Interactive Shared Book Reading

This section discusses reading aloud to young children and engaging the children in ongoing interactions about the book. Terminology in articles that discuss the benefits of ongoing dialogue in storybook reading can be confusing. It is an interactive process that involves verbal interchange between an adult and the child about aspects of the story and terms may or may not be referring to a specific set of prescribed procedures. It is important to note that the terms “shared book reading,” “shared storybook reading,” “interactive reading,” “reading aloud,” “book sharing,” and “adult-child storybook reading” are often used interchangeably. The term “interactive shared book reading” will be used in this discussion to refer to using techniques to engage in ongoing, positive interactions about a story when reading aloud to young children.

The *What Works Clearinghouse* is an online resource of the Institute of Educational Sciences, which is the research arm of the U.S. Department of Education. The *What Works Clearinghouse* provides educators with systematic reviews of *programs, products, practices, and policies* in education. It employs rigorous and explicit methods to identify, select, and critically appraise the relevant research on a specific topic, and to extract and analyze data from the studies. Hence, educators are provided with information needed to identify evidenced-based procedures that pertain to the teaching objectives. The report on the *Clearinghouse’s* review of

interactive shared book reading, last updated in January 2007, defines this procedure as follows: *Interactive Shared Book Reading* is a general practice that adults may use when reading with children and is intended to enhance young children's language and literacy skills. Typically, *Interactive Shared Book Reading* involves an adult reading a book to a child or a small group of children and uses a variety of techniques to engage the children in the text (*What Works Clearinghouse*, 2007, p.1).

Benefits of Interactive Shared Book Reading

In a discussion of language interventions in naturalistic environments, Norris and Hoffman (1990) asserted that interactive shared book reading provides an ideal situation for children to be able to initiate conversations and for adults to respond to their communication attempts. The joint position statement of the International Reading Association (IRA) and the National Association for the Education of Young Children (NAEYC; 1998) on early literacy includes the statement: “It is the talk that surrounds the storybook reading that gives it power” (NAEYC; 1998, p. 2). A brief discussion of a number of the benefits of interactive shared book reading follows.

Strengthens relationships and fosters a positive emotional climate. Studies have shown that the emotional quality of the interactions and discussions that take place during the reading of the book are important. By reading and talking together, the adult and child can share feelings, which help create trust and closeness, thus strengthening their relationship and emotional bond (Bus, 2001; Reese & Cox, 1999; Snow 1994). Justice and Kaderavek (2002) refer to the process of interacting with a child or children during book reading as an engaging, social interaction that is facilitated by a positive, emotional climate and supported by communication.

Facilitates the development of literacy skills. Research has long supported the view that by participating in book reading interactions, young children also learn a variety of literacy skills that prepare them for learning to read (Justice & Ezell, 2002; Justice & Kadarevek, 2003; Justice, Meier, & Walpole, 2005; Ezell & Justice, 2005; Kadarevek & Justice, 2005). For example, the adult-child conversations and interactions that occur during book reading also enhance the conversational and language skills, expand the vocabulary of young children, and heighten their awareness of the functions of print, print recognition, and knowledge of the alphabet. Story comprehension is also facilitated.

Facilitates a love of reading. Baker and Scher (2002) found that parental attitudes toward reading predicated a higher level of motivation for their children's enjoyment and literacy value. That is, children who have been read aloud to are more likely to develop a love of reading. Consistent with that of others, Justice & Ezell (2005) also found that the affective quality of parental storybook reading interactions had a strong correlation with a child's motivation towards reading when they entered school.

Theoretical Underpinnings of Book Reading Interactions with Young Children

In terms of early language and literacy development, the instructional strategies associated with book reading with young children that is interactive are primarily influenced by Vygotsky's social constructivist theory, which views learning as a social activity in which interpersonal skills are the basis for new conceptual understandings (Vygotsky, 1978). The Vygotskian theoretical framework places a great deal of value on adult-child interactions and is often highlighted in discussions and rationales of book sharing research (Pelligrini, Perlmutter, Galda, & Broday, 1990; Snow et al., 1998; Whitehurst et al., 1994). Thus, one way children learn about literacy is by interacting with significant others in their lives.

The interactive nature of book reading also reflects Vygotsky's work on children's "zone of proximal development," which maintains that a more competent individual (e.g., parent, teacher, older peer) maximizes the child's learning through interactive experiences until the child internalizes the information. The "zone" is the gap between what a child understands or knows how to do independently and that which he or she understands or can do if given support from someone who has mastered a particular concept or task. To aim instruction at the child's zone of proximal development, or his or her learning potential, the teacher needs to not only know what the child's developmental level is at the present time, but also what skills he or she needs to acquire next.

To illustrate this thought, Collins (2006) noted that the interactive adult-child dialogue that took place during shared book reading helped the children engage in books at a level beyond what they might have been able to do on their own. In other words, the children were able to extract meaning from the context of their interactions with a knowledgeable person, which enabled them to internalize the information that was presented during the book reading conversations (Ezell & Justice, 2005). The adult provided the child with the framework for his or her own thinking by engaging the child in conversations about what they were reading.

Trends in Research Pertaining to Interactive Shared Reading Activities

In a chapter focusing on emergent literacy perspectives that appeared in the second volume of the *Handbook of Reading Research*, Sulzby and Teale (1991) pointed out that up to the early 1990s, research on shared reading had received more attention than any other aspect of emergent literacy in the seminal literature, and noted that this research had historically evolved in at least four significant ways. First, in an effort to analyze what procedural variables occur during the shared reading activity as well as to gain clues about the causal and

correlational relationships among the variables, methodologies in studies had become more descriptive. Second, much of the early book reading research focused on the individual instance of a parent-child book reading experience that typically occurred in the home). Third, shared reading studies conducted in educational settings considered the similarities and differences between the child's home and classroom. Fourth, and finally, the research focus had begun to expand upon the kinds of adult-child discourse that occurred during the book reading and to examine how shared reading had contributed to other aspects of literacy, such as the child's writing, intellectual potential, and emotional development.

Two Evidence-Based Interactive Shared Book Reading Practices:

Dialogic Reading and Print Referencing

In a review and discussion of evidence-based interventions that promote emergent literacy skills, Justice and Pullen (2003) noted, "recent years have seen a remarkable increase in studies examining the efficacy and effectiveness of various emergent literacy intervention approaches" (p. 99). Two evidence-based approaches, dialogic reading and print referencing, and the strategies involved with their implementation, are reviewed in relation to adult-child interactive shared storybook reading.

Dialogic Reading – An Interactive Shared Book Reading Practice

Dialogic reading is a recommended practice of *What Works Clearinghouse* and the intervention report (2007). This report describes dialogic reading as "an interactive shared picture book reading practice designed to enhance young children's language and literacy skills" (*What Works Clearinghouse*, 2007, p.1). The adult and the child switch roles during book reading so that the child learns to become the storyteller with the assistance of the adult, who functions as an active listener and questioner.

Dr. Grover Whitehurst, at the State University of New York at Stony Brook, is credited with developing the concepts and procedures associated with dialogic reading (i.e., engaging in dialogue while reading a book to a child or children) during the 1980s. Whitehurst and his colleagues published the first research study that investigated the effects of a dialogic reading intervention in 1988 (Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1988). In a discussion of child development and emergent literacy, Whitehurst and Lonigan (1998) described dialogic reading as follows:

Dialogic reading involves several changes in the way adults typically read books to children. Central to these changes is a shift in roles. During typical shared book reading, the adult reads a book aloud and the child listens, but in dialogic reading the child learns to become the storyteller. The adult assumes the role of an active listener by asking questions, adding information, and prompting the child to increase the sophistication of descriptions of the material in the picture book. A child's responses to the book are encouraged through praise and repetition and more sophisticated responses are encouraged by expansions of the child's utterances and by more challenging questions from the adult reading partner (Whitehurst & Lonigan, 1998, pp. 859-860).

This method of reading involves: (a) sustaining and encouraging the child's or children's participation during oral storybook reading, (b) the adult reader asking questions and providing feedback to the children on their comments and questions, (c) the adult adapting their reading style to ensure the dialogic strategies are implemented, and (d) making book reading a fun experience (Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1994).

Dialogic reading procedures and strategies: Repeated book reading. The following recommendations for dialogic reading procedures and strategies have been offered by Justice and

Kadaverek (2005): (a) it is best to read the book aloud to an individual child or with a small group of children, (b) the read aloud should be brief and generally last about 10 to 15 minutes, and (c) book reading should occur several times a week. Repeated book readings are a defining characteristic of dialogic reading (Hargrave & Sénéchal, 2000; Justice & Ezell, 2002; Kadaverek & Justice (2005). Young children love to listen to the same book read aloud again and again, and as noted in the research, how often a child is read aloud to is related to subsequent gains in vocabulary (Kaderavek & Justice, 2005).

Early childhood education classroom teachers frequently read children's favorite stories aloud many times and vary the focus of the book reading experiences depending on the needs of the children. Conversations that focus around subsequent readings of familiar books allow children to join in the book reading process. Subsequent book readings enable children to join in the shared book reading process by repeating familiar words and phrases, which helps to reinforce book and print-related concepts. Additionally, reading stories repeatedly helps children extend their prior knowledge and link new learning to previous knowledge.

Dialogic reading procedures and strategies: Specific engagement strategies. Dialogic reading includes nine strategies that adults implement to engage young children while reading a book aloud. These strategies are represented by two acronyms: *PEER* and *CROWD*. The basic reading technique that is fundamental to dialogic reading is *PEER*, which sets forth the sequence of strategies or techniques for a short interaction between the child and the adult (Whitehurst et al., 1999; Zevenbergen, & Whitehurst, 2003). The *PEER* strategies help the adult remember to embed comments and questions those support interactions during the book reading and are viewed as the primary set of strategies for reading aloud to 2- to 3-year-olds. The letters in *PEER* stand for the following strategies:

- Prompting the child to say something about the book,
- Evaluating the child's response,
- Expanding the child's response by rephrasing and adding information to it, and
- Repeating the prompt to make sure the child has learned from the expansion.

To illustrate the **PEER** sequence, imagine that the adult and the child are looking at a page in a book with a picture of a fish on it. While pointing to the fish, the adult says (i.e., the prompt), "What is this?" The child says, "*Fish*," and the adult responds to the child by saying (i.e., the evaluation), "That's right . . ." and continues responding to the child by saying, (i.e., the expansion), "It's a *yellow fish*." Finally, while pointing to the picture of the fish once more, the adult says to the child (i.e., the repetition), "Can you tell me what this is again?"

CROWD is generally employed when reading to 4- to 5-year-olds and is considered to be more challenging than the use of **PEER** (Zevenbergen & Whitehurst, 2003). **CROWD** represents five different verbal prompts for asking five types of questions. The letters in the **CROWD** acronym stand for the following prompts:

- Completion prompts,
- Recall prompts,
- Open-ended prompts,
- Wh-word prompts, and
- Distancing prompts.

A brief explanation of each prompt follows.

Completion prompts. Completion prompts provide children with information about the structure of language and are often used for books with rhymes or repetitive phrases (Whitehurst et al., 1999). To illustrate this strategy, the adult might say to the child, "One, two,

buckle my . . .” and pause for the child to complete the phrase with the word, “*shoe*.”

Recall prompts. Recall prompts are questions that require the child to remember aspects of the book and what happened in a story. While these questions can be asked at any point, they are most often used at the end of the book that has just been read aloud or just prior to reading a book that has been read before (i.e., second or third reading). Recall prompts help children to understand the plot and sequence of the story. For instance, after reading the well-known children’s book, *The Hungry Caterpillar* (Carle, 1969), the adult might ask the child, “What did the caterpillar turn into?”

Open-ended prompts. Open-ended prompts help children attend to details and share their thoughts and ideas. Asking children open-ended questions can be an effective way for children to learn more about the back and forth flow of conversation. Prompts, or questions that are open-ended, work well with books that have rich, detailed illustrations. One example of an open-ended prompt is to show the children a picture in the book and ask them to explain what is happening in the picture. Open-ended questions invite children to clarify their ideas, solve problems, and make predictions. Examples of open-ended prompts are: “What do you think will happen next in the story?” “Can you tell me why Peter is dragging a stick in the snow?” “Why did think the grouchy ladybug decide not to fight the friendly ladybug?”

It is helpful for adults to become familiar with a variety of ways to phrase open-ended questions. Common examples include:

- I wonder what would happen if . . .?
- What do you think about . . .?
- Can you tell me more about . . .?
- What would you do if . . .?

- How do you know . . . ?

Wh-prompts. Wh-prompts begin with interrogative words such as who, what, where, when, and why. Similar to open-ended prompts, wh- prompts focus on the pictures in books. For example, the adult might point to an object in an illustration on the page and say, "What's the name of this?" Wh-word prompts, or questions that begin with wh- words, help children expand their vocabulary. Other examples include:

- "Where are the butterfly's antennae?"
- "What colors do you see in the quilt?"
- "Who is Corduroy with at the Laundromat?"

Distancing prompts. Distancing prompts encourage children to connect the information in the book to their own lives and help to increase their conversational skills. For example, the adult might encourage the child to recall a recent visit to the zoo by asking, "Do you remember when we went to the zoo last week?" The adult could point out an illustration of the animals in the book and ask, "Which of these animals did we see at the zoo?" Whitehurst et al. (1999) suggested that the use of recall and distancing prompts should be somewhat limited with young children as these skills involve higher-order thinking processes.

Dialogic reading research. Whitehurst et al. (1999) demonstrated that dialogic reading can be effectively taught to adults through face-to-face instruction or videotaped training and reinforced by modeling, role-playing, follow-up discussions, and direct feedback. The results of research studies directed to the investigation of the use dialogic reading instruction, by parents as well as by teachers, has been found to positively impact children's oral language skills and language development as measured by both standardized language assessments and more naturalistic measures, such as spontaneous language expression during

book reading (Arnold, Lonigan, Crain-Thoreson & Dale, 1999; Hargrave & Sénéchal, 2000; Justice & Ezell, 2002; Justice & Pullen, (2003); Whitehurst, & Epstein, 1994; Whitehurst et al., 1988; Whitehurst, Zevenbergen, Crone, Schultz, Velting, & Fischel, 1999).

The *What Works Clearinghouse* intervention report on dialogic reading (2006) was based on a research synthesis of four studies that met the evidence standards and two studies that met the evidence standards with reservation. Positive effects were found for oral language, and potentially positive effects were found on print knowledge. No discernible effects were identified for phonological processing, and potentially positive effects were reported for early reading and writing. Dialogic reading is a recommended practice of the *What Works Clearinghouse*. Finally, considered to be a low or no-cost instructional activity needing minimal preparation or training, dialogic reading can be effectively taught to adults via direct instruction or videotaped training sessions (Arnold, Lonigan, Whitehurst, & Epstein, 1994; Whitehurst et al., 1999).

Print Referencing

Print referencing, as an instructional practice, is designed to increase what young children know about print. “Print knowledge is a multidimensional construct that is comprised of knowledge of print and book organization, print meaning, letters, and words” (Justice & Piasta, 2011, p.206). Most often, explicit print referencing strategies are identified as verbal, which pertains to comments and questions about print; and nonverbal, which pertains to tracking the print and pointing to the print (Justice & Piasta, 2011).

Justice and Ezell (2004) discussed the importance of bringing children’s attention to the print in the book and emphasized that, “with increased print interest, children come to view written language as an object distinctly worthy of attention” (Justice & Ezell, 2004, p. 186).

These researchers recommended that print referencing should be used on a regular basis when reading aloud, or at least one time during the book reading session.

Research has indicated that the adult-child conversations that take place during book reading may heighten children's awareness about the functions of print, while also facilitating comprehension (Sonnenschein & Munsterman, 2002). For example, in one of the earlier studies that addressed print awareness in young children within a preschool rather than a home setting, Justice and Ezell (2002) evaluated the impact of participation in shared book reading sessions. A major focus of the study was on increasing print awareness for children enrolled in Head Start programs. These researchers found that children who participated in a "print focus" book reading intervention performed better than the control group on early literacy measures consisting of words in print, print recognition, and alphabet knowledge. Print knowledge was assessed with six non-standardized measures that assessed the children's:

1. letter orientation and discrimination,
2. print concepts,
3. print recognition,
4. words in print,
5. alphabet knowledge, and
6. literacy terms.

Justice and her colleagues conducted a large-scale study with a sample of 85 teachers and a random selection of 550 children in preschool programs prioritizing enrollment of children considered at-risk for reading difficulties (Justice et al., 2009). Teachers who received professional development on print referencing consistently increased the frequencies of their print referencing three to four times more per reading session than the teachers in the comparison

group who did not receive professional development. Data was collected for 30 weeks and the difference between the professional development group and the comparison group was maintained across the academic year. Additionally, this same degree of increase demonstrated by the teachers in the professional development group was consistent with those who were assigned to a high dosage sub-group (four reading sessions per week) and those assigned to a low dosage sub-group (two reading sessions per week). Interestingly, all of the teachers in the comparison group participated in four reading sessions per week. Further, the children who were read to by the teachers who received professional development on print referencing made significantly greater preschool gains in print knowledge than the children assigned to the teachers in the comparison group.

A follow-up study conducted by Piasta and her colleagues (2010) assessed in the same children who participated in the Justice et al. (2009) study during their kindergarten and first grade years. Piasta et al. (2010) found that the children who participated in the study with the group of teachers who had received professional development on print referencing had significantly higher scores on letter-word identification, spelling, and passage comprehension than the children who participated with the teachers in the comparison group (i.e., no professional development) through the end of their first grade.

To conclude the previous sections of this chapter that have reported and discussed research pertaining to book reading to young children that involves interacting with the children. It is important to emphasize a few points that were prominent in the reviewed literature. Research has shown that it is mainly through interactive dialogue during book reading that young children gain skills related to comprehension, print conventions, and vocabulary (Ezell & Justice, 2005; Hargrave & Sénéchal, 2000). Book reading that involves ongoing narrative discourse is a

time when adults can *share* the love of reading as well as teach key concepts and strategies that all children need to learn to become successful readers and writers.

Professional Development for Early Literacy Practices

There is a growing body of information about the critical importance of explicitly teaching early childhood educational personnel specific instructional strategies that can be utilized during shared book reading (Hargrave & Sénéchal, 2000). For example, in a relatively recent study that included 135 publically funded early childhood classrooms serving children identified as at risk for difficulties in school performance, Justice and her colleagues reported that very few of the teachers delivered high quality early literacy instruction, even though they were implementing a specific language and literacy curriculum (Justice, Mashburn, Hamre, & Pianta, 2008). More specifically these researchers found that the teachers in their study were implementing the required language and literacy curriculum with a high degree of procedural fidelity, but that did not meet the standards of quality early literacy instruction.

While substantial research has supported the effective utilization of instructional or training procedure and, therefore, feasibility of teaching adults dialogic reading strategies (cf. Crain-Thoreson & Dale, 1999; Hargrave & Sénéchal, 2000) and print referencing strategies (cf. Justice & Ezell, 2004) that can be used during book reading, many teachers enter the field of early care and education with widely disparate skills in the area of emergent literacy teaching. Thus, many may receive their first extensive exposure to emergent literacy through professional development (Hsieh, Hemmeter, McCollum, Ostrosky, 2009).

Professional Development Characteristics and Guidelines

Adult learning is primarily concerned with creating the conditions as well as the desire and the competency to transfer new tools and skills into daily practice (Chamberlin & Scot, 2002;

McKenzie, 2001). Ideally, professional development for teachers is designed to promote their use of approaches that are the most likely to result in desirable changes in teaching practice. In a recent discussion of professional development of early childhood education, Sheridan, Edwards, Marvin, and Knoche (2009) pointed out that the professional development literature tends to focus on the content that should be conveyed to young children as the focus of professional development efforts, rather than on the various processes that can be used to effectively guide early educators to implement effective and evidence-based practices that convey or engage children with content effectively.

Guidelines recommended for the design of high-quality professional development include a program that is: (a) sustained over time, (b) grounded in practice, (c) linked to curriculum and student outcomes, and (d) collaborative and interactive (National Staff Development Council, 2001). Unfortunately, the primary approach is the short, single presentation in-service workshops (Dickinson & Brady, 2006).

The *MyTeachingPartner* (MTP) is a web-based system of early childhood professional development resources that offers an example of an approach that has been effective. Research conducted about the effectiveness of the *MyTeachingPartner* system included 113 teachers in a state-funded pre-k program. This program includes many video exemplars and web-mediated consultation on specific dimensions of interactions with children for pre-kindergarten teachers (Pianta, Mashburn, Downer, Hamre, & Justice, 2008). It is based on the belief that effective teaching in early childhood education requires skillful combinations of explicit instruction, sensitive and warm interactions, responsive feedback, and verbal engagement/stimulation. Pianta and colleagues point to the research results that are supportive of these assumptions. Specifically, teachers assigned to receive on-line consultation and feedback targeted to their

interactions in the *MyTeachingPartner* along with the video clips showed significantly greater increases in independent ratings of the quality of interactions than did those only receiving access to the website with video clips. These researchers concluded that their study suggests promise in approaches that are heavily video-based, individualized (yet tied to common conceptual and assessment frameworks), and skill-focused, in which the target is teachers' delivery of instruction and provision of social and emotional supports (Pianta et al., 2008).

Professional Development Tools and Strategies

Video. Another technology-based tool of relevance to professional development is the use of videotapes and interactive video clips. Tapes of oneself (video records) and tapes of others demonstrating effective practice (instructional videos) that have interactive components have both been effectively used as part of professional development efforts.

Video records. When personnel tape their own practice, they are using a video record so can they view, reflect upon and discuss a videotape of their own practice as they are acquiring new educational new skills and strategies to be implemented in their classroom (Knight, 2012). Specifically, Knight and his colleagues noted that video is an easy and effective way for teachers to get the feedback they need to move forward as learners, whether they are working with coaches, on their own, or in teams. A quotation from their recent article titled, "You Can Learn a Lot by Watching: How Video Can be Used to Accelerate Professional Learning," sets forth the benefits of video recording and provides an excellent summary of the potential ways video recording can be effectively used for professional development.

Video recording provides a way for teachers to review and reflect on their teaching practices. Teachers can get a rich record of how students are performing or how they are teaching by setting up a camera in the classroom. For example, teachers can use video to

record such aspects of teaching as the level, type, or kind of questions they ask, how frequently they praise students compared to how frequently they criticize them, clarity of instruction, pacing, and animation. Teachers can watch the video to assess their facial expressions and other nonverbal communication, to see if they are ignoring some parts of the room, or to note if bias toward particular students or groups of students has crept into their practice (p. 20).

Instructional video clips. Using video that depicts instruction has shown considerable promise as a method for making practices more accessible for teachers (Dhonau & McAlpine, 2002; Kpanja, 2001). For example, research conducted by individuals who were part of the Vanderbilt Cognition and Technology Group have examined video-based anchored instruction, which involves the use of short video that illustrate the use for specific teaching strategies being employed within the natural context of the classroom (Glaser, Rieth, Kinzer, Colburn, & Peter, 1999; Rieth et al., 2003). The research results have consistently found it to be an effective learning strategy that can build on text-based information or, in some cases, bypass it.

Videotapes were developed to teach adults the dialogic reading technique (Whitehurst, 1991, 1994a, 1994b). Two videotapes, each 15-20 minutes long, were developed to teach parents the techniques for reading with 2- to 3-year-old children. Another 15-minute videotape was developed to teach parents the techniques for reading with 4- to 5-year-olds. Lastly, a 15-minute videotape was developed to instruct teachers of 4- to 5-year-old children in the techniques. A description offered by Zevenbergen and Whitehurst (n.d.) of the videotapes identified the following components: (a) explanation of the dialogic reading techniques, (b) models of adults and children reading together using the techniques, and (c) then "quizzes" presented to the viewer on the techniques just demonstrated. These quizzes take the form of presenting an incorrect use

of the technique and then questioning the viewer, "What could he/she have done instead?" The rationale for the development and use of the videotapes was based on the desire to increase the number of individuals who could use dialogic reading techniques with young children. This reasoning was determined on the assumption that it is usually less costly for individuals to be trained in a technique through a videotape than for them to receive instruction from a trainer.

Arnold, Lonigan, Whitehurst, & Epstein (1994) suggested that the modeling of adult-child reading interactions that were depicted in the videotape training held an advantage over direct training because the learners were able see the modeling of adult-child reading interactions. This explanation is in line with studies that demonstrate the importance of model similarity in skill acquisition (e.g., Bandura, 1977), and suggests that if parents or teachers can see other parents or teachers modeling the dialogic reading techniques, they are more likely to learn the skills. While Bandura (1977) supports the role of video tapes in professional development, it would allow parents or teachers the opportunity to directly view a model that could be provided by a home or job-embedded instructional coach. The instructional coach could implement the techniques in the learner's home or classroom as well as provide ongoing feedback and support. Interestingly, the results of the video-based training (Whitehurst et al., 1994b) and video-based training with instructor feedback (Heubner & Meltzoff, 2005) showed that pairing performance feedback with the video-based training as well as video-based training alone were both effective training modalities compared to no training.

Interactive video. Interactive video is a term that is most frequently used in the literature to describe the opportunity for learners to interact with the video media (i.e., stopping to read overlapping text, replaying segments). Interactivity occurs when the learners have the ability to control the video and monitor their own learning as opposed to the passive viewing of

instructional video in a class or on television (Wetzel, Radtke, & Stern, 1994). Newman and Scurry (2001) have noted that those who are involved in self-driven learning activities, such as activities that provided in an e-learning environment, learn more from an activity and remember the information longer than when they are passively sitting and listening.

Coaching. Instructional coaching is a job-embedded practice that focuses on improving teacher knowledge and increasing student outcomes that is guided by evidence-driven principles as well as requirements contained in the No Child Left Behind (NCLB) Act (Killion & Harrison, 2006). Coaching is one of the primary approaches recommended to achieve recommended guidelines for high-quality professional development programs (Walpole & Meyer, 2008).

This promising professional development feature is continuing to evolve (Poglinco, Bach, Hovde, Rosenblum, Saunders, & Supovitz, 2003; Steiner & Kowal, 2007) as a means of providing ongoing instructional techniques and support to beginning teachers within their classrooms (Pierce, Abraham, Rosenkoetter, Knapp-Philo, & Gail, 2008). Interestingly, the concept of instructional coaching has recently broadened to include other activities related to instruction such as co-planning, developing classroom materials, and discussing the impact of teacher behavior on student performance (Killion & Harrison, 2006).

An *instructional coach* is defined as someone whose primary professional responsibility is to bring evidence-based research practices into classrooms by working with adults rather than students (Killion & Harrison, 2006). Jim Knight, a researcher at the University of Kansas Center for Research on Learning, explains that an instructional coach is an individual who provides specific on-site instruction to teachers for the purpose of student learning (2007). Evidence to support coaching as a way to increase or enhance a teacher's understanding of teaching and learning is continuing to grow. Darling-Hammond and MeLaughlin (1996) suggested that

“effective professional development is . . . sustained, on-going, and intensive, supported by modeling, coaching, and collective problem solving around specific problems of practice” (p. 203). In the same vein, Garmston and Wellman (1999) reported that the process of coaching and providing direct instruction to teachers is a very powerful way to increase their knowledge and as a result, improve their teaching skills.

Killion & Harrison (2006) noted that a review of the research has revealed that coaching enhances job-embedded professional development, creates opportunities for modeling and feedback, and enables teachers to directly observe effective practice. Research is also beginning to provide additional evidence that instructional coaching can lead to more effective teacher learning and greater student achievement (Knight, 2004; Killion & Harrison, 2006).

Of particular interest to this document is the International Reading Association’s statement (2004) on necessary quality of literacy coaches. Specifically, literacy coaches must (a) be excellent classroom teachers; (b) have in-depth knowledge of reading instruction and assessment; (c) have experience in working with adults (i.e., teachers); (d) be productive group facilitators; and finally, (e) have the expertise and knowledge to model effective reading instruction.

A number of coaching studies have focused on teaching early childhood personnel to implement early literacy strategies. Two recent studies that addressed coaching to teaching the use of early literacy strategies have varied results. In one study, teachers were provided with literacy coaches as part of the training for the use of an early reading curriculum program titled *Heads Up!* (Armstrong, Cusumano, Todd, & Cohen, 2008). Armstrong et al. (2008) found that teachers who were provided with a literacy coach as part of a training on the use of the *Heads Up!* reading curriculum in their settings, showed only a slight advantage over those who did not

receive the coaching. Conversely, in another recent study, coaching was found to be very effective in promoting the use of early literacy strategies by teachers, who used more strategies after receiving coaching than during the baseline phase of the study (Hsieh, Hemmeter, McCollum, & Ostrosky, 2009).

A number of studies that address the utilization of instructional or training procedures designed to teach adults to implement dialogic reading strategies to varying degrees, meet criteria for strategies that would be used in a coaching model (Crain-Thoreson & Dale, 1999; Hargrave & Sénéchal, 2000 Justice & Ezell, 2002; Kadaverek & Justice, 2005; McDonnell, Friel-Patti, & Rosenthal-Rollins, 2003). Examples of coaching tools employed in these studies included (a) scaffolding the adult learner's implementation of a dialogic strategy, (b) modeling the dialogic reading strategies for the adult learner, and (c) providing direct feedback to the adult learner's about the use dialogic strategies. All of the studies reported positive effects on the adult learners' implementation of the dialogic reading strategies following the provided training.

Computer-delivered instruction. An important avenue of providing professional development for early childhood educational personnel is the use of technology platforms that have the capacity to deliver many of the National Staff Development Council (NSDC) guidelines (NSDC, 2001). The learner is provided with the means to acquire new skills at a time, location, and pace of convenience; and the increase in the capacity and performance of technology across disciplines has resulted in an increasing array of forms of computer-based instruction (Brown, 2001).

While computer-delivered instruction provides learners with the opportunity to individualize their own learning, Brown (2001) has pointed out that both practice and time on task are critical to the outcomes of computer-delivered instruction. A learner who skips

components of the materials or spend inadequate amounts of time on the material may fail to acquire the needed concepts and skills. Further, a recent study by Haverila (2011) examined the perceived learning outcomes in terms of effectiveness, amount and productivity of undergraduate students in an e-learning experience. The results suggested that a previous e-learning experience that ensured familiarity and comfort with the process significantly correlated with the students' perceived learning outcomes and satisfaction with the instructional delivery. Hence, attention must be directed to the planning and implementing of computer-delivered instructional platforms as a component of professional development. Finally, Van Merriënboer, Clark and de Crook (2002) pointed out the importance of good instructional design if this method of instructional delivery is to be effective.

Professional Development for Paraeducators

Paraeducators working in general and special education early childhood settings often come to their assigned classrooms without formal training or experience in employing instructional practices (Killoran, Templemen, Peters & Udell, 2001). Killoran et al. (2001) explain that the need for teaching paraeducators is expanding due to their changing roles and responsibilities as well as their increasing importance in inclusive early childhood education classrooms. Instructional support for paraeducators occurs most often on the job, incidentally throughout the day or week, or during other professional events, such as team meetings or staff development workshops. Nancy French, an associate research professor at the University of Colorado, indicated that telling the paraeducator *how to do* something is generally viewed as the simplest form of instruction (French, 2002). However, if a paraeducator is unable to perform the task, it is best to provide on-the-job instruction that may include demonstration, practice, and timely feedback on performance of the task or skill set that is to be learned.

One of the primary challenges to providing professional development for paraeducators is the limited time and funds available for training. As nonprofessional staff persons, paraeducators are generally paid on an hourly basis for the time they spend with children. Thus, time to schedule professional development activities or to even meet with the lead classroom teacher for instruction and feedback is extremely limited throughout the school day. This challenge, coupled with limited school budgets available for released professional development time and resources for training, have created significant constraints. In response to the significant need for the training of paraeducators to perform instructional tasks, professional development approaches that employ e-learning and involve computer delivery of the content have gained considerable attention.

Project Para. For example, the College of Education and Human Sciences at the University of Nebraska-Lincoln, designed and operates a web-based paraeducator training program, *Project Para*, that employs computer-delivered instruction and provides support from a central location while being delivered at local school sites (Steckelberg & Vasa, 1998). More specifically, the introductory page of the web site (<http://para.unl.edu/index.lasso>) explains that the project provides web-based self-study programs that make resources available to school districts in order to provide introductory training for paraeducators as well as the teachers who supervise paraeducators.

This training program uses multiple technology resources to enhance the computer-delivered instruction. “Technology served as a tool for organizing and coordinating resources, for bringing together expertise from the university and the local school, and for managing the staff development process” (Steckelberg & Vasa, 1998, p. 55). During the planning process of the training program, the designers took into consideration the characteristics of the special education

paraeducators, the school's needs, and the effective adult instruction principles. These considerations included:

- The computer-delivered training should be related to job settings and needs.
- Schools should be partners in the training process with the university and the training should be associated with the school's philosophy.
- Training should be easily accessed and reflect the work schedule.
- The training program should have specified outcomes, curriculum, and activities.
- Various training resources and instructional methods should be implemented to enhance the learning opportunity.
- The procedures and activities for learning should promote accountability.
- The training should provide opportunities for practice and feedback.
- The training should provide the opportunity to improve working relationships with other professionals.
- Recognition should be given to the paraeducators for their increased knowledge and skills

Para-eLink. Another notable and informative example is found in the website titled *Para-eLink*, which is sponsored by the Minnesota Department of Education and located within the Institute on Community Integration in the College of Education and Human Development at the University of Minnesota. *Para-eLink* (<http://paraelink.org/>) offers an online curriculum used to prepare and train paraprofessionals, based on the *Minnesota Core Instructional Competencies* (<http://ici.umn.edu/para/New/training/default.htm>) (Institute on Community Integration, University of Minnesota, n.d.). It offers a self-study program that paraeducators can complete in their homes on their own time. The instructional features that guided the developing of *Para-eLink* are noted in the publication, *Para e-Link: A Guide for Facilitators*

(Institute on Community Integration, University of Minnesota, n.d.), and are as follows:

- competency based content,
- documentation of competencies,
- facilitator required,
- flexible, modular content,
- increased number of learning choices and opportunities,
- interactivity,
- “just-in-time” training,
- minimal technology requirements: free software and basic internet connection,
- resource section to promote further exploration,
- school and district based activities,
- a technical section for general requirements, and
- time and location flexibility.

Prior to initiating the *Para-e-link* in-service approach, a technology survey was conducted by the *Para e-link* staff and the survey results are also reported in the *Para e-Link: A Guide for Facilitators* self-study program (Institute on Community Integration, University of Minnesota, n.d.). These results clearly indicate that an e-learning approach to in-service education was very feasible with this group. Specifically, the data revealed that paraeducators:

- had access to a computer - 94% (school), 78% (home);
- had access to e-mail - 81% (school), 72% (home);
- had access to the internet - 87% (school), 72% (home);
- were uncomfortable using the computer - 9%;
- were uncomfortable getting information from the internet - 17%; and

- were interested in participating in online training - 88%.

Dennis study. A recent study conducted by Dennis (2010) has relevance to approaches for the delivery of professional development for paraeducators. It is noteworthy to mention that the three recipients of the Dennis (2010) study, while employed as lead teachers in community-based early childhood preschool and childcare settings, held credentials that are similar to many paraeducators working in public school settings. For example, one of the participants held a high school diploma and was 40 years of age; another participant had an Associate's degree in Business Management and was 38 years of age; and the third participant held a Bachelor's degree in elementary education and was 24 years of age.

As the means of delivering instruction on the implementation of evidence-based early literacy strategies during shared book reading sessions to the entire class, Dennis (2010) employed computer-delivered instruction that included both interactive media (which Dennis referred to as technology enhanced platform for delivery of the intervention) and coaching. Specifically, the three teachers' knowledge about book reading was assessed using a pre- and post-assessment. A multiple baseline design across the three participants was used to assess each teacher's combined implementation of five dialogic strategies and three print referencing strategies prior to and during the intervention phase. Additionally, Dennis (2010) rated the quality of the teacher's book reading interactions during the book reading sessions prior to and during the intervention, and finally, she measured an average engagement score for two targeted children during the book reading sessions.

The results of the Dennis (2010) study show that all three of the participants made gains in the post-assessment of their knowledge on book reading to young children. Each participant had low baseline rates per minute of strategies (i.e., five combined dialogic reading strategies

associated with the CROWD prompts and three print referencing strategies), but all three participants used some strategies during the baseline sessions. Since the reported data represented a combination of the eight strategies, it was not possible to determine which strategies were used during the book reading sessions as well as the frequency of their use. Both the rate per minute of strategy use and the percentage of the eight strategies used during each session (i.e., fidelity of implementation of all of the strategies per book reading session) were recorded and graphed. Finally, the quality of each teacher's interactions with the children during the book reading session, based on the rating of interactions that facilitated positive child interactions and those that interrupted positive child interactions, were also assessed and graphed daily.

Once the intervention that employed the computer-delivered interactive media based lesson on literacy strategies was provided to the teachers, only one showed a minimal increase in rate and no effect was seen for fidelity of implementing all eight strategies during a session (Dennis 2010). Coaching, which consisted of direct interaction and then e-mail feedback, was added as a component of the intervention, which had a very positive effect on the number of strategies that were implemented during a single session for all three teachers. Additionally, the implementation of coaching in the Dennis (2010) study resulted in a marked increase in the rate of strategy use per minute for two of the three teachers and minimal increase in the third teacher's rate. Interestingly, the two teachers who had the lower daily rates of positive interactions during the book reading made the most notable gains after the coaching was added to the intervention. The third teacher, who had consistently high ratings of the quality of her interactions during the reading of the book made the smallest gain in her interactions following the intervention, but was already demonstrating a highly positive interactive style.

Data were also collected on dependent variables of level and complexity of engagement of child behaviors during book reading using a rubric based scoring system (Dennis, 2010). Two targeted children from each teacher's class group were selected to observe for this measure. The results were determined by combining the two children from two of the teachers and were provided separately for the third teacher. The procedural results did not show that any component of the intervention had an impact on the children's engagement. The children's level and complexity of engagement was high (i.e., at or close to ceiling) during the baseline condition; therefore effects on child behavior as a result of the intervention were not observed. Dennis (2010) noted in her discussion that, "Additional research is needed to determine if a variation in the child engagement measure used in this study or perhaps another engagement measure would produce better results (p. 94)."

Finally, Dennis (2010) also conducted a social validation component to assess the perceptions and satisfaction of the participants. All three of the teachers reported that they found the study beneficial and that their perceptions about book reading changed. The teachers also noted that the coaching component was beneficial and one teacher made a point of commenting that the e-mail was particularly useful because it provided a permanent record of suggestions. The only concern expressed by the participants was their initial misunderstanding of the purpose of the study, as they had believed they were going to be taught how to work with struggling readers. Dennis (2010) recommended that the nature and purpose of the study be carefully reviewed with participants in the future and that strategies beyond the consent letter be considered.

Chapter 3

Method

This chapter describes the methods used to conduct this study and includes the following sections: (a) setting, (b) participants, (c) research equipment and materials, (d) the experimental design, (e) data collection procedures, (f) data analysis procedures and (g) reliability procedures. The names of the participants that are used throughout this document are pseudonyms.

Setting

This study was conducted in a public school system located on the urban fringe of a large city in the Midwest. The school district serves two communities with a combined population of about 20,000 residents and a median family income of \$54,000. Residents were primarily of Caucasian descent.

At the time of this study, this growing district had a student enrollment of approximately 4,700 students and housed six elementary schools (i.e., Preschool - Grade 4), two middle schools (i.e., Grades 5-8), and one high school (i.e., Grades 9-12). Approximately 13% of the students received special education services and 2% of the students were English Language Learners. The following sections include descriptions of (a) the early childhood services provided by the school district, (b) the schools, and (c) the classrooms.

Early Childhood Services

The school district provided preschool screening in the areas of communication, cognition, motor, vision, and hearing for children from birth to five years of age. Community-based special services are also provided for three- to five-year olds with identified delays or disabilities. Additionally, the district provides one intervention program for four-year-old children who are qualified for at-risk funding, a preschool to kindergarten transition program, and Head Start

services.

Early childhood special education (ECSE) preschool services are provided to children at all of the elementary schools across the district within half-day early childhood special education preschool classrooms. These ECSE classrooms delivered a peer model program in which typically developing children served as role models for children with special needs. For children with typical development, the fees for attending the preschool program were based on a sliding scale that used the same criteria as the district’s free and reduced lunch program.

Characteristics of the Schools

The four participating elementary schools’ demographic characteristics are summarized in Table 1.

Table 1

Demographic Characteristics of Schools

Student Enrollment and Lunch Eligibility	Elementary Schools			
	A	B	C	D
Preschool Students	46	20	21	44
Kindergarten Students	75	64	56	117
First Grade Students	82	63	75	106
Second Grade Students	79	65	58	92
Third Grade Students	74	61	50	94
Fourth Grade Students	77	61	67	95
Total Student Enrollment	433	334	327	548
Free Lunch	12%	16%	34%	33%
Reduced Lunch	4%	7%	18%	8%

School A. School A had an enrollment of approximately 433 students with 28 full-time teachers. The student enrollment by grade level included the following: (a) 46 preschool students, (b) 75 kindergarten students, (c) 82 first grade students, (d) 79 second grade students,

(e) 74 third grade students, and (f) 77 fourth grade students. About 12% of the students were eligible for free lunch and 4% were eligible for reduced lunch.

School B. School B had an enrollment of approximately 334 students with 24 full-time teachers. The student enrollment by grade level included the following: (a) 20 preschool students, (b) 64 kindergarten students, (c) 63 first grade students, (d) 65 second grade students, (e) 61 third grade students, and (f) 61 fourth grade students. About 16% of the students were eligible for free lunch and 7% were eligible for reduced lunch.

School C. School C had an enrollment of approximately 327 students with 28 full-time teachers. The student enrollment by grade level included the following: (a) 21 preschool students, (b) 56 kindergarten students, (c) 75 first grade students, (d) 58 second grade students, (e) 50 third grade students, and (f) 67 fourth grade students. About 34% of the students were eligible for free lunch and 18% were eligible for reduced lunch.

School D. School D had an enrollment of approximately 548 students with 37 full-time teachers. The student enrollment by grade level included the following: (a) 44 preschool students, (b) 117 kindergarten students, (c) 106 first grade students, (d) 92 second grade students, (e) 94 third grade students, and (f) 95 fourth grade students. Approximately 33% of the students were eligible for free lunch and 8% were eligible for reduced lunch.

Early Childhood Special Education Classrooms

This study involved four early childhood special education classrooms, with one ECSE classroom in each of the above schools. Each classroom had one licensed ECSE or early childhood unified (ECU) teacher and one or two paraeducators. Children attended school four days a week for 3.5 hours a day, either in the morning or afternoon session. The average classroom size was ten children per session, with a total of 20 children served. Approximately

half of the children had a developmental delay or disability and an individualized educational program, and half of the children were typically developing.

The teachers used a whole language and theme-based curriculum approach to deliver activities for various subject areas that centered on particular topics, such as animals, transportation, and occupations. The curriculum and the adults' interactions with the children were responsive to individual differences and the teachers monitored each child's behavior in order to assess his or her developmental level and progress on individual educational goals and objectives.

Each classroom appeared warm and inviting and was well stocked with a variety of age and developmentally appropriate materials. The classrooms had a specific place for the whole class to work together as well as specific places for teacher-directed small group work and independent work. Each classroom also had learning centers (i.e., art, literacy, library, listening, writing, math, science and sensory, dramatic play, and computers) to foster exploration with a broad range of activities in order to accommodate each child's interest level and level of development. The materials, equipment, and furniture were adapted so that children with disabilities could be involved in all areas of the classroom.

Additionally, the ECSE classrooms had a defined space where children could quietly and comfortably enjoy books. The books were located on child-sized bookshelves or stored within easy reach for the children, such as a basket or container on the floor. The books were also organized so the book covers faced forward for the children to easily view. Teachers provided either a combination of pillows and small beanbag chairs or child-sized chairs where children could sit and enjoy looking at the books. The classrooms had a wide variety of books (i.e., board books, alphabet books, concept books, storybooks, repetition books) available and the teachers

frequently rotated the books according to the theme that was the instructional focus.

Participants

This study included preschool-aged children and adults. The following subsections describe the (a) recruitment process, (b) characteristics of the participating adults and children, and (c) role of the researcher.

Participant Recruitment

Information about the study was provided to the participating school district's early childhood special education coordinator through verbal communication in order to generate interest. Since the early childhood coordinator was a main point of contact between the ECSE classrooms and potential participants, her recruitment assistance was critical. A recruitment packet, which included a description of the study and informed consent materials, was provided to the early childhood program coordinator for further review. Appendix A contains the Institutional Review Board (IRB) approval.

Information about the study was shared with the principals of the participating schools and ECSE teachers by oral communication from the early childhood coordinator. The first four teachers and paraeducators who expressed interest in the topic of the study were invited to participate.

Inclusion criteria for the paraeducator participants included (a) working under the direct supervision of the ECSE classroom teacher with children between the ages of three and five, and (b) providing oral and written consent to participate in the study. There were no monetary inducements for participating in this study. However, the multiple sets of children's books included in the study were given to the school district at the completion of the study.

The recruitment efforts for the participating paraeducators culminated in an informational

meeting, coordinated by the researcher, in which the details of the study and all of the elements of informed consent were discussed. This meeting included the paraeducators, the ECSE teachers, the early childhood coordinator, and the researcher. Since one of the paraeducators was unable to attend the meeting in person, the researcher met individual with her to discuss the study procedures and review the consent document. Informed consents for the study are included in Appendix A.

The lead ECSE classroom teachers in which the participating paraeducators worked were asked to nominate four to six children using the criterion of those they believed would benefit from further development in early literacy skills. Additionally, the teachers were asked to include children with IEPs and children with typical development to the fullest extent possible, since the classroom served both groups of children.

The researcher provided the teacher with the informed consent materials and asked her to discuss the nature of the study with the parents of the nominated child in person or by telephone. If the parents verbally agreed to allow their child to participate in the study, the informed consent forms were sent home for their signature and returned to the teacher. As noted, informed consent forms are included in Appendix A. If informed consent was not obtained, additional informed consent was pursued until each classroom had identified three or four child participants.

The researcher offered to meet with any parents who were interested in having their child participate in the study to further discuss the purpose of the study, their child's role in the study, and to answer any questions. Although the children were not required to sign the informed consent forms, the researcher obtained the children's assent to participate in the study by explaining the project to them and documenting the date of the verbal assent. The script of the assent procedures was age appropriate and clearly indicated that the children's participation was voluntary. The assent document is included in Appendix A.

Characteristics of the Paraeducators

Four full-time ECSE paraeducators participated in this study. All of the paraeducators were female and Caucasian. Their professional experience working in an ECSE classroom varied from one to thirteen years. In addition to working in an ECSE classroom, one paraeducator had professional experience assisting in a Title I reading classroom.

The paraeducators' educational backgrounds also varied from earning a high school diploma to earning a college degree. All of the paraeducators participated in a district-wide, single day in-service at the start of the school year. Staff development at the school building level focused on topics such as early literacy instruction, effective communication, technology, and behavior management. Additionally, the ECSE teachers and paraeducators met regularly to discuss children and classroom activities. Table 2 summarizes the demographic characteristics of the paraeducators in terms of their age, education, and professional experience.

Table 2

Demographic Characteristics of Paraeducators

Paraeducator	Age	Highest Education	Years as a Paraeducator	Years as an ECSE Paraeducator
1 – Amanda	24	BA	1	1
2 – Leah	42	AA	3	1
3 – Kristin	45	1 year college	13	13
4 – Tricia	49	High School	6	4

Note. BA = Bachelor of Arts degree; AA = Associate of Arts degree; ECSE = Early Childhood Special Education

Paraeducator 1 (Amanda). Amanda was a college graduate who was 24 years old at the time of the study. She had one year of professional experience working as an ECSE paraeducator.

Paraeducator 2 (Leah). Leah earned an Associate in Arts degree in Applied Science and

was 42 years old at the time of the study. She had two years of professional work experience as a Title I reading paraeducator and one year of professional experience as an ECSE paraeducator.

Paraeducator 3 (Kristin). Kristin attended one year of college and was 45 years old at the time of the study. Her professional work experience included being an ECSE paraeducator at the same school over the past 13 years.

Paraeducator 4 (Tricia). Tricia was a high school graduate and was 49 years old at the time of the study. She had six years of professional work experience as an ECSE paraeducator which included working in the current school for the past three years.

Characteristics of the Children

Small groups of three to four children participated in this study. The child participants were members of the ECSE classroom in which the paraeducator was assigned. At the beginning of the study, the chronological ages of the children ranged from 4 to 5 years, with a mean age of 4.5 years.

The inclusion criteria for the children for this study was

- being between the age of three and five and a member of the ECSE classroom in which the participating paraeducator was assigned,
- being nominated by their teacher as needing further development in early literacy skills, and
- obtaining parental permission as well as oral consent to participate in the study.

Demographic characteristics of the children in each book reading group are presented in the following table (i.e., Table 3).

Table 3

Demographic Characteristics of Children

Paraeducator	Child	Age	Gender	Ethnicity	SES	IEP
1 - Amanda	#1	4	Male	Caucasian	Middle	No
	#2	5	Male	Caucasian	Middle	No
	#3	4	Male	Caucasian	Middle	No
	#4	4	Female	Caucasian	Middle	No
2 - Leah	#1	5	Female	Hispanic	Low	Yes
	#2	4	Female	Caucasian	Middle	No
	#3	5	Female	Caucasian	Middle	No
	#4	5	Male	Pacific Islander	Middle	Yes
3 - Kristin	#1	4	Male	Caucasian	Middle	Yes
	#2	5	Female	African American	Middle	Yes
	#3	4	Female	Caucasian	Middle	No
	#4	5	Female	Caucasian	High	No
4 - Tricia	#1	4	Female	African American	Middle	No
	#2	5	Female	Caucasian	Low	No
	#3	5	Male	Caucasian	Low	Yes

Note. SES = Socioeconomic Status; IEP = Individualized Educational Program

Children in Paraeducator 1's book reading group. Four typically developing Caucasian children (i.e., 1 girl and 3 boys) participated in Amanda's book reading group. The average age for the children who participated in Amanda's group was 4.5 years. All of the children were from English-speaking, middle-income families.

The children in Amanda's book reading group had 16 book reading sessions. Thirteen of the book reading sessions included all of the children and three book reading sessions included three children.

Children in Paraeducator 2's book reading group. Four children (i.e., 3 girls and 1

boy) participated in Leah's book reading group. The average age for the children was 4.8 years and all of the children were from English-speaking homes. Two of the children were Caucasian, one child was Hispanic, and one child was of Pacific Island descent. One child was from a family with a low income and three of the children were from middle-income families. Two of the children were typically developing. Two of the children had mild developmental delays and had individualized educational programs.

There were a total of 14 book reading sessions for Leah's group of children. Nine book reading sessions included all of the children. Four book reading sessions included three children and one book reading session included two children.

Children in Paraeducator 3's book reading group. Four children (i.e., 3 girls and 1 boy) participated in Kristin's book reading group. The average age for the children was 4.5 years and all of the children were from English-speaking homes. Three of the children were Caucasian and one was of African American descent. Three of the children were from middle-income families and one child was from a high-income family. Two of the children in the small group were typically developing. One child had a mild developmental delay and one child had a speech and language delay. These two children had individualized educational programs.

There were a total of 13 book reading sessions for Kristin's group of children. Four book reading sessions included all of the children. Eight book reading sessions included three children and one book reading session included two children. One child participated in four book reading sessions from the onset of the study and was absent from the remainder of the sessions due to travel plans.

Children in Paraeducator 4's book reading group. Three children (i.e., 2 girls and 1 boy) participated in the book reading sessions with Tricia. The average age for the children was

4.7 years and all of the children were from English-speaking homes. Two of the children were Caucasian and one child was of African American descent. Two of the children were from low-income families and one child was from a middle-income family. Two of the children were typically developing. One child had a mild developmental delay and had an individualized educational program.

There were a total of 12 book reading sessions for Tricia's group of children. Six book reading sessions included all of the children. Five book reading sessions included two children and one book reading session included one child.

Role of the Researcher

The researcher disseminated the intervention materials, trained graduate students to establish interobserver reliability, and collected and analyzed the data. During the course of the study, the researcher provided each paraeducator with (a) a pre- and post-knowledge quiz on shared book reading, (b) a USB flash drive that contained the computer-delivered interactive lesson, *Literacy Strategies for Young Children*, (c) CD ROMs, with each containing a video of the paraeducator's daily book reading session during the intervention phase of the study, and (d) periodic e-mail feedback regarding their performance during the intervention phase of the study.

Research Equipment, Materials and Instrumentation

The following subsections provide descriptions of the equipment and materials used in this study. The instruments developed to conduct this study are also described.

Videotaping Equipment

The equipment for videotaping the shared book reading sessions included the following items: (a) a video camera, (b) a battery pack, charger, and AC adaptor, (c) a memory stick duo,

(d) a tripod, (e) Sony Picture Package™ software, (f) a USB cable, and (g) blank CD-ROMs. A Sony Handycam digital camera recorder (DCR-HC36) and memory stick duo were used to capture the video footage for each book reading session. In order to stabilize and elevate the camera it was mounted to a tripod. The battery pack for the video camera was charged daily using the AC adaptor and charger. The Picture Package software was downloaded to a Windows computer and the video was edited into session video files with time and date stamps and then saved on CD-ROMs for the purposes of viewing and for data collection.

Children's Books

After consulting with the early childhood coordinator and ECSE teachers about theme-related book topics, a total of 14 books were selected for this study and purchased through an online dealer. The books selected for this study were developmentally appropriate in content and language and met quality indicator criteria set forth in the early literacy literature (Dickinson, 2001; Hargrave & Sénéchal, 2000; Zevenbergen & Whitehurst, 2003). The books were approximately 32 pages in length and consisted of fiction as well as nonfiction books.

The selected books enhanced the spring units of classroom instruction and included themes such as (a) recycling, (b) gardening, (c) the weather, (d) the ocean, and (e) the rainforest. While the selected books were comprised of a few novel or abstract vocabulary words, they mainly included words that children understood and were likely to be familiar with based on natural exposure. Table 4 lists the selected books that were used in this study.

Table 4

Selected Books for the Interactive Shared Book Reading Sessions

Book Title	Author
<i>If You Give a Cat a Cupcake</i>	Laura Numeroff
<i>We Planted a Tree</i>	Diane Muldrow & Bob Stakke
<i>Recycle Everyday</i>	Nancy Wallace
<i>Jack's Garden</i>	Henry Cole
<i>Over in the Jungle: A Rainforest Rhyme</i>	Marianne Berkes
<i>The Umbrella</i>	Jan Brett
<i>Out of the Ocean</i>	Debra Frasier
<i>Wild Weather Soup</i>	Caroline Formby
<i>Fancy Nancy: Every Day is Earth Day</i>	Jane O'Connor
<i>We're Going on a Bear Hunt</i>	Helen Oxenbury
<i>A Frog in the Bog</i>	Karma Wilson
<i>Up, Down, and Around</i>	Katherine Ayres
<i>If Frogs Made the Weather</i>	Marion Dane Bauer
<i>In the Small, Small Pond</i>	Denise Fleming

Computer-Delivered Interactive Lesson

A computer-delivered interactive lesson was developed for this study using the instructional software program, SoftChalk LessonBuilder™, which is an e-learning authoring tool. The lesson, which was titled *Early Literacy Strategies for Young Children*, and could be accessed on a computer via a web browser and was copied to USB flash drives for use in the study.

The instructional program elements included multiple illustrations of classroom reading

activities and pages from children's books, hyperlinks with embedded text, and streamed videos that enabled the paraeducators to view the strategies as they were modeled. Additionally, an interactive component with immediate feedback allowed the paraeducators to identify examples of the book reading strategies as they were employed.

The lesson content was initially directed to strategies that improved the quality of the interactive shared book reading experience and facilitated the interactions between the adult reader and the children. This content was followed by content that focused on dialogic reading strategies and print referencing strategies

Five dialogic reading strategies were presented in the lesson. These questioning strategies and prompts are represented by the acronym CROWD (Zevenbergen & Whitehurst, 2003) and are as follows:

1. *Completion prompts* – leaving a repetition or predictable word or phrase out of a sentence and asking the child or children to complete the phrase by saying the missing words.
2. *Recall prompts* – questions about what happened in the story or about the page that was just read.
3. *Open-ended prompts* – questions that encourage the child to respond in his/her own words, often in relation to the book's illustrations
4. *Wh-word prompts* – questions that usually begin with “wh” words, such as what, where, when, why, and how.
5. *Distancing prompts* – questions that require the child to think about past events or experiences that are related in some way to the story content.

The lesson also addressed content on print referencing to ensure that book reading strategies focused on print as well as comprehension and meaning. Three print referencing

strategies were presented in the lesson and included the following: (a) asking questions about the print in the book, (b) providing comments about the print in the book that would direct the children's attention to the print, and (c) tracking the print with one's finger under the print in the book that one is reading aloud.

Two example screens from the interactive lesson are included in Appendix B and presented in Figures 1 and 2. These figures depict one of the dialogic reading strategies and one of the print referencing strategies, respectively. The lesson was saved on a USB flash drive and delivered in person to each paraeducator. The researcher provided the paraeducator and ECSE teacher with verbal and written instructions on how to access the lesson. After delivering the USB flash drive to the paraeducator, the researcher asked the paraeducator to complete the 45-60 minute lesson at a time of convenience in the next couple of days and indicated she was available to answer any questions. Table 5 provides a detailed overview of the computer-delivered interactive lesson content.

Table 5

Overview of Computer-Delivered Intervention Lesson Content

Content Outline	Content Description
Introduction	Provides brief overview and purpose of the lesson
Before Beginning the Lesson	Gives pointers on navigating and using lesson features
Lesson Goals	Defines overall goals of the lesson
Value of Reading Books Aloud	Explains the importance of reading books aloud to children and how this helps them become better readers, listeners, and students
Importance of Reading the Same Book Multiple Times	Discusses how reading the same book aloud to children multiple times helps improve their skills, such as memory and vocabulary reinforcement
Five Strategies for Introducing a Book	Provides strategies on how to begin reading a book aloud and a video example of a book introduction by an expert teacher
Definition of Shared Book Reading	Defines and describes shared book reading and why it is such an important part of literacy instruction
Quality of Interactions During Shared Book Reading	Discusses various strategies to promote positive adult-child interactions during book reading
Video About Shared Book Reading	Video example about shared book reading from the Center for Early Literacy Learning
Dialogic Reading: A Very Specific Approach to Shared Book Reading	Describes each of the CROWD dialogic reading strategies, using examples and video demonstrations
Print Referencing: What is it?	Describes the importance of print referencing, examples of verbal and non-verbal techniques as well as different kinds of print, a video demonstration, and combining print referencing techniques with other strategies
Preparing Ahead to Read a Book Aloud to Young Children	Shares ideas for preparing to read a book aloud, includes excerpts from the book, <i>Pie in the Sky</i> , by Lois Ehlert, for practice and application

Knowledge Quiz

A pre-quiz and a post-quiz were developed by the researcher to evaluate the paraeducators' gains in their knowledge about effective strategies for reading books to young

children before and after the paraeducators' access to the computer-delivered interactive lesson. Appendix C contains copies of the pre-quiz and post quiz.

The researcher obtained information on test item construction in order to ensure the appropriateness of the test items (Zimmaro, 2004). Both quiz forms consisted of 21 items comprised of multiple choice, true-false, and short answer questions, which were developed to assess the paraeducator's understanding of: (a) the importance of reading books multiple times to children, (b) dialogic reading, (c) print referencing strategies, and (d) the affective quality of the interactions that facilitate a young child's positive experience during the interactive shared book reading. The items were ordered differently in the pre- and post-quiz assessments.

CD-ROMs of Book Reading Sessions

Video footage of each book reading session was captured, transferred to a personal computer, and edited daily by the researcher. The videos of each paraeducator's book reading sessions during the intervention phase were placed on a CD-ROM (i.e., Compact Disc - Read Only Memory) and provided to the paraeducators on the day following their book reading session for their review and reflection.

Additionally, all video book reading sessions across the paraeducators and study phases were edited. Using QuickTime 7 Pro video editing software, the video was divided into 15-second continuous viewing intervals. Each 15-second interval was assigned a number to indicate its sequence within the complete book reading session observation. Therefore, the first 15-second viewing interval appears as "1," the next 15-second viewing interval appears as "2," and etc. This allowed for the collection of uninterrupted videotaped data for both the adults and children with no loss of time for recording the observations.

Each of the edited book reading sessions was also saved on a CD-ROM. The digital

video file could then be viewed on a Macintosh or Windows personal computer using Apple's QuickTime media player.

Facilitative Interactions Quality Rating Scale

The rating scale employed in this study was modified from the rating scale used in the Dennis (2010) study and is provided in Appendix D. The *Indicator of Parent-Child Interaction* (Baggett, Carta, & Horn, 2006), a progress monitoring measure of parent-child interaction, was adapted and used by Dennis (2010) to assess the quality of the paraeducator-child interactions during the book reading sessions. The *Indicator of Parent-Child Interaction* (IPCI) is an assessment tool designed to provide outcome information on ways a parent responds to the child that promotes positive social-emotional competence. Modifications were made for the definitions and examples of the paraeducator's behaviors to correspond with the child's natural setting in the preschool environment, particularly within the book reading context.

This study's rating scale included four of the five interactional behaviors that facilitate positive interactions and support a positive emotional climate that were included in the Dennis (2010) study's quality rating index. These behaviors consisted of the following: (a) "acceptance/warmth," (b) "uses descriptive language," (c) "follows child's lead," and (d) "introduces/extends." However, the fifth interactional behavior (i.e., "responds to distress") that was used in the Dennis (2010) study was dropped from this study's rating scale and the behavior, "holds and handles book so child can easily view print and illustrations," was added.

The rating of interactions that interrupt positive interactions and impede a positive emotional climate included in the Dennis (2010) study's quality rating index were also dropped from this study's rating scale. The decision for these modifications was based on pre-study observations of the ECSE classrooms and the overall positive nature of the paraeducator's

interactions with the children in the classroom.

E-mail Feedback Procedural Fidelity Form

Procedural fidelity is defined as the strategies that monitor and enhance the accuracy and consistency of an intervention to ensure it is implemented as planned and to make certain each component is delivered in a comparable manner to all participants over time (Lane, Bocian, MacMillan, & Gresham, 2004). The researcher created a fidelity implementation protocol for the e-mail feedback that consisted of a list of the required components for e-mail feedback. Specifically, the researcher identified and listed performance steps that were to be checked during a procedural review of the e-mails sent to the paraeducators as part of the intervention package. The checklist for the determining the procedural fidelity of the e-mail feedback as well as selected samples of e-mail feedback is contained in Appendix I.

Additionally, the actual e-mails were consistently structured to be positive and supportive. Opening remarks in the e-mail always included general, positive statements about the book reading session. Supportive feedback consisted of comments on the kinds of strategies the paraeducator used during the observation as well as her interactions with the children throughout the book reading session. Corrective feedback was delivered by describing the need to strive for including other strategies that had not been used or were rarely used by the paraeducator. Finally, the closing comment in the e-mail was always affirmative and encouraging.

Experimental Design

This study employed a single-case research design. Specifically, a multiple-baseline design across two pairs of yoked participants was implemented to evaluate the effects of treatment. Horner and colleagues (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005) stated that single-case research is a rigorous scientific methodology that can be used to establish

evidence-based practices and is particularly relevant for defining educational practices at the individual learner level because it documents functional relationships between the dependent and independent variables (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005). This study sought to demonstrate the effectiveness of the treatment by showing that behaviors changed from the participants' baselines as a consequence of the treatment.

Book Reading Sessions

This study was directed to an analysis of variables that were observed during book reading sessions in each of the participating classrooms four days per week (Monday through Thursday). Each session was led by one of the participating paraeducators and lasted about 15 to 20 minute and began with the introduction of the book and ended when the follow-up discussion when the book was completed. Each book was read aloud for two consecutive sessions. Therefore, if a book was read for the first time during a session, the same book was read aloud a second time during the next day's book reading session.

For each ECSE paraeducator's initial book reading session at the onset of their baseline, the researcher selected the book that was to be read aloud. Thereafter, the paraeducator was given two or three books from which to choose to read aloud. The researcher collected the book after it had been read for two consecutive sessions and another book was provided to the paraeducator's selection of books to choose for the next book reading session. The sequence of the books that were read aloud by each paraeducator during their book reading sessions can be found in Appendix H.

The locations of the book reading sessions for each paraeducator are presented in the next section. The children were seated on the floor in front of or beside the paraeducator while the book was being read aloud. By doing so, the children were able to (a) see the written text and

illustrations of the book at their eye level, or slightly above their eye level, and (b) interact with the paraeducator comfortably. The book reading sessions for Paraeducator 3 (Kristin) and Paraeducator 1 (Amanda) were conducted in the morning and the book reading sessions for Paraeducator 2 (Leah) and Paraeducator 4 (Tricia) were conducted in the afternoon.

Book reading sessions for Paraeducator 1 (Amanda). The book reading sessions for Amanda took place in a school wing off the main hallway. Amanda sat on the floor with her legs outstretched in front of her during the majority of the book reading sessions. Two children sat cross-legged on the floor on either side of Amanda and the book was generally placed in Amanda's lap.

Book reading sessions for Paraeducator 2 (Leah). The book reading sessions for Leah took place in a half-day kindergarten classroom that did not have any afternoon sessions. Leah sat on the floor with her legs outstretched in front of her. One or two children sat on either side of Leah, and they were usually seated in the same seating position.

Book reading sessions for Paraeducator 3 (Kristin). The book reading sessions for Kristin took place in a book storage room near the classroom and a "videotaping in progress" sign was taped to the door. Kristin sat in a chair facing the children. The children sat cross-legged on the floor in a semi-circle facing Kristin.

Book reading sessions for Paraeducator 4 (Tricia). The first few book reading sessions for Tricia took place in an open area of the classroom. The ECSE teacher worked with the children who were not participating in the book reading sessions on a group activity on the opposite side of the classroom. The researcher found it difficult to analyze the audio file from the videotape due to the extraneous noise in the classroom. The remaining sessions were conducted in a book storage room that was located near the classroom and a "videotaping in progress" sign

was placed on the door. The children sat facing Tricia in a semi-circle on the floor.

Study Phases

This study was comprised of three distinct phases: (a) baseline, (b) intervention, and (c) maintenance. As noted, the four paraeducators moved through the study phases in yoked pairs. That is, Paraeducators 1 and 2 (i.e., Amanda and Leah) and Paraeducators 3 and 4 (i.e., Kristin and Tricia) were yoked in the design.

Baseline. During the baseline phase, each paraeducator was provided with a children's book and instructed to read the book aloud to the children. The paraeducator did not receive any further instruction or feedback. Baseline provided an assessment to determine if the paraeducator was implementing any of the dialogic reading or print referencing strategies appropriately and if so, which ones. Baseline was continued until the paraeducator exhibited a stable level of performance over sufficient sessions to determine which, if any, strategies were already being implemented by the paraeducator.

Intervention. The intervention implemented in this study consisted of a package of three components. Each component of the intervention is discussed in more detail in the following subsections.

Intervention package: Component one. The first part of the instructional intervention consisted of a computer-delivered interactive lesson that provided information about evidenced-based book reading strategies. Each of the paraeducators received a copy of the HTML based lesson on a USB jump drive. The lessons could then be reviewed over several days on the school or the paraeducator's home computer. After inserting the USB jump drive into the computer, the paraeducator could open and view the lesson within an Internet browser.

Intervention package: Component two. The second component of the intervention

package consisted of providing each participant with a CD-ROM of the previous day's videotaped book reading session. The CDs of the videotaped sessions were provided for the paraeducator's individual review and personal reflection, although the ECSE teachers were encouraged to review and discuss the book reading session videos with the paraeducators.

Intervention package: Component three. The third part of the intervention package consisted of providing each participant with written feedback via e-mail that was contingent upon specific criteria. A strategy for written feedback via e-mail was developed in case the implementation of the computer-delivered lesson and the opportunity to review their own video (a) did not result in improved performance, (b) if the researcher noted a decrease in strategy use at some point during the intervention, or (c) the paraeducator expressed frustration with the process, a strategy, or requested feedback.

The e-mail feedback followed a nine-step protocol (see Appendix I) to ensure procedural fidelity and was typically delivered within 24 hours of the observation. The ECSE classroom lead teachers received a carbon copy of the e-mail. These teachers were encouraged to review and discuss it with the paraeducator and, if possible, review the CDs of the videotaped book reading sessions with the paraeducator.

Maintenance. The maintenance phase of this study began one school week after the last reading session in the intervention phase had been taped. The researcher continued to provide each paraeducator with a children's book, but no feedback was provided. Due to time constraints related to the end of the school year, only two participants entered the maintenance phase for a very brief period.

Data Collection

This study employed several types of measures to collect the data used to assess the

impact of the intervention. These included a pre- and a post-quiz and video observation of each book reading session in order to measure the occurrence of specified adult and child behaviors. Finally, a rating scale was employed to rate the quality of specified interactional behaviors employed by the paraeducators during each of the book reading sessions.

Knowledge Assessment

To assess individual gains in shared book reading knowledge, each paraeducator was administered a quiz before and after reviewing the content of the computer-delivered lesson on interactive shared book reading strategies. After baseline criteria were met, the paraeducator received a hard copy of the knowledge pre-quiz. The paraeducator was asked to complete the pre-quiz and return it to the researcher the following day. Upon completing and returning the pre-quiz, the paraeducator received a USB flash drive of the HTML lesson, entitled *Early Literacy Strategies for Young Children*.

After completing the HTML lesson, the paraeducator received a hard copy of their scored pre quiz and post-quiz. Upon receipt of the completed pre- and post-quizzes, the researcher followed up with the paraeducator individually to ensure understanding and answer any questions. The pre- and post-quizzes assessing the paraeducator's basic knowledge on shared book reading can be found in Appendix C.

Data Collection from Videos

A manual was developed to guide videotaping, specify the codes for the paraeducator strategy use, quality interaction variables, and the child engagement variables. The manual also specified procedures for viewing the videotapes, coding each session and completing each data collection form. An additional purpose of the procedural manual was to ensure a high level of interobserver reliability. The manual can be found in Appendix F.

To collect data, a video camera was mounted to a tripod to record the book reading sessions that were later watched and analyzed by the observer. As previously noted, video footage of each book reading session was captured, transferred to a personal computer, and edited daily. QuickTime 7 Pro video editing software was used to divide each book reading session video into 15-second continuous viewing intervals. Each 15-second interval was assigned a number to indicate its sequence within the complete book reading session observation. Therefore, the first 15-second viewing interval appears as “1,” the next 15-second viewing interval appears as “2,” and etc. This allowed for the collection of uninterrupted videotaped data for both the adults and children with no loss of time for recording observations. Each book reading session was saved on a CD-ROM so that the digital video file could then be viewed on a Macintosh or Windows personal computer using Apple’s QuickTime media player.

When viewing a CD-ROM for the purpose of data collection from the videos of each book reading session, the observer indicated the paraeducator’s assigned code, the date of the book reading session, and the exact start time of the session (i.e., hour, minutes, and seconds as viewed on the videotape time stamp) on the data collection forms (see Appendix F). The observer was then able to begin the observation and coding or rating process. Additionally, the observer was able to rewind and replay an interval to determine the proper code or rating as often as necessary.

Paraeducators’ Strategy Use

The paraeducator’s strategy use was measured by coding the occurrence of five dialogic reading and three print referencing strategies during each 15-second interval of the book reading session directly from each session’s digital video. A partial interval recording procedure was used. Therefore, if a paraeducator used one of the strategies at any point in the observed interval,

the appropriate code was circled on the coding form. The dialogic reading and print referencing strategies that were used to record the occurrences on the coding form were identical to those assessed in the Dennis (2010) dissertation study.

Dialogic reading strategies. Table 6 provides an explanation of each of the coded dialogic reading strategies as set forth by Whitehurst (1992). The five strategies described in the table align with the acronym CROWD. The CROWD strategies are comprised of the following prompts used by the adult: (a) completion prompts (i.e., “C”), (b) recall prompts (i.e., “R”), (c) open-ended prompts (i.e., “O”), (d) wh-word prompts (i.e., “W”), and (e) distancing prompts (i.e., “D”) by the adult.

Print referencing strategies. The techniques employed by the paraeducators during the interactive shared book reading sessions that represent the strategies for print referencing include the following: (a) questions about print, (b) commenting about print, and (c) tracking print (Justice and Ezell, 2004). Table 7 includes an explanation of each print referencing strategy. Detailed definitions and examples of these variables and their respective codes can be found in the coding manual in Appendix E. A copy of the coding form can be found in Appendix F.

Table 6

Explanations of the Dialogic Reading Prompts: CROWD

Types of Prompts Used in Dialogic Reading with Explanations
<p><u>Completion prompts</u></p> <p>These prompts require a pause at the end of a sentence so that children will say the missing word or phrase. This type of prompt is typically used in books with rhyming text or books with repetitive phrases. For example, you might say, "I think I'd be a glossy cat. A little plump, but not too..." and pause to allow the child to fill in the missing word, "fat." Completion prompts provide children with information about the structure of language that is critical to later reading.</p>
<p><u>Recall prompts</u></p> <p>These are questions about what happened in a book that has already been read to the child. Recall prompts work for nearly every type of children's book except alphabet books. For example, you might say, "Can you tell me what happened to the little blue engine in this story?" Recall prompts help children in understanding story plot and in describing sequences of events. Recall prompts can be used not only at the end of a book, but also at the beginning of a book when a child has been read that book before.</p>
<p><u>Open-ended prompts</u></p> <p>These prompts often focus on the pictures in books and work best for books that have rich, detailed illustrations. For example, while looking at a page in a book that the child is familiar with, you might say, "Tell me what's happening in this picture." Open-ended prompts help children increase their expressive fluency and attend to detail.</p>
<p><u>Wh-word prompts</u></p> <p>These prompts usually begin with <i>what</i>, <i>where</i>, <i>when</i>, <i>why</i>, and <i>how</i> questions. Like open-ended prompts, wh-word prompts focus on the pictures in books. For example, while pointing to an object in the book, you might say, "What's the name of this?" Questions that begin with wh-words are useful for teaching children new vocabulary.</p>
<p><u>Distancing prompts</u></p> <p>These prompts encourage children to relate the pictures or words in the book to experiences in their own lives. For example, while looking at a book with a picture of animals on a farm, you might say something like, "Remember when we went to the animal park last week? While pointing to the picture of the animals you could ask, Which of these animals did we see at the park?" Distancing prompts help children form a bridge between books and the real world, as well as help them with verbal fluency.</p>

Note. Definitions modified from those provided in Whitehurst, G. J. (1992). *Dialogic reading: An effective way to read to preschoolers*. Retrieved from Reading Rockets website: <http://www.readingrockets.org/article/400>

Table 7

Explanations of the Print Referencing Strategies

Types of Print Referencing Strategies with Explanations
<u>Questions about the print</u> A question about the placement or feature of the words on the cover or pages in the book
<u>Comments about the print</u> A comment about the words on the book's cover or pages in the book
<u>Tracking the print</u> Moving index finger under the words from left to right while reading aloud

Note. Explanations based on Justice, L. M., & Ezell, H. K. (2004). Print referencing: An emergent literacy enhancement strategy and its clinical application. *Language, Speech, and Hearing Services in Schools* 35(2), 185-193.

Child Engagement

The responses targeted as child engagement included (a) asking a question related to the story, (b) initiating a comment related to the story, and (c) responding to the paraeducator's request for a response related to the story. A partial interval recording procedure was used to measure the children's engagement via coding the occurrence of targeted child responses during each 15-second interval directly from a video of the each book reading session. If, at any point in an interval, one of the children in the small group engaged in one of the targeted responses, the code for the specific behavior was marked in the corresponding interval on the data collection form. A copy of the data collection form, along with definitions and examples of the child engagement variables and their respective codes, can be found in Appendix F.

Quality Rating of Paraeducators' Interactions

The quality of the paraeducators facilitative interactions with the children during the book reading sessions was rated via direct observation of the video of each book reading session. Five variables were rated to assess the quality of each of the paraeducators' interactions during the

book reading sessions and included:

- displays warmth and acceptance;
- uses descriptive language;
- follows child's lead;
- introduces/extends; and
- holds and handles book so child can easily view print and illustrations.

Each variable was rated on a 4-point Likert scale (e.g., 0 = never, 1 = rarely, 2 = sometimes, 3 = often). Next, the ratings were summed to obtain a raw score. The raw score was then divided by the total number of items on the quality rating scale (i.e., 5) to obtain a decimal, which was converted to a percentage by multiplying by 100.

Appendix D contains the adapted quality rating index information prepared for the training and use of the observers, which includes the data collection form along with directions for rating this assessment. It also includes the definitions, examples, and non-examples of each of the interaction variables to be rated, which were developed for the training and use of the observers.

E-mail Feedback Procedural Fidelity

During the fidelity checks, the researcher completed the procedural fidelity checklist by marking “yes” or “no” for each of the e-mail feedback steps that were followed and included in the paraeducator's e-mail message. Next, the number of completed e-mail feedback steps were divided by the total number of feedback steps and expressed as a percentage. To monitor procedural fidelity, each e-mail message was read and reviewed by the researcher prior to it being sent to the paraeducator.

Social Validity

Social validity focuses on whether the goals of the treatment, the intervention techniques used, and the outcomes achieved are acceptable, relevant, and useful (Kennedy, 2005). Kazdin (1977) and Wolf (1978) proposed two methods for evaluating social validity. Wolf called for the use of subjective evaluation to gauge the social acceptability of the treatment as well as the applied importance of goals, procedures, and outcomes, while Kazdin focused on outcomes.

To assess social validity, each paraeducators participated in a semi-structured interview following the completion of the intervention. The interview was designed to obtain the paraeducators' perceptions of the validity, usefulness, and feasibility of the intervention. The interview was guided by twelve open-ended questions that addressed the effectiveness of the computer-delivered lesson as well as the feasibility of the intervention. Paraeducators were also asked how they used the videotapes of their book reading sessions as well as how they shared information about the book reading sessions with the ECSE teacher. Finally, the paraeducators were asked about their views on the benefits of reading a book aloud more than once to the children. The questions that were used to measure the judgment of social validity can be found in Appendix J.

Reliability Procedures

The researcher served as the primary data collector. An individual working toward a master's degree in ECSE was trained as the reliability coder. The researcher and secondary observer independently coded 30% of the videotaped book reading sessions for each of the paraeducator and child measures across all study phases. Additionally, the secondary observer rated the quality of facilitative interactions for 30% of the book reading sessions across all study phases.

Reliability Training

To establish initial interobserver agreement, the criterion set for the researcher and the observer was to achieve a reliability of 80% for three consecutive training sessions on all study variables prior to the actual reliability observations for this study. The training for reliability was conducted by initially reviewing and discussing observation procedures. This was followed by initial coding practice with the coding forms. Previously recorded videotapes of early childhood special education teachers reading a book aloud to the children in their classroom were used for the reliability training. The ECSE teachers in the reliability training videotapes were not involved in this study. The training process for interobserver reliability included the following procedures:

1. Using the coding system manual as a guide, the researcher explained the codes and coding process to the graduate student.
2. While observing videotaped segments of book reading sessions that were not part of the intervention, the researcher and graduate student practiced coding the reading sessions together.
3. Next, the researcher and graduate student independently practiced coding segments of shared book reading samples and then reviewed their independently coded book reading sessions, discussed any discrepancies in observations, and assigned the codes.
4. The researcher answered any questions the second observer had regarding the coding process.
5. Subsequent shared book reading segments were observed and coded independently by the researcher and graduate student. If agreement dropped below 80% at any time, the researcher conducted a review session with the observer.

6. Training continued until the criterion of 80% interobserver agreement was consistently reached for each of the study measures.

Reliability Analyses

Reliability data were collected and computed for each of the variables observed during the book reading sessions. For the participating paraeducators, a point-by-point reliability was computed for each of the five dialogic strategies and each of the print referencing strategies. An agreement was scored if the researcher and secondary observer both scored the occurrence of the same strategy within the same 15-second interval. A disagreement was scored if the researcher or secondary observer did not agree on the type of the strategy that was used or if one of the observers did not code a strategy that was coded by the other observer within a specific interval.

In relation to the three engaged response variables coded for children in each of the paraeducators' small groups, a point-by-point reliability was also computed. An agreement was scored if the researcher and secondary observer both scored the occurrence of the same engaged response within the same 15-second interval. A disagreement was scored if the researcher or graduate student did not agree on the type of engaged response variable within an interval, or if one observer did not code a variable within an interval that was coded by the other observer.

Agreement on the rating of the quality of each of the interaction variables was also determined by comparing the assigned ratings of researcher and secondary observer for 30% of the sessions within each phase for each of the five interactional variables. An agreement was scored if the researcher and graduate student both assigned the same rating to the interactional variable for the session. A disagreement was scored if their rating of an interactional variable for a session differed.

The interobserver reliability for each adult and child measure of this study was calculated

by the summing of the agreements, and then dividing this sum by the agreements plus disagreements and multiplying by 100 to yield a reliability coefficient. The interobserver agreement calculation sheets can be found in Appendix G.

Data Analyses

Data related to the paraeducator and child variables were analyzed for each of the study variables. The procedures for the paraeducator variable analyses are reported first. This is followed by the procedures for the child variable analyses.

Paraeducators

Analyses were conducted for multiple variables related to the paraeducators. Analyses were directed on their knowledge scores, and relative to the book reading sessions, analyses were completed for the combined dialogic reading and the combined print referencing strategies as well as for each of the individual strategies for both dialogic reading and print referencing. Finally, an analysis was directed to the ratings of their facilitative interactions during the book reading sessions.

Knowledge. The researcher scored each item on the pre-quiz and the post-quiz and computed the percentage of items that were correct for each quiz. The exact value of the percentage gain or loss between the knowledge pre- and post-quiz was also determined. The percentage gain was calculated by subtracting the pre-quiz score from the post-quiz score; then dividing the difference by the pre-quiz score. The result was multiplied by 100 to yield a percent.

Combined strategies. The percent of occurrence within the observed intervals were calculated for each paraeducator's implementation of both the combined dialogic reading strategies and the combined print reference strategies for each session across the study phases.

These scores were then graphically displayed as a basis for making comparisons of their implementation levels across conditions. The paraeducators' strategy implementation graphs were visually inspected for patterns as well as changes in level and trend within the study phases. Visual estimates of trends were used as a basis for considering whether each paraeducator's strategy implementation was stable, accelerating, or decelerating within a phase (i.e. baseline, intervention, and maintenance). This inspection allowed the researcher to make comparisons of performance across each phase or condition of the study. Additionally, the implementation of the e-mail feedback was noted on the graph immediately following the day or days that the paraeducators had received the feedback in order to visually assess the potential impact of the feedback.

Additionally, the mean and range of the percent of occurrences within the observed intervals for the combined dialogic reading strategies and the combined print referencing strategies were calculated for each of the study phases. The means are reported in table format which provided another way of comparing their implementation levels across the three phases or conditions.

Individual strategies. The percent of occurrence was calculated for each of the paraeducators' implementation of the five dialogic reading strategies and each of the three print referencing strategies for each session and reported for each session in table format. Additionally, the mean percentage and range of occurrence are also reported in table format. Finally a bar graph for each of the paraeducator's mean percent of occurrence for each of the individual strategies was displayed in a bar graph. Additionally, these data were inspected for sessions in which all eight of the strategies were observed being implemented at least one time during the book reading.

Quality of facilitative interactions. An average or mean quality rating was determined from the daily quality ratings of each the paraeducators' implementation of the five facilitative interactions per session for each phase of the study. The means and the ranges of the ratings are reported in table format.

Child Engagement

The percent of occurrence within the observed intervals is graphically displayed for each session across all of the study phases for each of the three dependent variables associated with the children's engagement during the book reading sessions. The data analyses primarily involved a visual inspection of the data for patterns as well as changes in level and trend. A visual estimate of the data trends was used as a basis for considering whether the children's engagement was stable, accelerating, or decelerating when compared across the study's phases or conditions. Additionally, the mean and ranges of the children's percentage of occurrence for each of the three engaged response variables were calculated and displayed in table format. These data also provided for the comparison of child engagement across conditions

Chapter 4 provides a comparison of the procedures employed in the partially replicated Dennis (2010) study and the present study. Data and information gathered for this study's methods are presented in the form of text, tables, and graphs in Chapter 5.

Chapter 4

Study Replication: A Comparison of Procedures

This study was a partial replication and extension of a previous study by Dennis (2010), which examined the effects of pairing feedback with computer-based instruction in teaching early childhood teachers to use early literacy strategies during book reading with young children. The discussion that follows compares the components of this study with the Dennis (2010) study. Table 7, which is located on the following two pages, also sets forth a comparison of the components of both studies.

Setting and Participants

An inspection of this comparison table reveals that the context and physical setting of this study were similar to the original study. However, in order to broaden and extend the generalizability of the original study, the participants as well as the study location for the present study were different. Participants in the Dennis (2010) study were early childhood teachers in community preschools within a Midwestern community, whereas the participants in this study were early childhood special education paraeducators in elementary schools within a nearby Midwestern public school district.

Experimental Design

Both studies employed single case research designs and implemented multiple baseline designs across participants. The Dennis (2010) study implemented the baselines across three participants. The present study yoked four participants into two groups and multiple baselines were implemented for each group separately.

Table 8

Comparison of Partially Replicated and Present Study Components

Study Components	Dennis (2010) Study	Present Study
Setting	Community EC programs and three preschool classrooms	Public elementary schools and four ECSE classrooms
Adult and Child Participants	Three lead preschool teachers	Four ECSE paraeducators
Participants	<ul style="list-style-type: none"> • All of the children listened to the book reading • Two children per teacher observed during book reading • One child in each pair had an IEP 	<ul style="list-style-type: none"> • Three or four children nominated by ECSE teachers to participate in a small book reading group • One or two children in 3 of the 4 small groups had an IEP
Research Design	Single case, multiple baseline across participants	Single case, multiple baseline across participants with two yoked pairs of participants
Observational Data Collection	Data collection employed probe of book reading sessions for 2 to 4 days per week	Data collection was continuous for all book reading sessions and collected consecutively for 4 days per week
Collection and Analyses of Adult Variables	<ul style="list-style-type: none"> • Teachers' knowledge on reading books aloud to children assessed, pre-computer lesson and post-computer lesson with quiz, converted raw scores to percent of change • Employed rate-based event recording of each occurrence of the dialogic reading (CROWD) and print referencing strategies (Q/P, C/P, T/F) per session, graphed rate-per-minute of combined strategies into a single point per session • Reviewed recorded data to determine number of total strategies implemented per session, scored if occurred at least once per session, percent of total strategies graphed for each session as fidelity of strategy implementation 	<ul style="list-style-type: none"> • Paraeducators' knowledge on reading books aloud to children assessed, pre-computer lesson and post-computer lesson with quiz, and converted raw scores to percent of change • Employed continuous 15-second partial interval recording of each occurrence of dialogic reading (CROWD) and print referencing strategies (PQ, PC, PT) per session, graphed percent of occurrence of combined dialogic and combined print referencing strategies for two points per session • Reviewed recorded data to determine percent of occurrence of each strategy per session, provided a table of daily percent of occurrence per strategy and mean percent of occurrence per phase

Table Continues

Study Components	Dennis (2010) Study	Present Study
Collection and Analyses of Adult Variables (continued)	<ul style="list-style-type: none"> Quality of book reading assessed using an adapted quality rating index, each quality variable rated on Likert scale and overall quality rating percentage calculated and graphed for each session 	<ul style="list-style-type: none"> Quality of book reading assessed using a quality rating index that was a modified version of the Dennis (2010) index, each quality variable rated on Likert scale and reported per session by the mean quality rating for each variable for baseline, intervention, and maintenance
Collection and Analyses of Child Variables	<p>Rated two targeted children's level and complexity of engagement to determine a percentage of engagement for each variable during each book reading session probe, both ratings graphed and mean and range per phase shown in table form</p> <p>Interobserver data collected on 25% of the sessions for each variable within each study phase and calculated for percent of agreement</p>	<p>Measured three types of responses of children in small group per book reading session:</p> <ul style="list-style-type: none"> asking questions, initiating comments, and responding to paraeducator's request for a response <p>Interobserver data collected on 30% of the sessions for each variable within each study phase and calculated for percent of agreement</p>
Procedural Fidelity		<p>Assessed inclusion of each specified component in the e-mail feedback provided to paraeducators to ensure procedural fidelity</p>

Book Selection and Book Readings

The specific books in the present study were changed from those used in the Dennis (2010) study to represent the thematic unit in place in the participating classrooms. However, similar criteria for appropriate books were followed in both studies.

The number of readings per book was changed from a single reading of each book in the Dennis (2010) study to two readings per book in the present study. This change was based on this study's approach to the analyses of the specific dialogic reading strategies and the related recommendations from the literature (Hargrave & Sénéchal, 2000; Justice & Ezell, 2002; Kadaverek & Justice, 2005).

Intervention Conditions

Both the Dennis (2010) study and the present study employed a computer-delivered HTML lesson as the first component of an intervention package. Although the Dennis (2010) study's HTML lesson was used as a model for the computer-delivered instructional lesson of this study, the lesson was modified. Modifications were, in part, based on feedback from the participants in the Dennis (2010) study. Specifically, modifications included (a) the introductory directions for the lesson and specification of objectives, (b) the organization of the content categories, (c) the expansion of some content, and (d) the addition of images and new video clips.

In the Dennis (2010) study the first part of the intervention phase began at the point the teachers were provided with the computer-delivered content lesson. The Dennis (2010) study also coded e-mail feedback and face-to-face coaching after approximately three sessions as a new component in the intervention. The present study began the intervention phase when each paraeducator had completed the computer-delivered content lesson. Intervention also included providing each paraeducator with a video of each book reading session via a CD and e-mail

feedback based on specific criteria.

The coaching provided in the second part of the intervention phase in the Dennis (2010) study was both written (via e-mail) and face-to-face and, seemingly, frequently delivered, but not delivered after every session. During the second part of the intervention phase, the investigator in the Dennis (2010) study often engaged in coaching immediately after she completed taping a teacher's book reading session if the investigator deemed coaching was needed.

In the present study, each paraeducator was given a CD with a video of their book reading sessions throughout the intervention condition. The CDs were given to the paraeducators for their review and reflection on the day following each of the taped sessions. The paraeducators had opportunities to discuss their book reading sessions with their lead ECSE classroom teacher and to interact with them about the video of the session. Paraeducators were also able to make comments or ask questions of the investigator before or after the taping of a book reading session; however, no in person coaching was provided by the investigator. Additionally, the investigator provided e-mail feedback only and specific criteria occasioned the e-mail feedback. Hence, the number of e-mails provided to each paraeducator was limited.

The rationale for the present study's approach to feedback was based on the limited time for face-to-face coaching and written feedback available for paraeducators during and after class time. Thus, the investigator was interested in the study outcome with the primary intervention components being the revised computer-delivered content lesson and criterion based e-mail feedback.

Maintenance

A maintenance phase was planned for the Dennis (2010) study as well as the present study. Unfortunately, both studies had very limited data collection for this phase because of a delayed

start date due to issues such as scheduling conflicts and participants who had illnesses. Hence, the ending of the school year necessitated a termination of both studies before maintenance could be fully recorded across all participants.

Knowledge Assessment

Changes were made in the content of the Dennis (2010) study's pre- and post-quiz to assess the paraeducator's knowledge in order to better match this study's altered HTML lesson. However, the assessment process and calculation of the percentage of score change from the pre-quiz to the post-quiz remained consistent for both studies.

Recording of Book Reading Sessions

The Dennis (2010) study recorded frequent probes of each teacher's book reading sessions (between two and four per week); whereas the present study recorded each book reading session (four consecutive sessions per week) from the onset of the study to the completion of the study. The change to continuous recording of each session in this study made it possible to compare study variables from the first time a book was read to its second reading.

Book Reading Strategy Implementation

To measure the implementation of the dialogic reading and print referencing strategies this study employed a continuous 15-second partial interval recording procedure instead of the rate per minute recording procedure employed in the Dennis (2010) study. Furthermore, while the Dennis (2010) study recorded the individual strategies employed, the rate of the combined total of dialogic reading strategies and print referencing strategies was graphed (i.e., one data point per session). Means and ranges per phase were reported in table format.

This study recorded and calculated the percent of observed occurrence within continuous 15-second intervals of each of the five dialogic reading strategies and each of the three print

referencing strategies. However, the percent of occurrence of the combined dialogic reading strategies and the combined print referencing strategies were graphed (i.e., two data points per session). Means and ranges per phase were reported in tabular format.

Both studies considered the number of individual strategies employed within the individual sessions. In the Dennis (2010) study, data were reviewed to determine whether each of the eight strategies (five dialogic reading strategies and three print referencing strategies) had or had not been implemented at least once by each of the teachers during each session. The total number of strategies implemented at least one time within a session was summed and divided by the total number of possible strategies (i.e., eight) for each of the teachers. These results were displayed graphically and Dennis (2010) referred to these results as a measure of the fidelity of strategy implementation.

In the present study, the data were reviewed for each session to determine the percent of occurrences within the observed intervals for each of the five dialogic strategies and each of the three print referencing strategies. These analyses provided information about which of the strategies were naturally used by the paraeducators prior to intervention and, at the point that intervention began, which strategies were added and the intervention's impact on the percent of occurrences of each strategy. These results are displayed in tabular format. Additionally, the means and ranges of the individual strategies were calculated for each phase and displayed in both tabular format and as bar graphs.

Quality of Interactions

In the Dennis (2010) study, the *Indicator of Parent-Child Interaction (IPCI)* (Baggett, Carta, & Horn, 2006) was modified and then used to score the quality of the teacher interactions within each of the book reading sessions. A scoring rubric was created that included only the

five interactions from the *IPCI* that facilitated positive interactions and the three interactions that interrupted interactions as the measured behaviors. The definitions and examples for the facilitating interactions and interrupting interactions were also modified to fit a book reading session within a classroom setting. Overall percentage scores for the facilitating and interrupting interactions were computed for each session and graphed for each teacher. The mean and range percentage for each phase were also shown in tabular format. Higher percentages in teacher facilitating interactions indicated more positive behaviors and higher percentages in teacher interrupting interactions indicated more negative behaviors.

The present study selected and rated the same first four facilitating interactions as the Dennis (2010) study, but dropped the fifth facilitator (“responds to distress”) and added the variable “holds and handles book so child can easily view print and illustrations.” These five facilitating interactions were each rated at the end of each book reading session and the average quality score for each of these variables was computed for the baseline, intervention and, when feasible, the maintenance phase and displayed in tabular form. The mean scores reflect the overall level of positive interactions of the paraeducators with the children.

The present study dropped the interruptive interactions that were included in the Dennis (2010) study. The decision to drop the interruptive interactions was due to the fact that the initial observations indicated that the paraeducators were not engaging in these interactions.

Child Engagement

The Dennis (2010) study’s child engagement variables were based on an adapted version of the McWilliam (2000) *Scale for Teacher’s Assessment of Routines Engagement* (STARE). Both the level and complexity of engagement ratings were rated. While all of the children in each classroom were part of the book reading sessions, two children were selected from each

classroom for the purpose of obtaining engagement ratings per book reading session. One child in each pair of children in the Dennis (2010) study had an IEP. Each child's *level* of engagement was rated at the end of the book reading session, and their *complexity* of engagement was rated three times per session (i.e., beginning, middle, and end) and then averaged to represent a final score. The level and complexity of engagement ratings were then averaged for the two children to obtain a child engagement rating per session for each of the participating teachers and their classrooms. Due to ceiling effects during baseline, the number of children's comments was added to the criteria for rating the complexity of engagement.

Because ceiling effects during baseline continued to be problematic for the rated variables across the targeted children for all three of the teachers in the Dennis (2010) study, the present study identified three different variables for child engagement. These children's variables included (a) asking questions, (b) initiating comments, and (c) responding to the paraeducator's request for a response. Continuous 15-second partial interval recording was employed to record the children's use of each of these strategies throughout each phase of the book reading sessions. The mean and range percent of occurrences for each variable were shown in tabular form for each phase.

Procedural Fidelity

The present study conducted one measure of procedural fidelity that pertained to the e-mail feedback provided to the paraeducators. The specific components of the feedback were specified and each of the e-mails providing feedback was read and reviewed to determine if each specified component was followed.

Social Validity

Both studies employed semi-structured, open-ended interviews that were guided by a

questionnaire to assess the adult participants' perceptions of the study procedures and overall merit. While there were similarities among the questions for each study, the questionnaires were not the same. Both investigators interviewed each of the participants individually.

Reliability

The Dennis (2010) study required an interobserver agreement of 85% during the reliability training prior to the actual reliability observations, whereas this study required an interobserver agreement of 80% during reliability training prior to the actual reliability observations. Twenty-five percent of the sessions were observed for each of the adult and child variables for each phase of the study design (i.e., baseline, intervention, maintenance) in the Dennis study; whereas 30% of the sessions were observed for each of the adult and child variables for each phase of the study design in the present study.

Chapter 5

Results

This chapter initially presents the assessment of this study's interobserver reliability. The following sections report the study findings pertaining to the results of the analyses of: (a) the paraeducator's strategy variables, (b) the paraeducator's quality of her interactions with the children during the book reading, (c) the child engagement variables, (d) the procedural fidelity assessment of the e-mail feedback provided to the paraeducators, and (e) the social validity assessment. The relationships of the results to the research questions posed in this study are addressed in the final chapter.

Reliability of Data

This section reports the results of the interobserver reliability. The researcher and a trained observer independently coded 30% of the videotaped book reading sessions for each the participants within each of the study phases. Interobserver agreement was assessed for: (a) the percent of observed occurrences of the book reading strategies, (b) the ratings of the affective quality indicators (i.e., facilitative interactions) of the paraeducator's book reading interactions, and (c) the percent of the observed occurrences of children's expressive engagement variables during book reading.

Dialogic Reading Strategies

Reliability was scored and determined for the percent of observed occurrences for each of the five individual dialogic reading strategies. This data allowed the investigator to also compute reliability for the five dialogic reading strategies (i.e., CROWD) combined.

Overall dialogic reading strategies. Interobserver agreement for the paraeducators' overall dialogic reading strategy use was 95% (range 84% to 100%). Average interobserver

reliability for dialogic reading strategy use during baseline was 91% (range 84% to 100%). During intervention, average interobserver reliability for dialogic reading strategy use was 97% (range 94% to 100%). One maintenance session was assessed for interobserver reliability for dialogic reading strategy use and the average was 96%.

Individual dialogic reading strategies. Across all conditions, interobserver agreement for use of the completion strategies was 98% (range 80% to 100%). Average interobserver agreement was 94% (range 80% to 100%) for use of the recall strategies. Interobserver agreement average for use of the open-ended strategies was 97% (range 67% to 100%). Use of the wh-word questions averaged 92% interobserver agreement (range 67% to 100%). Reliability for distancing questions averaged 100% across all conditions.

Print Referencing Strategies

Reliability was determined for the observed percent of occurrences for each of the three print referencing strategies (i.e., questions about the print, comments about the print, and tracking the print). This analysis allowed the researcher to also compute reliability for the combined print referencing strategies.

Overall print referencing strategies. Across all conditions, agreement for the combined print referencing strategies was 99% (range 86% to 100%). Average interobserver reliability for the print referencing strategy use during baseline was 100%. During intervention, average interobserver reliability for print referencing strategy use was 99% (range 86% to 100%). One maintenance session was assessed for interobserver agreement of the paraeducators' use of print referencing strategies, which was 100%.

Individual print referencing strategies. Across all conditions, interobserver agreement for the paraeducators' use of questions about the print was 100%. Interobserver agreement for

paraeducators' use of print comments was 98% (range 80% to 100%). Reliability for print tracking use was 99% (range 83% to 100%).

Quality Interactional Behaviors

Reliability was determined for the ratings of the paraeducators' implementation of the five facilitative interactions (i.e., displaying acceptance/warmth, using descriptive language, following the child's lead, introducing/extending to maintain or extend child focus, holding book so child could see the print and pictures) during book reading session.

Individual facilitative interactional behaviors. Across all conditions, interobserver agreement for the paraeducators' acceptance and warmth toward the children during the reading of the book was 100%. Interobserver agreement for their descriptive language use was 94% (disagreement was on one session). Interobserver agreement for following the child's lead during the book reading was 89% (disagreement was on two sessions). For introducing and extending in order to maintain the child's focus the interobserver agreement was 94% (disagreement was on one session). Interobserver agreement for holding the book so the child can see the text and illustrations was 78% (disagreement was on four sessions).

Child Engagement Responses

Reliability was determined for each of the three combined child engagement responses (i.e., child asking a question, child initiating a comment, child responding to a request for a response). Specifically, interobserver agreement for questions asked by the children averaged 99% (range 90% to 100%). Interobserver agreement for comments initiated by children averaged 96% (range 83% to 100%). Finally, interobserver agreement for child responses to a request for a response related to the story was 98% (range 93% to 100%).

Results of Paraeducator’s Knowledge Assessment

Paraeducator knowledge was evaluated using a pre-quiz and a post-quiz on their knowledge of interactive shared book reading strategies with preschoolers. Each paraeducator was asked to complete a pre-quiz before the intervention and a post-quiz after the intervention (i.e., HTML lesson) to measure her knowledge on effective strategies for reading books to preschoolers.

The pre-quiz and post-quiz consisted of 12 items which included a variety of multiple choice, true/false, and short answer questions. The items assessed the paraeducator’s understanding of the importance of reading books multiple times to children, dialogic reading and print referencing strategies, and the emotional quality of the interactions that occur during book reading. Ten quiz items were worth 1 point, one quiz item was worth 3 points, and one quiz item was worth 8 points, for a total of 21 possible points. The pre-quiz and post-quiz knowledge scores for each of the paraeducators are displayed in Table 9. An analysis of the pre- and post-quiz items is provided in Table 10.

Table 9

Paraeducator’s Knowledge on Effective Strategies for Reading Books to Preschoolers

Paraeducator	Pre-quiz Raw Score	Post-quiz Raw Score	Percentage Change
Paraeducator 1 (Amanda)	52%	95%	45%
Paraeducator 2 (Leah)	43%	90%	52%
Paraeducator 3 (Kristin)	48%	76%	37%
Paraeducator 4 (Tricia)	48%	81%	41%

Table 10

Paraeducator's Pre- and Post-quiz Item Analysis

Quiz Item Topic	Points Possible	Paraeducator 1 Amanda		Paraeducator 2 Leah		Paraeducator 3 Karen		Paraeducator 4 Tricia	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Value of Repeated Reading	1	1	1	1	1	1	1	1	1
Value of Frequent Reading	1	1	1	1	1	1	1	1	1
Introducing a Book to Children	3	3	3	3	3	3	3	3	3
Introducing a Book to Children	1	1	1	0	1	1	1	1	0
Concept of a Picture Walk	1	1	1	0	1	1	1	1	1
Value of Book Reading Interactions	1	1	1	1	1	1	1	1	1
Concept of Shared Book Reading	1	0	1	0	1	0	1	0	0
Concept of Dialogic Reading	1	1	1	1	1	1	1	1	1
Concept of Interaction Quality During Book Reading	1	0	1	0	1	1	1	0	1
Children's Interest in Text	1	0	1	1	1	0	1	1	1
Dialogic Reading and Print Referencing Strategy Names	8	1	7	0	6	0	4	0	7
Preparing to Read a Book Aloud	1	1	1	1	1	0	0	0	0

Knowledge pre-quiz. On the knowledge pre-quiz, all of the paraeducators were able to identify three important steps in introducing a book before reading it aloud. However, three out of the four paraeducators felt that shared book reading consisted of placing books in a classroom

learning center or book area rather than the interaction that occurs between an adult and a child when reading a book together. The paraeducators' pre-quiz performance also indicated that they were unable to identify the types of dialogic reading strategies and print referencing strategies; however, one of the paraeducators (Paraeducator 1, Amanda) understood the purpose of most of the strategies. In percentage terms, the paraeducators' overall mean score on the pre-quiz was 48% and their individual mean scores ranged from 43% to 52%.

Knowledge post-quiz. The post-quiz knowledge results were used to determine if the paraeducator's basic knowledge level on how to enhance shared book reading with children had improved following their completion of the computer delivered lesson, which was component one of the intervention package. As reported in Table 9, when comparing the pre-quiz and post-quiz scores, each of the paraeducators demonstrated improved knowledge on the purpose of interactive shared book reading and the strategies that support it. The overall mean percentage change of the paraeducators' pre-quiz and post-quiz scores was 79% and their individual mean percentage change scores ranged from 56% to 1.09%.

On the knowledge post-quiz, the paraeducators' identification of the eight book reading strategies (i.e., five dialogic reading and three print referencing strategies) that can be used during interactive shared book reading included: one score of 4 out of 8, one score of 6 out of 8, and two scores of 7 out of 8. The post-quiz results also indicated that the paraeducators were able to select examples of the kinds of social behaviors and interactions adults should model during shared book reading, such as smiling, making positive comments, and maintaining eye contact. The paraeducators' overall mean score on the post-quiz was 86% and their individual mean scores ranged from 76% to 95%.

Interestingly, Paraeducator 2, Leah, had the lowest pre-quiz score (43%) and made the

greatest percent of change (1.09%) and achieved the second highest post-quiz score (90%). Another interesting point in the knowledge quiz data is that Paraeducator 3 (Kristin) had the second lowest pre-quiz score (48%), the lowest post-quiz score (76%) and the lowest percentage change between the pre- and post-quiz scores (56%).

Results of the Paraeducators' Implementation of Book Reading Strategies and Quality of Interactions During Book Reading Sessions

This section reports the data collected during the observation of the book reading session videos for each paraeducator and provides both figures and tables that depict the paraeducators' use of the five dialogic strategies and three print referencing strategies as well as the quality of their interactions for each book reading session throughout all phases of the study design. As indicated in Chapter 3 that describes the research methods for this study, the paraeducators were yoked into pairs. Paraeducator 1 and Paraeducator 2 served as pair one; whereas Paraeducator 3 and Paraeducator 4 served as pair two for the implementation of the multiple baselines across participants.

Pair One: Paraeducator 1 (Amanda) and Paraeducator 2 (Leah)

Figure 1 provides a graphic display of the first pair of paraeducators (i.e., Amanda and Leah), who were yoked for the implementation of the first multiple baseline. A report of each of these paraeducators' individual implementation on the combined dialogic book reading strategies and the combined print referencing strategies as well as their implementation of the five individual dialogic reading strategies and three individual print referencing strategies for each phase of the study follows. The report also includes an analysis of the paraeducators' ratings on the quality of their interactions with the children during the book reading.

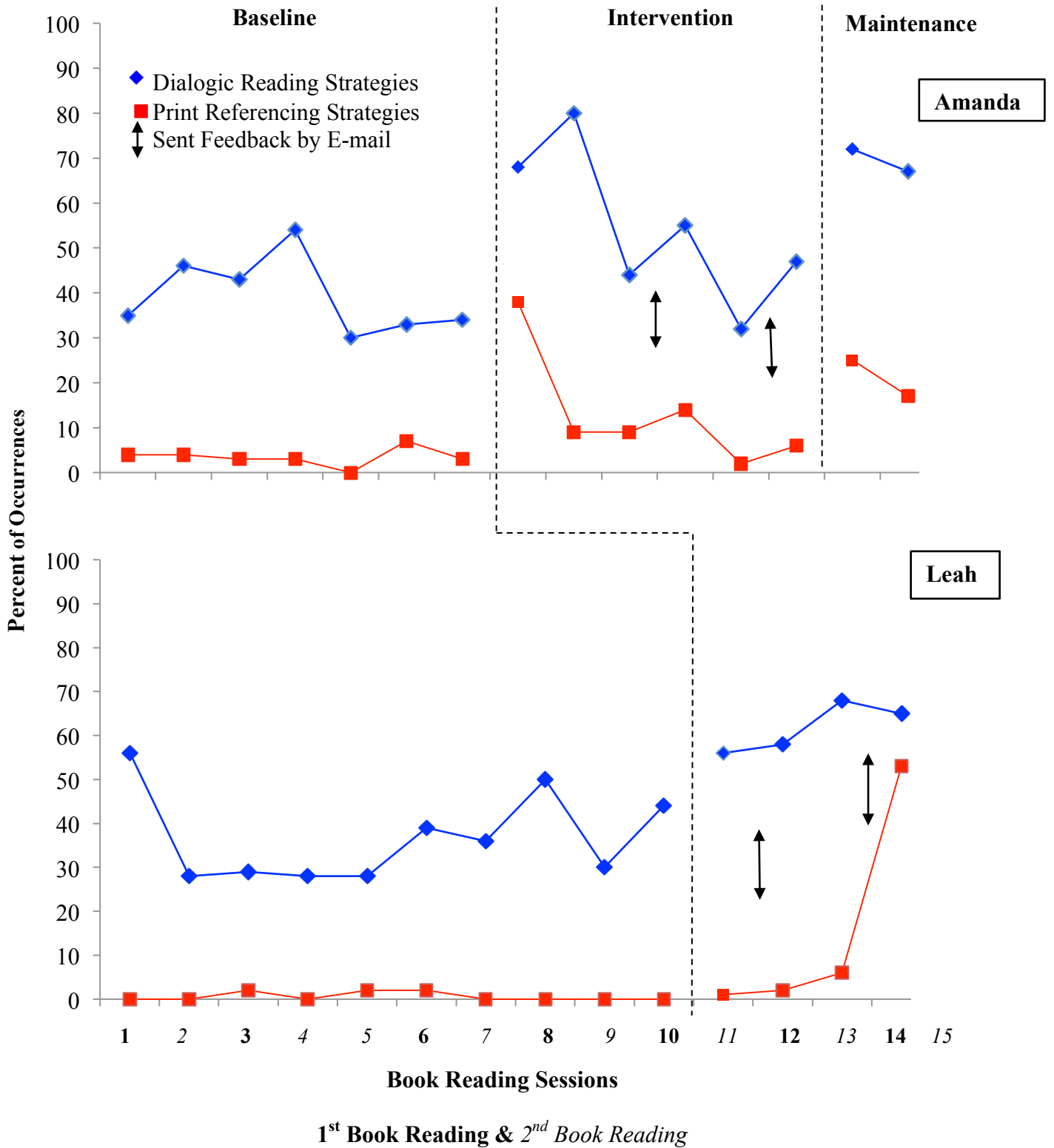


Figure 1. Percent of observed occurrences in which pair one, that is Paraeducator 1 (Amanda) and Paraeducator 2 (Leah), used dialogic reading (i.e., diamond) and print referencing (i.e., square) strategies during the book reading sessions. Breaks in lines represent phase changes. Vertical arrows indicate when feedback was e-mailed to the paraeducator.

Paraeducator 1 (Amanda): Implementation of the book reading strategies. Figure 1 and Table 11 are related to the overall use of dialogic reading strategies and print referencing strategies. Figure 1 provides a graphic display of the percent of occurrences in which Amanda was observed to implement dialogic reading strategies and print referencing strategies during each of the book reading sessions. Table 11 displays the means and ranges of the percent of observed occurrences of overall dialogic strategies and print referencing strategies for Amanda for each phase.

Table 12, Figure 2, and Table 13 are all related to Amanda’s use of the individual strategies for dialogic reading and the individual strategies for print referencing. Table 12 displays the percent of observed occurrences of the individual strategies (i.e., five dialogic reading strategies and three print referencing strategies) for each of Amanda’s book reading sessions by phase. Figure 2 displays a bar graph that offers a comparison of means for the percent of observed occurrence by phase for each of the individual strategies. Finally, Table 13 sets forth the means and ranges of the observed occurrences of each of the individual dialogic book reading strategies and each of the individual print referencing strategies that are depicted visually in Figure 2.

Table 11

Means and Ranges of Occurrence Percentages of Dialogic Reading and Print Referencing Strategies Across Phases: Paraeducator 1 (Amanda)

Study Phases	Dialogic Reading Strategies <i>M</i> (Range)	Print Referencing Strategies <i>M</i> (Range)
Baseline	39% (30% - 54%)	3% (0 - 7%)
Intervention	54% (32% - 80%)	13% (2% - 38%)
Maintenance ^a	70% (67% - 72%)	21% (17% - 25%)

Note. *M* = Mean; ^a Maintenance was two days

Table 12

Occurrence Percentages of Individual Book Reading Strategies by Session: Paraeducator 1 (Amanda)

Reading Sessions	# of 15 s Intervals	Dialogic Reading Strategies: % of Occurrences					DR Totals	Print Referencing Strategies: % of Occurrences			
		Completion Prompts	Recall Questions	Open-ended Questions	Wh-word Questions	Distancing Questions		Print Questions	Print Comments	Print Tracking	PR Totals
<i>Baseline</i>											
Session 1	23	0	4%	4%	26%	0	34%	0	0	4%	4%
Session 2	24	0	21%	0	25%	0	46%	0	0	4%	4%
Session 3	40	2%	5%	18%	15%	3%	43%	0	0	3%	3%
Session 4	35	2%	40%	6%	6%	0	54%	0	0	3%	3%
Session 5	30	10%	10%	7%	3%	0	30%	0	0	0	0
Session 6	42	5%	5%	16%	7%	0	33%	0	2%	5%	7%
Session 7	38	11%	18%	0	5%	0	34%	0	0	3%	3%
<i>Intervention</i>											
Session 8	37	19%	3%	24%	22%	0	68%	0	0	38%	38%
Session 9	41	29%	24%	0	27%	0	80%	2%	0	7%	9%
Session 10	45	0	7%	16%	22%	0	44%	0	0	9%	9%
Session 11	51	2%	31%	14%	8%	0	55%	0	0	14%	14%
Session 12	41	0	10%	7%	12%	2%	32%	0	0	2%	2%
Session 13	42	0	19%	14%	12%	2%	47%	2%	2%	2%	6%
<i>Maintenance</i>											
Session 14	36	6%	6%	38%	11%	11%	72%	5%	3%	17%	25%
Session 15	36	8%	14%	25%	14%	6%	67%	0	0	17%	17%

Note. DR = Dialogic Reading Strategies; PR = Print Referencing Strategies; s = seconds. The second reading of each book is italicized. A book reading session was lost between *Session 4 and Session 5*; therefore both of these sessions are second readings of a book.

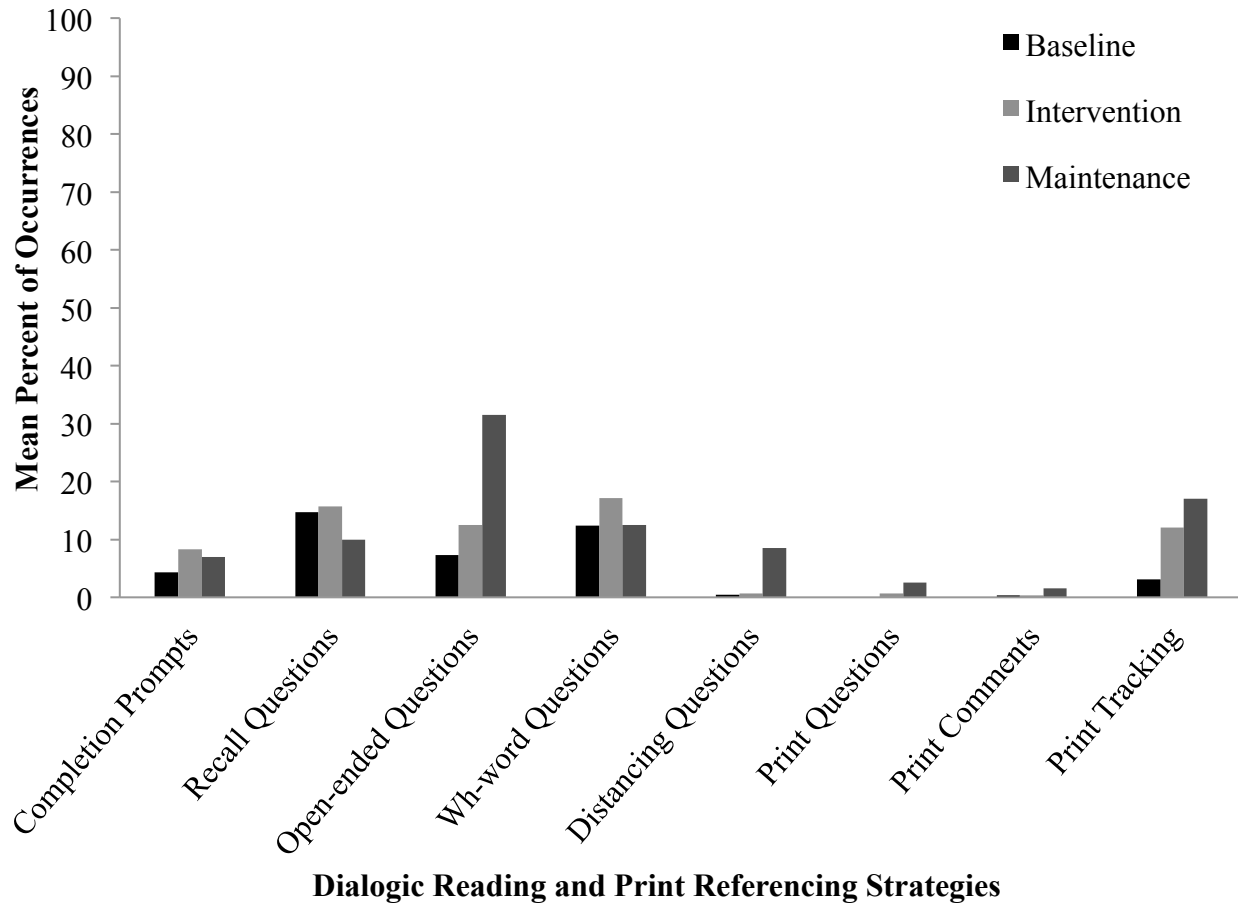


Figure 2: Mean percent of observed occurrences in which Paraeducator 1 (i.e., Amanda) implemented dialogic reading or print referencing strategies during the study phases. This figure displays the means for five dialogic reading strategies and three print referencing strategies for the baseline, intervention, and maintenance phases.

Table 13

Means and Ranges of Occurrence Percentages of Individual Book Reading Strategies Across Phases: Paraeducator 1 (Amanda)

Book Reading Strategy	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)	Maintenance ^a <i>M</i> (Range)
Completion Prompts	4.3% (0 - 11%)	8.3% (0 - 29 %)	7% (6% - 8%)
Recall Questions	14.7% (4% - 40%)	15.7% (3% - 31%)	10% (6% -14%)
Open-ended Questions	7.3% (0 - 18%)	12.5% (0 - 24%)	31.5% (25% - 38%)
Wh-word Questions	12.4% (3% - 26%)	17.2% (8% - 27%)	12.5% (11% - 14%)
Distancing Question	0.4% (0 - 3%)	0.7% (0 - 2%)	8.5% (6% - 11%)
Print Questions	0 (0)	0.7% (0 - 2%)	2.5% (0 - 5%)
Print Comments	0.3% (0 - 2%)	0.3% (0 - 2%)	1.5% (0 - 3%)
Print Tracking	3.1% (0 - 5%)	12% (2% - 38%)	17% (17% - 17%)

Note. *M* = Mean; ^a Maintenance was two days

Paraeducator 1 (Amanda): Overall book reading strategy implementation. As indicated, Table 11 and Figure 1 pertain to Amanda’s overall dialogic reading and print referencing strategies across three phases. *Amanda’s* central tendency or mean performance will be reported first, followed by an analysis of the trend of each session within phases.

The means and ranges reported in Table 11 for Amanda’s implementation of the print referencing strategies within phases are notably lower than for her implementation of dialogic reading strategies. But similar to dialogic reading strategies, each phase represents an increase in level over the previous phase. More specifically, the mean for the dialogic reading strategies during baseline was 39%, which increased to a mean of 54% during intervention and continued to increase to a mean of 70% for the two sessions of the maintenance phase. Amanda’s baseline mean for print referencing strategies was 3%, which increased to a mean of 14% for the intervention phase and a mean of 21% for the two days of the maintenance phase.

Performance trends. Figure 1 provides a graphic display of the percent of observed

occurrences of Amanda's implementation of dialogic reading and print referencing strategies for each session within three phases. A visual analysis for the line that best fits the overall trend of Amanda's baseline performance indicates a nonaccelerating line of best fit or trend line for Amanda's use of dialogic reading strategies, although her individual sessions with baseline varied within an envelope of high and low sessions (i.e., variation ranged from 30% to 54%). During intervention, Amanda's use of the dialogic reading strategies initially increased significantly for two sessions over baseline and then seemed to shift to a relatively stable and unchanging trend that was at or just above the baseline sessions. During the two maintenance sessions, her overall level of dialogic strategies increased to initial intervention levels with the first session being slightly higher than the second session. However, an inspection of the overall trend within the intervention phase is decelerating.

As shown in Figure 1, there is much less variability among the individual baseline sessions for print referencing strategies than for the dialogic reading strategies and a visual analysis of a line of best fit indicates a stable nonaccelerating performance. Similar to Amanda's use of dialogic reading strategies during the intervention phase, Figure 1 also shows a significant initial increase in her print referencing strategy use that is followed by a fairly flat implementation of these strategies just above baseline levels. However, the overall trend for her print referencing performance during intervention is decelerating as it was for the dialogic reading strategies. Finally, similar to the implementation of the dialogic reading strategies during the two sessions of maintenance, Amanda's implementation of the print referencing strategies again increased substantially with a slightly lower percent of occurrence on the second and final day.

Additionally, Figure 1 reveals that during the intervention phase, when an e-mail with

feedback about Amanda's performance was provided just prior to Sessions 11 and 13, Amanda's strategy use increased for both dialogic reading and print referencing strategies. These sessions both represented the second reading of a book; thus one or both variables (i.e., the e-mail and/or the second book reading) could be related to the increase in her use of the strategies. However, given the marked increases, it is unlikely that the cause of her increase was the second reading by itself.

Paraeducator 1 (Amanda): Implementation of the individual book reading strategies.

Table 12 sets forth the percent of observed occurrences of each of the five dialogic strategies and each of the print referencing strategies across the book reading sessions. This table reveals that during baseline Amanda naturally used all five of the dialogic strategies, although her use of *distancing questions* was very limited. She used two of the three print referencing strategies minimally and did not use print questions at all during baseline.

Figure 2 employs bar graphs to provide a visual perspective of the degree to which gains were made in the mean percent of implementation for each of the dialogic and print referencing strategies across phases.

Table 13 displays the means and ranges of the percent of observed occurrences of Amanda's individual dialogic reading strategies and print referencing strategies across phases. This table provides information about her overall levels of strategy implementation within each of this study's phases. Based on an inspection of the means as shown in Figure 2 and the means listed in Table 13, gains were made from baseline to intervention for all five of the dialogic reading strategies as well as for all three of the print referencing strategies, although the print referencing gains were very minimal. Amanda's performance from baseline to intervention was more substantial for the following four dialogic strategies: (a) completion prompts, (b) open-ended

questions, (c) wh-word questions, and (d) the single print referencing strategy of print tracking. Amanda showed decreases from intervention to the two day maintenance phase for the dialogic reading strategies of completion prompts, recall questions, and wh-word questions. Although Amanda's print questions and her comments about print were very limited throughout the study, there was no decrease in print referencing strategies during maintenance.

Amanda's mean percentage for using completions prompts was 4.3% during baseline, which increased to 8.3% during intervention and then decreased to 7% during maintenance. Her mean percentage for recall questions during baseline was 14.7%, which increased to 15.7% during intervention and then also decreased to 10% during maintenance. For open-ended questions her mean percentage was 7.3% during baseline, 12.5% for intervention, and then rose substantially to a mean of 31.5% during maintenance. Her baseline mean for wh-word questions was 12.4%, which increased to 17.2% during intervention and then decreased to 12.5% during maintenance. Finally, her baseline mean for distancing questions was 0.4%, which increased to 0.7% during intervention and then notably increased to 8.5% during maintenance.

Amanda did not use any print questions during baseline. During intervention her mean was 0.7% and continued to increase to 2.5% during maintenance. Amanda's mean percentage for print comments was 0.3%, which remained at 0.3% during intervention and then increased to a mean of 1.5% percent during maintenance. Finally, her print tracking mean was 3.1% for baseline, which substantially increased to a mean of 12% for intervention, and then increased again to mean of 17% for maintenance.

Paraeducator 1 (Amanda): Quality of interactions. Table 14 shows the mean rating of the quality of Amanda's implementation of each of the facilitative interactions across conditions. As mentioned earlier, the baseline data for one day were lost due to technical difficulties with the

videotape.

A review of Table 14 reveals that Amanda displayed high levels of the characteristics and behaviors that promote positive adult-child interactions during the book reading sessions in the baseline phase. During the intervention Amanda maintained her score of 3.0 for exhibiting warmth and improved her scores for following the child’s lead as well as using descriptive language (2.7 to 3.0). However, she showed a small decrease in her use of extending the child’s focus and holding the book so the children could see the pages clearly (2.7 to 2.5). Even though the children were sometimes unable to get an adequate view of the illustrations and text in the book, her maintenance mean rating was 2.5, which falls between the score for *sometimes* (2.0) and the score for *often* (3.0). Amanda continued to display behaviors that enhance positive adult-child book reading interactions at high rates during the two maintenance sessions.

Table 14

Quality Rating of Book Reading Sessions: Paraeducator 1 (Amanda)

Paraeducator’s Behaviors	Baseline <i>M</i> Rating	Intervention <i>M</i> Rating	Maintenance <i>M</i> Rating
Acceptance/Warmth	3.0	3.0	3.0
Uses Descriptive Language	2.7	3.0	2.5
Follows Child’s Lead	2.7	3.0	3.0
Introduces/Extends	2.7	2.5	2.5
Holds Book So Child Can See Pages	2.7	2.5	2.0

Note. The rating scale scores: 0 = never, 1 = rarely, 2 = sometimes, 3 = often

Paraeducator 2 (Leah): Implementation of the book reading strategies. Figure 1 and Table 15 are each related to Leah’s overall use of dialogic reading strategies and print referencing strategies. Figure 1 provides a graphic display of the percent of occurrences in which Leah was observed to implement dialogic reading strategies and print referencing

strategies during each of the book reading sessions. Table 15 displays the means and ranges of the percent of observed occurrences of the dialogic reading strategies and print referencing strategies for Leah for each phase.

Table 16, Figure 3, and Table 17 are all related to Leah’s use of the individual book reading strategies. Table 16 displays the percent of observed occurrences of each of the individual strategies (i.e., five dialogic reading strategies and three print referencing strategies) for Leah’s book reading sessions by phase. Figure 3 displays a bar graph that offers a comparison of the means for the percent of observed occurrences for each of the individual book reading strategies by phase. Finally, Table 17 represents the means and ranges of the observed occurrences of each of the individual dialogic book reading strategies as well as each of the individual print referencing strategies that are depicted visually in Figure 3.

Table 15

Means and Ranges of Occurrence Percentages of Dialogic Reading and Print Referencing Strategies Across Phases: Paraeducator 2 (Leah)

Study Phases	Dialogic Reading Strategies <i>M</i> (Range)	Print Referencing Strategies <i>M</i> (Range)
Baseline	37% (28% - 56%)	0.6% (0 - 2%)
Intervention	62% (56% - 68%)	16% (1% - 53%)
Maintenance	NA	NA

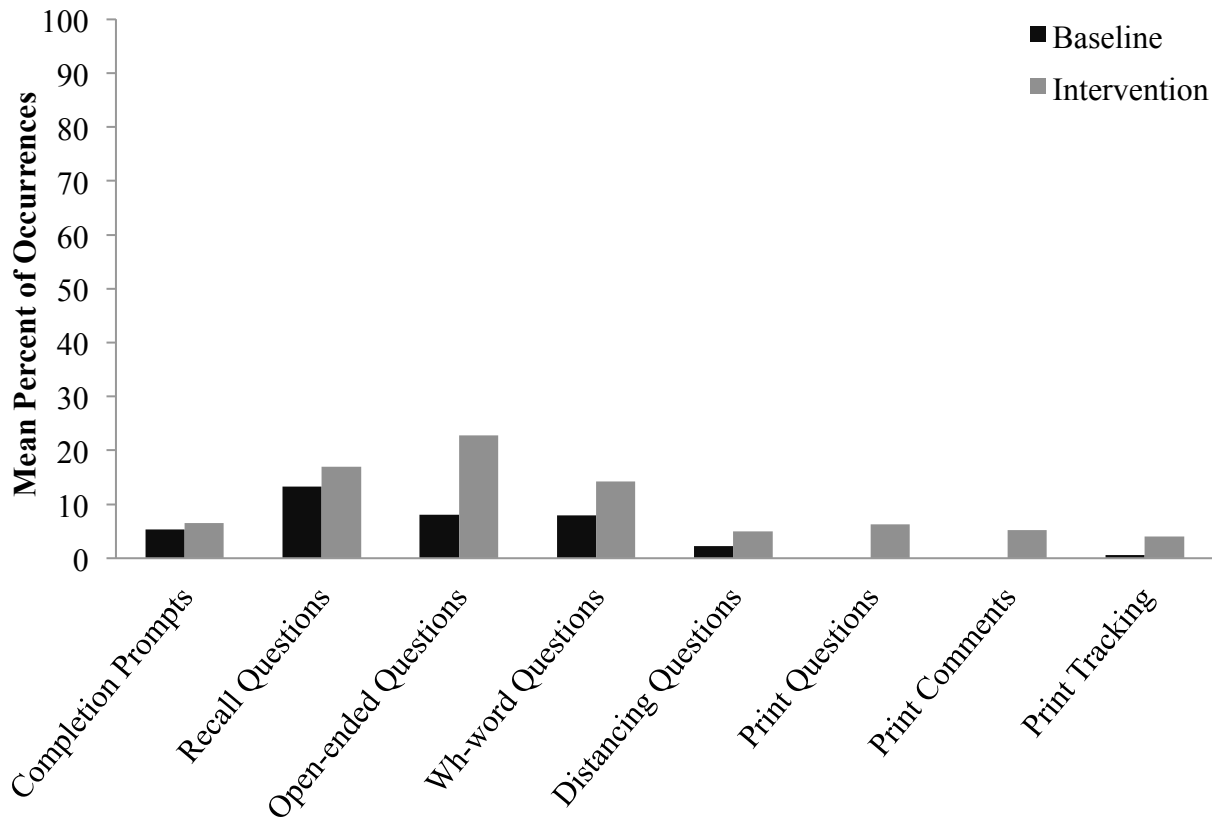
Note. *M* = Mean, NA = Not Applicable

Table 16

Occurrence Percentages of Individual Book Reading Strategies by Session: Paraeducator 2 (Leah)

Reading Sessions	# of 15 s intervals	Dialogic Reading Strategies: % of Occurrence					DR Totals	Print Referencing Strategies: % of Occurrence			PR Totals
		Completion Prompts	Recall Questions	Open-ended Questions	Wh-word Questions	Distancing Questions		Print Questions	Print Comments	Print Tracking	
<i>Baseline</i>											
Session 1	41	24%	17%	7%	7%	0	56%	0	0	0	0
Session 2	50	2%	12%	8%	2%	4%	28%	0	0	0	0
Session 3	65	2%	3%	18%	4%	2%	29%	0	0	2%	2%
Session 4	58	2%	24%	2%	0	0	28%	0	0	0	0
Session 5	56	2%	10%	5%	9%	2%	28%	0	0	2%	2%
Session 6	51	13%	12%	3%	12%	0	39%	0	0	2%	2%
Session 7	36	4%	13%	6%	11%	2%	36%	0	0	0	0
Session 8	45	0	24%	4%	22%	0	50%	0	0	0	0
Session 9	38	0	5%	10%	10%	5%	30%	0	0	0	0
Session 10	45	4%	13%	18%	2%	7%	44%	0	0	0	0
<i>Intervention</i>											
Session 11	75	4%	12%	27%	13%	0	56%	0	0	1%	1%
Session 12	52	4%	35%	10%	10%	4%	58%	0	0	2%	2%
Session 13	64	10%	2%	35%	15%	6%	68%	0	0	6%	6%
Session 14	52	8%	19%	19%	19%	0	65%	25%	21%	7%	53%

Note. DR = Dialogic Reading Strategies; PR = Print Referencing Strategies; s = seconds. The second reading of each book is italicized.



Dialogic Reading and Print Referencing Strategies

Figure 3: Mean percent of observed occurrences in which Paraeducator 2 (i.e., Leah) implemented dialogic reading or print referencing strategies during the study phases. This figure displays the means for five dialogic reading strategies and three print referencing strategies for the baseline and intervention phases.

Table 17

Means and Ranges of Occurrence Percentages of Individual Book Reading Strategies Across Phases: Paraeducator 2 (Leah)

Book Reading Strategy	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)
Completion Prompts	5.3% (0 - 24%)	6.5% (4% - 10%)
Recall Questions	13.3% (3% - 24%)	17% (2% - 35%)
Open-ended Questions	8.1% (2% - 18%)	23% (10% - 35%)
Wh-word Questions	7.9% (2% - 22%)	14.3% (10% - 19%)
Distancing Question	2.2% (0 - 7%)	2.5% (0 - 6%)
Print Questions	0 (0)	6.3% (0 - 25%)
Print Comments	0 (0)	5.3% (0 - 21%)
Print Tracking	0.6% (0 - 2%)	4% (1% - 7%)

Note. *M* = Mean

Paraeducator 2 (Leah): Overall book reading strategy implementation. As indicated, Table 15 and Figure 1 pertain to Amanda's overall dialogic reading and print referencing strategies across three phases. *Amanda's* central tendency or mean performance will be reported first, followed by an analyses of the trend of each session within phases.

Table 15 provides information about Leah's overall levels of strategy implementation within each of the study phases. This table displays the mean and range of the percent of observed occurrences of Leah's dialogic reading strategies and print referencing strategies for baseline and intervention. The means and ranges reported in Table 15 for Leah's implementation of the dialogic reading strategies within phases are markedly higher than for her implementation of print referencing strategies. Similar to Paraeducator 1 (Amanda), Leah's implementation of both of the dialogic reading strategies and the print referencing strategies show an increase in mean level from baseline to intervention.

As can be noted from an inspection of Table 15, the means of the observed occurrences

of Leah's implementation of the dialogic reading strategies during baseline was 37%, which increased to 62% during intervention. Additionally, Leah's baseline mean for her use of the print referencing strategies was 0.6%, which increased to a mean of 16% for the intervention phase. As noted earlier, maintenance sessions were unable to be conducted for Leah due to the ending of the school year.

Figure 1 provides a visual display of the percent of observed occurrences of Leah's implementation of dialogic reading and print referencing strategies for each session within the baseline and intervention phases. Although there is variability in her individual sessions within baseline, a visual estimate of a trend line that best fits the occurrences of dialogic reading strategies across her baseline is flat. During intervention, her use of the dialogic reading strategies increased for three sessions over baseline and then only slightly dropped for the fourth session during intervention (i.e., 56%, 58%, 68%, and 65%, respectively), thus her trend showed moderate acceleration.

The overall percent of the observed occurrences of Leah's implementation of print referencing strategies across sessions and phases, as displayed in Table 15, is significantly lower than for her implementation of dialogic reading strategies. As shown in Figure 1, a visual analysis of the line of best fit for Leah's implementation of print referencing strategies within phases show a flat unchanging trend during baseline and then an accelerating trend during the intervention phase. There is significantly less variability among the individual baseline sessions for print referencing strategies than for dialogic strategies. Specifically, Figure 1 shows a very limited and stable performance in Leah's print referencing strategy use in baseline ($M = 0.6\%$). These strategy occurrences began to rise just above baseline levels for two sessions (Session 11 and Session 12) during intervention (i.e., 1% and 2%, respectively). However, during the third

intervention session (Session 13) Leah's print referencing strategy performance improved to 6%, and then for the fourth and final session of intervention (Session 14) her use of print referencing strategies markedly increased to 53%.

Additionally, Figure 1 reveals that during the intervention phase, when feedback about Leah's performance was provided in an e-mail just prior to Session 12, her strategy use increased for both dialogic reading and print referencing strategies, which then continued to increase for another session. Interestingly, when e-mail feedback regarding her performance was provided just prior to Session 14, Leah's dialogic reading strategy use dropped slightly, yet remained well above baseline levels (68% to 65%), while her print referencing strategy use significantly increased (6% to 53%). Both of these sessions represented the second reading of a book, but it is important to note that this increase in performance continued in subsequent readings of a new book.

Paraeducator 2 (Leah): Implementation of the individual book reading strategies.

Table 16 sets forth the percent of observed occurrences for Leah's implementation of the five dialogic strategies and three print referencing strategies during baseline and intervention. This table reveals that during baseline Leah naturally used all five of the dialogic strategies, although her use of distancing questions was minimal. Of the three print referencing strategies, she only implemented the print referencing strategy during baseline.

Figure 3 employs bar graphs to show the degree to which gains were made in the mean percent of implementation for each of the dialogic and print referencing strategies across phases. Table 17 reports the numerical means and ranges for the percent of observed dialogic reading and print referencing strategy occurrences for each of the phases.

Based on an inspection of the means as shown in Figure 3 and the means as listed in

Table 17, gains were made from baseline to intervention for all five of the dialogic reading strategies. Specifically, during baseline, Leah's mean percentage for completion was 5.3%, and during intervention increased to 6.5%. Her mean baseline percentage for recall was 13.3%, which increased to 17% during intervention. Her open-ended questions mean during baseline was 8.1% and more than doubled to 23% during intervention. Leah's mean baseline percentage for wh-word questions was 7.9%, and her intervention mean increased to 14.3%. Her lowest baseline mean was for distancing questions (2.2%) and barely increased during intervention (2.5%).

Leah did not use any print questioning or print commenting strategies during baseline. Her mean percentage for print tracking was 0.6% and increased to a mean of 4% during intervention. Print questions increased from a baseline of 0 to an intervention mean of 6%, while her baseline of 0 for print comments increased to 5.3% during intervention.

Paraeducator 2 (Leah): Quality of interactions. Table 18 shows the mean rating of the quality of Leah's implementation of each of the five variables that were rated across conditions. A review of this table reveals that in both the baseline and maintenance phases of the study, Leah displayed levels of the characteristics and behaviors that promote positive adult-child book reading interactions. For example, her mean ratings during baseline were consistently well above the rating of "sometimes" (2.0) and at or very close to a rating of "often" (3.0). More specifically, Leah's mean rating from baseline to intervention increased for "follows the child's lead" from 2.6 to 2.8 and maintained for "acceptance and warmth" (3.0), "introduces/extends" (2.9), and "holds the book so child can see pages" (2.8). Her mean rating for "uses descriptive language" slightly decreased from baseline to intervention (2.9 to 2.8). As previously noted, maintenance sessions could not be conducted with Leah due to the school year coming to an end.

Table 18

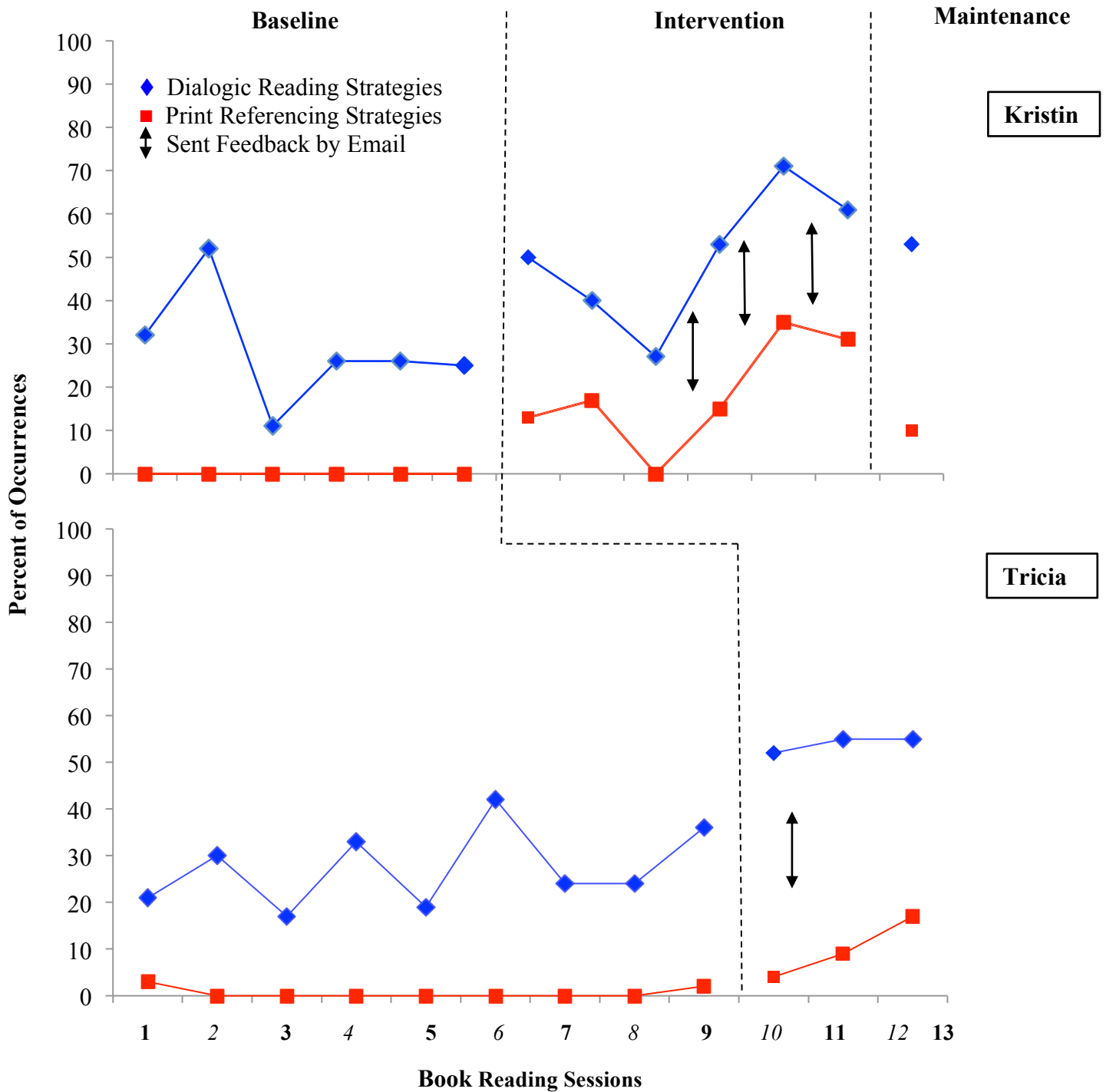
Quality Rating of Book Reading Sessions: Paraeducator 2 (Leah)

Paraeducator's Behaviors	Baseline	Intervention	Maintenance
Acceptance/Warmth	3.0	3.0	NA
Uses Descriptive Language	2.9	2.8	NA
Follows Child's Lead	2.6	2.8	NA
Introduces/Extends	2.9	2.9	NA
Holds Book So Child Can See Pages	2.8	2.8	NA

Note. The rating scale scores: 0 = never, 1 = rarely, 2 = sometimes, 3 = often

Pair Two: Paraeducator 3 (Kristin) and Paraeducator 4 (Tricia)

Figure 4 provides a graphic display of the second pair of paraeducators (i.e., Kristin and Tricia), who were yoked together for the implementation of the second multiple baseline. A report on each of these paraeducators' individual implementation of the combined dialogic reading strategies and the combined print referencing strategies as well as their implementation of each of the five dialogic reading strategies and three print referencing strategies follows. Additionally, the report includes an analysis of the quality of the paraeducator-child interactions during the book reading sessions.



1st Book Reading & 2nd Book Reading

Figure 4. Percent of observed occurrences in which pair two, that is Paraeducator 3 (Kristin) and Paraeducator 4 (Tricia), were observed to use a dialogic reading strategy (i.e., diamond) and print referencing strategy (i.e., square) during the shared book reading sessions. Breaks in lines represent phase changes. Vertical arrows indicate when feedback was e-mailed to the paraeducator.

Paraeducator 3 (Kristin): Implementation of the book reading strategies. Figure 4 and Table 19 are each related to Kristin’s overall use of dialogic reading strategies and print referencing strategies. Figure 4 provides a graphic display of the percent of occurrences in which Kristin was observed to implement dialogic reading strategies and print referencing strategies during each of the book reading sessions. Table 19 displays the means and ranges of the percent of observed occurrences of dialogic strategies and print referencing strategies she achieved for each phase.

Table 20, Figure 5, and Table 21 are all related to Kristin’s use of the individual strategies for dialogic reading and the individual strategies for print referencing. Table 20 displays the percent of observed occurrences of each of the individual strategies (i.e., five dialogic reading strategies and three print referencing strategies) for each of Kristin’s book reading sessions by phase. Figure 5 displays a bar graph that offers a comparison of means for the percent of observed occurrences by phase for each of the individual strategies. Finally, Table 21 sets forth the means and ranges of the observed occurrences of each of the individual dialogic book reading strategies and each of the individual print referencing strategies that are depicted visually in Figure 5.

Table 19

Means and Ranges of Occurrence Percentages of Dialogic Reading and Print Referencing Strategies Across Phases: Paraeducator 3 (Kristin)

Study Phases	Dialogic Reading Strategies <i>M</i> (Range)	Print Referencing Strategies <i>M</i> (Range)
Baseline	29% (11% - 52%)	0 (0)
Intervention	50% (27% - 71%)	19% (0 - 35%)
Maintenance ^a	53%	10%

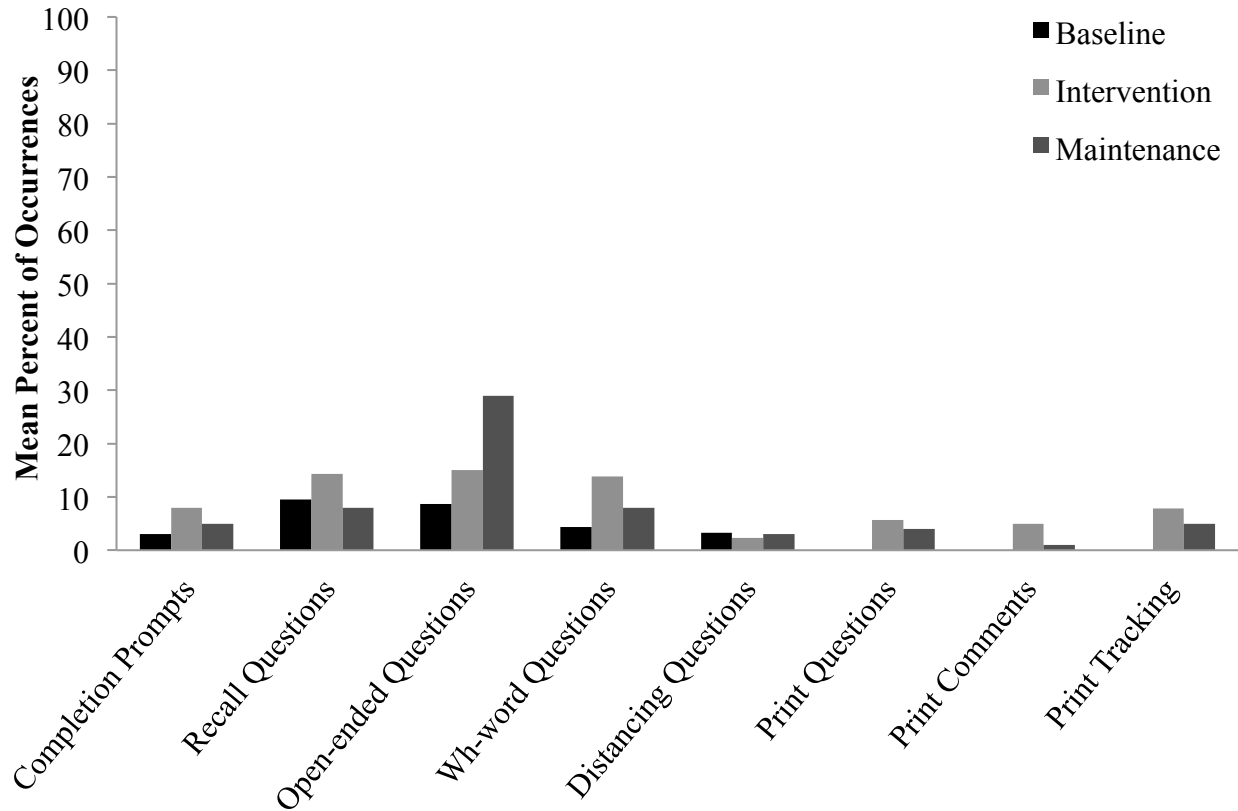
Note. *M* = Mean; ^a Maintenance was one day

Table 20

Occurrence Percentages of Individual Book Reading Strategies by Session: Paraeducator 3 (Kristin)

Reading Sessions	# of 15 s intervals	Dialogic Reading Strategies: % of Occurrence					DR Totals	Print Referencing Strategies: % of Occurrence			PR Totals
		Completion Prompts	Recall Questions	Open-ended Questions	Wh-word Questions	Distancing Questions		Print Questions	Print Comments	Print Tracking	
<i>Baseline</i>											
Session 1	22	0	14%	9%	9%	0	32%	0	0	0	0
Session 2	31	0	23%	10%	13%	6%	52%	0	0	0	0
Session 3	36	0	3%	8%	0	0	11%	0	0	0	0
Session 4	38	0	11%	8%	0	8%	26%	0	0	0	0
Session 5	41	7%	0	15%	2%	2%	26%	0	0	0	0
Session 6	47	11%	6%	2%	2%	4%	25%	0	0	0	0
<i>Intervention</i>											
Session 7	67	15%	9%	7%	19%	0	50%	3%	3%	7%	13%
Session 8	62	19%	31%	2%	7%	0	40%	9%	6%	2%	17%
Session 9	83	0	5%	14%	8%	0	27%	0	0	0	0
Session 10	77	1%	13%	31%	8%	0	53%	4%	5%	6%	15%
Session 11	60	7%	3%	23%	28%	10%	71%	5%	8%	22%	35%
Session 12	70	6%	25%	13%	13%	4%	61%	13%	8%	10%	31%
<i>Maintenance</i>											
Session 13	76	5%	8%	29%	8%	3%	53%	4%	1%	5%	10%

Note. DR = Dialogic Reading Strategies; PR = Print Referencing Strategies; s = seconds. The second reading of each book is italicized



Dialogic Reading and Print Referencing Strategies

Figure 5. Mean percent of observed occurrences in which Paraeducator 3 (Kristin) implemented dialogic reading and print referencing strategies during the study phases. This figure displays the means for five dialogic reading strategies and three print referencing strategies for the baseline, intervention, and maintenance phases.

Table 21

Means and Ranges of Occurrence Percentages of Individual Book Reading Strategies Across Phases: Paraeducator 3 (Kristin)

Strategy	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)	Maintenance ^a <i>M</i> (Range)
Completion Prompts	3% (0 - 11%)	8% (0 - 19%)	5%
Recall Questions	9.5% (0 - 23%)	14.3% (3% - 31%)	8%
Open-ended Questions	8.7% (2% - 15%)	15% (2% - 23%)	29%
Wh-word Questions	4.3% (0 - 13%)	13.8% (7% - 28%)	8%
Distancing Questions	3.3% (0 - 8%)	2.3% (0 - 10%)	3%
Print Questions	0 (0)	5.7% (0 - 13%)	4%
Print Comments	0 (0)	5% (0 - 8%)	1%
Print Tracking	0 (0)	7.8% (0 - 22%)	5%

Note. *M* =Mean; ^a Maintenance was one day

Paraeducator 3 (Kristin): Overall book reading strategy implementation. As indicated, Table 19 and Figure 4 pertain to Kristin’s overall dialogic reading and print referencing strategies across three phases. Kristin’s central tendency or mean performance will be reported first, followed by an analyses of the trend of each session within phases.

Table 19 provides information about Kristin’s overall levels of strategy implementation within each of the study phases. This table displays the mean and range of the percent of observed occurrences of Kristin’s dialogic reading strategies and print referencing strategies for baseline, intervention, and maintenance. An inspection of Table 19 reveals that Kristin’s mean implementation of the dialogic reading strategies within phases are markedly higher than for her implementation of print referencing strategies. The mean of observed intervals of occurrence for Kristin’s dialogic reading strategies during baseline was 29%, which increased to 50% during intervention and slightly increased again to 53% during the single maintenance session. As

indicated, Kristin did not use any of the print referencing strategies during baseline ($M = 0$), whereas her mean of the observed intervals of occurrence for the print referencing strategies was 19% during intervention. This dropped to 10% during the one session of maintenance.

Figure 4 provides a visual display of the percent of observed occurrences of Kristin's implementation of dialogic reading and print referencing strategies for each session within baseline, intervention, and maintenance. A visual estimate of a trend line or line of best fit for Kristin's use of the dialogic reading strategies during baseline, as depicted in Figure 4, reveals that her performance trend is basically flat, although there was performance variability, or bounce, during the first three days of baseline. During intervention, Kristin's use of the dialogic reading strategies initially increased and then decelerated to baseline level by the third session (39%). Her implementation of the dialogic reading strategies then accelerated until the final book reading session (Session 12), which was the second highest percentage of observed occurrences that she obtained.

The marked acceleration during intervention just noted for Kristin's intervention performances appears to be directly related to the e-mail feedback provided to her prior to Session 10 and Session 11, and also, most likely, to the e-mail feedback that was provided prior to Session 12. Interestingly, the e-mail feedback that was provided prior to Session 10 was before the second reading of a book, while the e-mail feedback that was provided prior to Session 11 was before the first reading of a different book.

The overall percent of the observed occurrences of Kristin's print referencing strategy implementation across sessions and phases is notably lower than her dialogic reading strategy implementation as indicated in Figure 4. A visual analysis of the lines of best fit for Kristin's implementation of print referencing within phases is also revealed by an inspection of Figure 5.

Her baseline trend is a completely flat line that remains consistently at zero. During intervention the overall trend is accelerating. Her percent of occurrences increased for the first two book reading sessions (Session 7 and Session 8); however, it fell to 0 for the third intervention session (Session 9). Kristin's performance then began a steady acceleration for the next two intervention sessions and slightly decelerated during the final intervention session. Because there was only one session of maintenance, no trend can be determined. Kristin's print referencing performance mean (10%) decreased from the previous session and fell below the mean level of the intervention phase (19%) during the single maintenance session. It is noteworthy that Figure 4 shows a very similar pattern in Kristin's intervention session performances for dialogic reading and print referencing with her print referencing results almost mirroring the dialogic reading results at lower levels.

Finally, Kristin's performance seems very impacted by the e-mail feedback as shown in Figure 4. This is particularly apparent in Session 10 and Session 11. Session 10 shows a marked increase from a previous score of 0 following the e-mail feedback. Kristin's strategy use for Session 11, which immediately follows e-mail feedback, displays her highest overall score for print referencing (35%).

Paraeducator 3 (Kristin): Implementation of the individual book reading strategies.

Table 20 sets forth the percent of occurrence of each of the five dialogic strategies and each of the print referencing strategies. This table reveals that during baseline Kristin naturally used all five of the dialogic strategies, although her use of *completion prompts*, *wh-word questions*, and *distancing questions* was minimal. She did not use any of the print referencing strategies during baseline. However, Kristin used all eight of the book reading strategies (i.e., the five dialogic reading strategies and the three print referencing strategies) during the final two intervention

sessions (Session 11 and Session 12) and the single maintenance session (Session 13).

Figure 5 employs bar graphs to show the degree to which gains were made in the mean percent of implementation for each of the five dialogic and three print referencing strategies across phases. Table 21 reports the numerical means and ranges for each dialogic reading and print referencing strategy percent of occurrence for each of the three phases.

Based on an inspection of the means as shown in Figure 5 and the means as shown in Table 21, gains were made from baseline to intervention for four of the five dialogic reading strategies. Kristin's gains were minimal for completion and recall while her gains for open-ended questions and wh-word questions were more substantial. Her observed performance did not improve in her use of distancing questions. Table 21 also reveals that during the single maintenance session gains were made for open-ended and distancing questions while her performance dropped in completion, recall, wh-word questions, and all three of the print referencing strategies.

More specifically, during baseline, Kristin's mean percentage for completion was 3% and 8% during intervention. Her mean baseline percentage for recall was 9.5%, ranging from 0 to 23%, which increased to a mean of 14.3% for intervention. Her mean baseline percentage for open-ended questions was 8.7%, which nearly doubled during intervention to a mean of 15%. Kristin's mean baseline percentage for wh-word questions was 4.3%, which increased to 13.8% during intervention and her mean baseline percentage for distancing questions was 3.3%, which dropped to 2.3% during intervention. During the single maintenance session, Kristin's mean percentage dropped to 5% for completion, to 8% for recall, and to 8% for wh-words. Her mean percentage for open-ended questions increased to 29% and, for distancing questions, increased slightly to 3%.

As noted, Kristin did not use print questions, print comments, or print tracking during baseline. During intervention, her mean percentage increased to 5% for print questions and also to 5% for print comments. Her intervention mean percentage for print tracking increased to 7.8%. Finally, during Kristin's single day of maintenance, her mean percentage decreased to 4% for print questions, to 1% for print comments, and to 5% for print tracking.

Paraeducator 3 (Kristin): Quality of interactions. Table 22 shows the mean rating for each of the variables related to the instructional and emotional qualities of Kristin's book reading interactions across conditions. It is noteworthy to mention that her assessed levels of the five rated variables that promote positive adult-child interactions during book reading represent the lowest ratings across the four paraeducators. On a scale of 1.0 to 3.0, with 3.0 being the highest possible rating, Kristin was the only paraeducator whose ratings during baseline did not range well above "sometimes" (2.0) and closer to "often" (3.0). Specifically, she had three ratings on the quality of the book reading rating scale in the upper end of the 1.0 range for "rarely" (i.e., 1.7, 1.7, and 1.8).

The ratings of Kristin's book reading interaction variables notably improved during intervention and increased again during the single session of maintenance. Specifically, she showed the least amount of improvement for "introduces/extends" from baseline (1.7) to intervention (2.0), followed by a substantial increase from baseline to intervention in "uses descriptive language" (1.7 to 2.5) and "holds book so child can see pages" (1.8 to 2.8). Kristin's highest baseline rating (2.5) for "follows child's lead" increased to 3.0 during intervention. Most impressively, Kristin's final book reading session, which was her single session of maintenance, resulted in all five of the interaction variables being rated as 3.0 (i.e., often).

Table 22

Quality Rating of Book Reading Sessions: Paraeducator 3 (Kristin)

Paraeducator’s Behaviors	Baseline	Intervention	Maintenance
Acceptance/Warmth	2.5	3.0	3.0
Uses Descriptive Language	1.7	2.5	3.0
Follows Child’s Lead	2.5	3.0	3.0
Introduces/Extends	1.7	2.0	3.0
Holds Book So Child Can See Pages	1.8	2.8	3.0

Note. The rating scale scores: 0 = never, 1 = rarely, 2 = sometimes, 3 = often

Paraeducator 4 (Tricia): Implementation of the book reading strategies. Figure 4 and Table 23 are related to Tricia’s overall use of dialogic reading strategies and print referencing strategies. Specifically, Figure 4 provides a graphic display of the observed occurrences during which Tricia was observed to implement dialogic reading strategies and print referencing strategies during each of the book reading sessions. Table 23 displays the mean and ranges of the percent of observed occurrences of her implementation of dialogic strategies and print referencing strategies for each phase.

Table 24, Figure 6, and Table 25 are all related to Tricia’s use of the individual strategies for dialogic reading and the individual strategies for print referencing. Table 24 displays the percent of observed occurrences of each of the individual strategies (i.e., five dialogic reading strategies and three print referencing strategies) for each of Tricia’s book reading sessions by phase. Figure 6 displays a bar graph that offers a comparison of means for the percent of observed occurrences for each of the individual strategies by phase. Finally, Table 25 sets forth Tricia’s means and ranges of occurrence percentages for each of the individual dialogic book reading strategies and for each of the individual print referencing strategies that are visually depicted in Figure 6.

Table 23

Means and Ranges of Occurrence Percentages of Dialogic Reading and Print Referencing Strategies Across Phases: Paraeducator 4 (Tricia)

Study Phases	Dialogic Reading Strategies <i>M</i> % (Range)	Print Referencing Strategies <i>M</i> % (Range)
Baseline	27% (17% - 42%)	0.6% (0 - 3%)
Intervention	54% (52% - 55%)	10% (4% - 17%)
Maintenance (2 sessions)	NA	NA

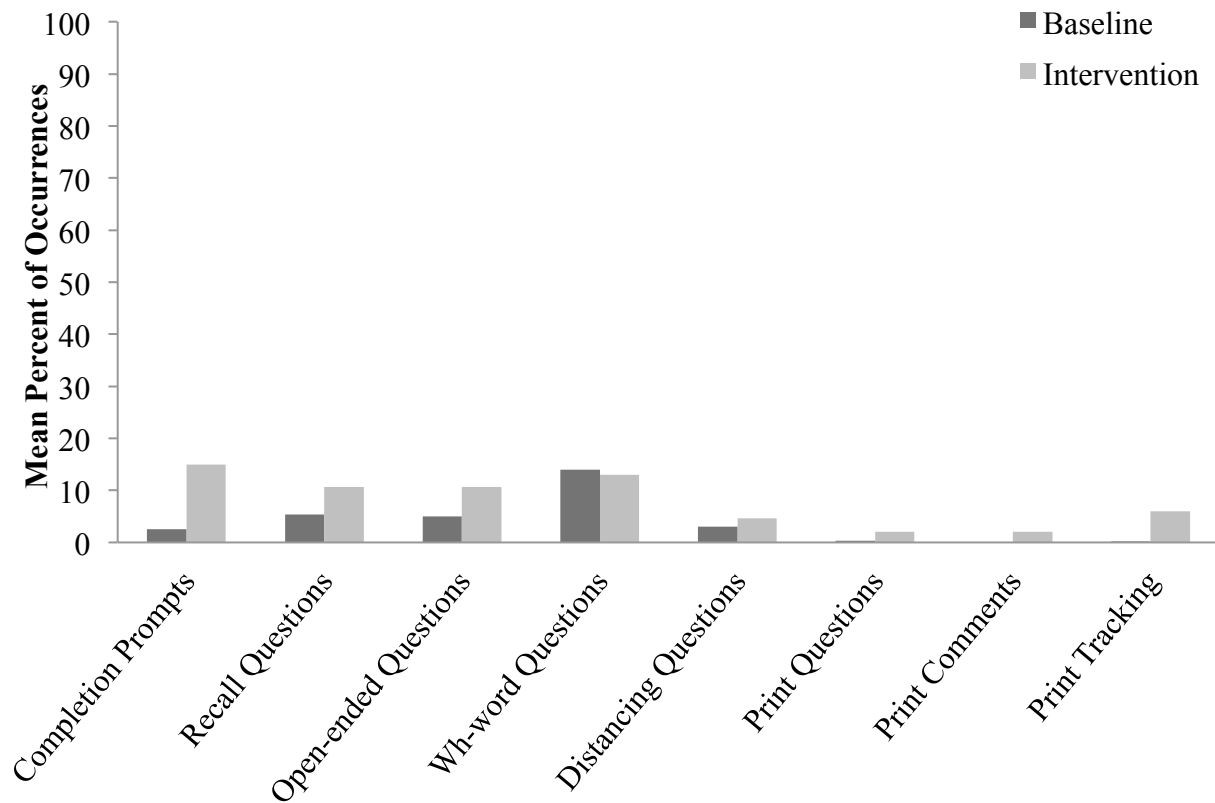
Note. *M* = Mean, NA = Not Applicable

Table 24

Occurrence Percentages of Individual Book Reading Strategies by Session: Paraeducator 4 (Tricia)

Reading Sessions	# of 15 s intervals	Dialogic Reading Strategies: % of Occurrence					DR Totals	Print Referencing Strategies: % of Occurrence			PR Totals
		Completion Prompts	Recall Questions	Open-ended Questions	Wh-word Questions	Distancing Questions		Print Questions	Print Comments	Print Tracking	
<i>Baseline</i>											
Session 1	38	3%	0	3%	15%	0	21%	3%	0	0	3%
Session 2	36	0	5%	5%	17%	3%	30%	0	0	0	0
Session 3	40	0	5%	0	12%	0	17%	0	0	0	0
Session 4	39	0	10%	10%	13%	0	33%	0	0	0	0
Session 5	27	4%	0	4%	11%	0	19%	0	0	0	0
Session 6	28	0	10%	3%	29%	0	42%	0	0	0	0
Session 7	38	5%	3%	5%	11%	0	24%	0	0	0	0
Session 8	38	5%	5%	3%	11%	0	24%	0	0	0	0
Session 9	41	7%	10%	12%	7%	0	36%	0	0	2%	2%
<i>Intervention</i>											
Session 10	50	18%	8%	6%	16%	4%	52%	0	0	4%	4%
Session 11	31	6%	10%	23%	13%	3%	55%	3%	3%	3%	9%
Session 12	29	21%	14%	3%	10%	7%	55%	3%	3%	11%	17%

Note. DR = Dialogic Reading Strategies; PR = Print Referencing Strategies; s = seconds; *The* second reading of each book is italicized



Dialogic Reading and Print Referencing Strategies

Figure 6. Mean percent of observed occurrences in which Paraeducator 4 (Tricia) implemented dialogic reading and print referencing strategies during the study phases. This figure displays the means for five dialogic reading strategies and three print referencing strategies for the baseline, intervention, and maintenance phases.

Table 25

Means and Ranges of Occurrence Percentages of Individual Book Reading Strategies Across Phases: Paraeducator 4 (Tricia)

Strategy	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)
Completion Prompts	2.7% (0 - 7%)	15% (6% - 21%)
Recall Questions	5.3% (0 - 10%)	10.7% (8% - 14%)
Open-ended Questions	5% (0 - 12%)	10.7% (6% - 23%)
Wh-word Questions	14% (7% - 29%)	13% (10% - 16%)
Distancing Question	0.3% (0 - 3%)	4.7% (3% - 7%)
Print Questions	0.3% (0 - 3%)	2% (0 - 3%)
Print Comments	0 (0)	2% (0 - 3%)
Print Tracking	0.2% (0 - 2%)	6% (3% - 11%)

Note: *M* = Mean

Paraeducator 4 (Tricia): Overall book reading strategy implementation. As indicated, Table 23 and Figure 4 pertain to Tricia's overall dialogic reading and print referencing strategies across three phases. Tricia's central tendency or mean performance will be reported first, followed by an analyses of the trend of each session within phases.

Table 23 displays the means and ranges of the observed occurrence percentages of Tricia's dialogic reading strategies and print referencing strategies for baseline and intervention. As can be noted from an inspection of this table, the means for Tricia's implementation of the dialogic reading strategies within phases is considerably higher than for her mean implementation of print referencing strategies.

An inspection of Table 23 reveals that the mean of percent of occurrences for Tricia's use of the dialogic reading strategies was 27% during baseline and increased to 54% during intervention. Additionally, Tricia's baseline mean for print referencing strategies was 0.6%, which increased to a mean of 10% for the intervention phase. As stated previously, due to the

completion of the school year, maintenance sessions were unable to be conducted.

Figure 4 provides a visual display of the percent of observed occurrences of Tricia's implementation of dialogic reading and print referencing strategies for each session within baseline and intervention phases. A visual inspection of the line that best fits Tricia's overall trend for dialogic reading strategies during baseline, shows that while her individual session scores fluctuated, the overall trend is flat. During intervention, Tricia's use of the dialogic reading strategies increased for each of the three sessions. Hence, a trend line that best fits her implementation of dialogic reading strategies shows moderate acceleration. However, it is also noteworthy that her increase in dialogic reading strategies from her final baseline session (Session 9) to her first session of intervention (Session 10) represented a marked increase in the percent of strategy occurrence (i.e., 36% to 52%, respectively).

An inspection of Figure 4 reveals that Tricia implementation of print referencing strategies across sessions and phases is notably lower than for dialogic strategies. An inspection of Figure 4 also shows that a visual analysis of the line of best fit for Tricia's implementation of print referencing within phases reveals a flat baseline that shifts to a positive accelerating trend during intervention that is slightly steeper than for dialogic reading strategies. Further, there is substantially less variability among the individual baseline sessions for print referencing strategies than for the dialogic reading strategies.

Additionally, Figure 4 demonstrates that during the intervention phase, when feedback about Tricia's performance was provided in an e-mail just prior to Session 11, her strategy use increased for both dialogic and print referencing strategies. Interestingly, Session 11 represented the first reading of a book.

Paraeducator 4 (Tricia): Implementation of the individual book reading strategies.

Table 24 sets forth the percent of occurrences in which Tricia implemented the dialogic reading strategies and the print referencing strategies. This table reveals that during baseline Tricia used wh-word questions (14%) more than the other strategies and rarely used distancing questions ($M = 0.3\%$). Her use of completion prompts ($M = 2.7\%$), recall questions ($M = 5.3\%$), and open-ended questions ($M = 5\%$) was also low during baseline. Additionally, Tricia rarely used any of the print referencing strategies (i.e., print questions, $M = 0.3\%$; print comments, $M = 0$; and print tracking, $M = 0.2\%$).

Figure 6 employs a bar graph to visually depict the changes in Tricia's mean percent of implementation from baseline to intervention for each of the dialogic and print referencing strategies. Table 25 reports Tricia's numerical means and ranges for percent of occurrences for her use of each of the dialogic reading and print referencing strategies. Based on an inspection of the means as shown in Figure 6 and the means and ranges as shown in Table 25, gains were made from baseline to intervention for four of the five dialogic reading strategies; specifically for completion prompts, recall questions, open-ended questions, and distancing questions. Tricia's mean percent of occurrences of strategy implementation included moderate gains for completion prompts (2.7% - 15%), recall questions (5.3% - 10.7%), open-ended questions (5% - 10.7%), and distancing questions (0.3% - 4.7%) from baseline to intervention. However, her mean percent of occurrence of strategy implementation for wh-word questions changed from 14% to 13% from baseline to intervention.

Tricia's mean percent of occurrence for her implementation of the three print referencing strategies increased for each of the strategies from baseline to intervention, although her gains for print tracking were most substantial. Specifically, from baseline to intervention Tricia's

mean percent of occurrence increased from 0.3% to 2% for print questions, from 0 to 2% for print comments, and from 0.2% to 6% for print tracking.

Paraeducator 4 (Tricia): Quality of interactions. Table 26 shows the mean ratings of the quality of Tricia’s implementation of each of the rated variables for each of the study conditions. A review of this table reveals that during baseline, Tricia displayed high levels of the instructional and emotional qualities that facilitate positive adult-child interactions during book reading. Her baseline ratings for the five variables ranged from 2.4 to 3.0. She maintained her 3.0 mean rating from baseline to intervention for “acceptance/warmth,” “introduces/extends,” and “holds book so child can see pages.” Tricia increased her baseline mean rating for “uses descriptive language” from 2.9 to an intervention mean rating of 3.0. She also increased her rating for “follows the child lead” from a baseline mean rating of 2.4 to an intervention mean rating of 3.0. Thus, Tricia received a 3.0 mean rating for all five of the assessed positive book interaction variables during intervention.

Table 26

Quality Rating of Book Reading Sessions: Paraeducator 4 (Tricia)

Paraeducator’s Behaviors	Baseline	Intervention	Maintenance
Acceptance/Warmth	3.0	3.0	NA
Uses Descriptive Language	2.9	3.0	NA
Follows Child’s Lead	2.4	3.0	NA
Introduces/Extends	3.0	3.0	NA
Holds Book So Child Can See Pages	3.0	3.0	NA

Note. 1.0 = rarely; 2.0 = sometimes; 3.0 = often; NA = not applicable

Results of the Children’s Engagement During the Book Reading Sessions

The results of the data for the children’s level of engagement during the book reading interactions are reported in this section. The three child behaviors that were selected as the

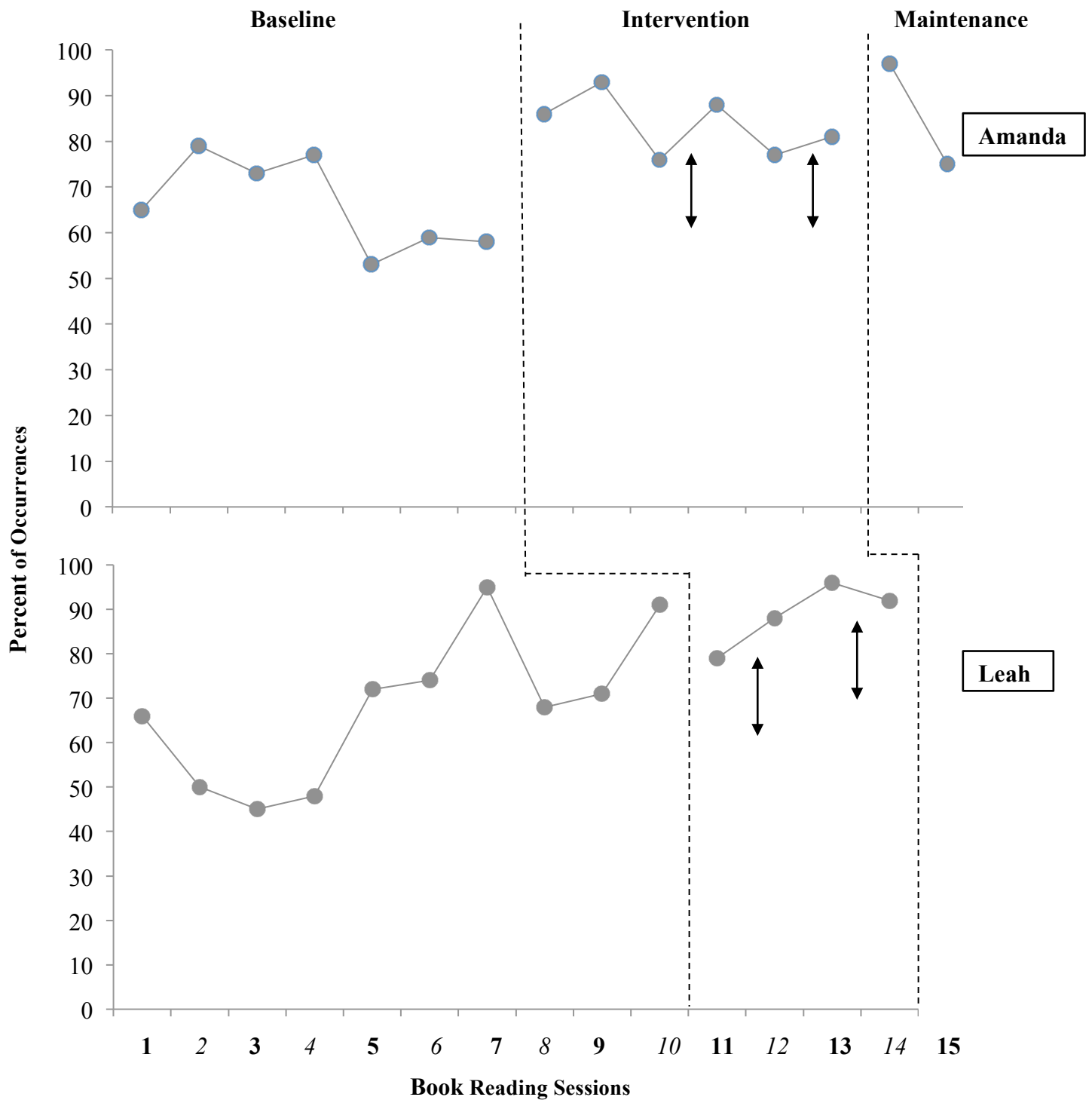
measured variables that served as evidence of engagement included:

- a child asking a question related to the story,
- a child initiating a comment related to the story, and
- a child responding to a paraeducator's request for a response related to the story.

The child engagement results are discussed separately for each paraeducator within the two pairs.

Children's Engagement for Pair One: Paraeducator 1 (Amanda) and Paraeducator 2 (Leah)

Figure 7 provides a graphic display of the children's engagement for the first yoked pair of paraeducators' (i.e., Amanda & Leah) children's combined engagement variables. This is followed by a report of the child engagement results for each paraeducators' small group of children. Both Paraeducator 1 (Amanda) and Paraeducator 2 (Leah) had four children in their book reading groups. Results are reported for the combined child engagement variables as well as for each of the three individual child engagement variables.



1st Book Reading and 2nd Book Reading

Figure 7. Percent of observed occurrences of the combined children’s engagement variables for Paraeducator Pair One (i.e., Paraeducator 1: Amanda and Paraeducator 2: Leah) during the book reading sessions. The combined engagement variables included “asking questions,” “initiating comments,” and “responding to requests for responses.” Breaks in the line connecting sessions represent phase changes. Vertical arrows indicate when feedback was e-mailed to the paraeducator.

Children’s engagement: Paraeducator One. Figure 7 and Table 27 are related to the overall children’s engagement during Amanda’s book reading sessions. Figure 7 displays the percent of occurrences for the combined children’s engagement variables for each session across each phase and Table 27 displays the means and ranges of the percent of occurrences of the combined children’s engagement variables across each phase.

Table 28 shows the percent of the observed occurrences of each of the three individual types of child engagement variables for each of Amanda’s book reading sessions. Figure 8 displays a bar graph that provides a comparison of the means of the observed occurrences for each of the individual child engagement behaviors for each phase. Finally, Table 29 sets forth the means and ranges of the observed occurrences of the individual child engagement behaviors that are depicted visually in Figure 8.

Table 27

*Means and Ranges of the Combined Children’s Engagement Across Phases:
Paraeducator 1 (Amanda)*

Study Phases	Children’s Engagement <i>M</i> (Range)
Baseline	66.3% (53% - 79%)
Intervention	84.5% (76% - 93%)
Maintenance ^a	86% (75% - 97%)

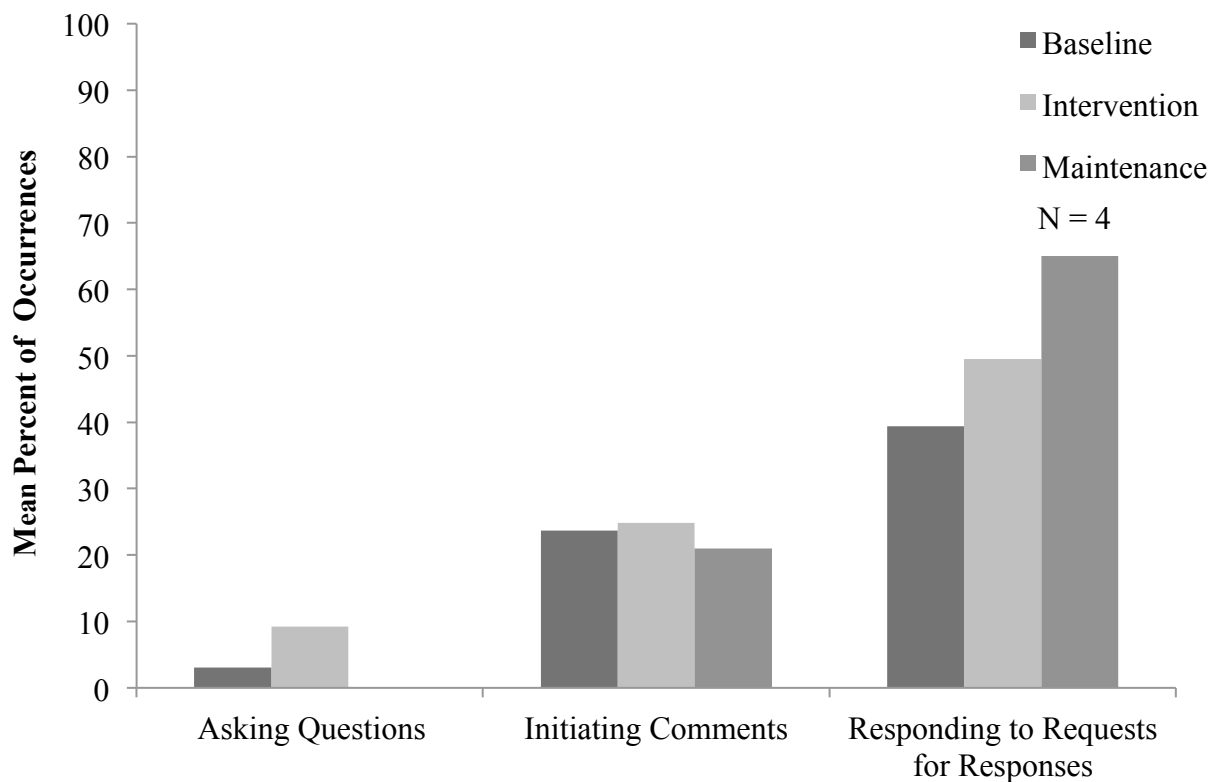
Note. *M* = Mean; ^a Maintenance was two days Table 30

Table 28

*Percentages of the Individual Variables of Child Engagement by Session:
Paraeducator 1 (Amanda)*

Reading Sessions	# of 15 s Intervals	Children's Engagement Variables		
		Child Asking Question	Child Initiating Comment	Child Responding to Request for Response
<i>Baseline</i>				
Session 1	23	0	35%	30%
<i>Session 2</i>	24	4%	25%	50%
Session 3	40	5%	25%	43%
<i>Session 4</i>	35	3%	20%	54%
<i>Session 5</i>	30	0	13%	40%
Session 6	42	2%	24%	33%
<i>Session 7</i>	38	8%	24%	26%
<i>Intervention</i>				
Session 8	37	8%	19%	59%
<i>Session 9</i>	41	5%	15%	73%
Session 10	45	9%	27%	40%
<i>Session 11</i>	51	4%	33%	51%
Session 12	41	17%	29%	31%
<i>Session 13</i>	42	12%	26%	43%
<i>Maintenance</i>				
Session 14	36	0	25%	72%
<i>Session 15</i>	36	0	17%	58%

Note. The second reading of each book is italicized. A book reading session was lost between *Session 4* and *Session 5*; therefore both of these sessions are second readings of a book.



Children's Engagement in Paraeducator 1's Book Reading Group

Figure 8. This figure displays bar graphs that compare the mean percent of observed occurrences for each phase of the study (i.e., baseline, intervention and maintenance). The bars represent each of the three individual child engagement variables for the children in Paraeducator 1's (i.e., Amanda) book reading group. There were four children in Amanda's book reading group.

Table 29

Means and Ranges of Individual Variables of Child Engagement Across Phases: Paraeducator 1 (Amanda)

Children's Engagement	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)	Maintenance ^a <i>M</i> (Range)
Asking Questions	3.1% (0 - 8%)	9.2% (4% - 17%)	0 (0)
Initiating Comments	23.7% (13% - 35%)	24.5% (15% - 33%)	21% (17% - 25%)
Responding to Requests for Responses	39.4% (26% - 54%)	49.5% (31% - 73%)	65% (58% - 72%)

Note. *M* = Mean; ^a Maintenance was two days

Children's overall engagement: Paraeducator 1 (Amanda). As can be noted from an inspection of Table 27, the mean of the observed occurrences for the children's engagement

during baseline was 66.3%, which increased to a mean of 84.5% during intervention and continued to increase to a mean of 86% for the two sessions of the maintenance phase. Figure 7 provides a graphic display of the percent of observed occurrences of the combined children's engagement in Amanda's small book reading group for each session within baseline, intervention, and maintenance. An inspection of Figure 7 shows that a visual analysis of a line that best fits the trend for baseline indicates a slight deceleration in the children's engagement over the baseline sessions. At the point of the intervention, the children's overall level of engagement increased and maintained with a trend line of best fit during intervention that is relative unchanging or flat. The trend line analysis suggests that the intervention did have a positive impact on the overall engagement of the children in Amanda's book reading group.

While maintenance was only two days, it is interesting that the first day showed an increase over the final day of intervention. However, the second and last day of maintenance returned to a percentage of occurrence more typical of the intervention phase. It is also interesting to note the first day of maintenance was the second reading of book and the second and last day of maintenance was the first reading of new book.

It is noteworthy that the sessions after e-mail feedback was provided to Paraeducator 1 (Amanda) at two points during intervention, there is a small increase in the engagement of the children as there was for Amanda's implementation of strategies. If one compares the graphic display of Amanda's dialogic book reading strategies, as shown in Figure 1, with the overall engagement of the children in her group, as shown in Figure 7, a very similar pattern of responding is shown, with a higher overall level of responses from the children and a less variable trend during intervention. This pattern is not apparent when one compares Amanda's print referencing strategies to the children's overall level of engagement. Thus, these results

indicate that the dialogic reading strategies employed by Amanda were primarily driving the children's responses.

Individual variables of child engagement: Paraeducator 1 (Amanda): Table 28 displays the percent of occurrences of each of the three children's engagement variables for each session of the three phases. Figure 8 employs bar graphs to provide a visual comparison of the mean percent of implementation for each of the three child engagement variables across each phase; whereas Table 29 reports the numerical means and ranges for the percent of observed occurrence for each type of child engaged response for each of the three phases.

Based on an inspection of the means as shown in Figure 8 and the means reported in Table 29, gains were made from baseline to intervention for all three of the child engagement variables. The mean change for "initiating comments" was minimal (23.7% to 24.5%). The change in "asking questions" was low during both phases although this child engagement variable represents a larger increase in mean value (3.1% to 9.2%) than for the children's commenting. The mean change for "responding to requests for responses" represents the highest overall level of engagement and the largest increase in mean value (39.4% to 49.5%) from baseline to intervention, which increased to 65% for the mean of the two maintenance sessions. Interestingly, during the two sessions of maintenance the children's commenting decreased slightly and they did not ask any questions during these sessions. These data indicate that the higher level of responses found for "responding to requests for responses" are most likely directly related to the fact that the dialogic reading strategies solicit responses from the children. While print referencing strategies direct children's attention to print, only one strategy (i.e., print questions) solicits responses. And, of course, print referencing was generally used less by Amanda and the other paraeducators.

Children’s engagement: Paraeducator 2 (Leah). Figure 7 and Table 30 are related to the overall children’s engagement during Leah’s book reading sessions. Figure 7 displays the percent of occurrences for the combined children’s engagement variables for each session across each phase and Table 30 displays the means and ranges of the percent of occurrences of the combined children’s engagement variables across each phase.

Table 31 shows the percent of the observed occurrences of each of the three individual types of child engagement variables for each of Leah’s book reading sessions. Figure 9 displays a bar graph that provides a comparison of the means of the percentage of observed occurrences for each of the individual child engagement behaviors for each phase. Finally, Table 32 sets forth the means and ranges of the observed occurrences of the individual child engagement behaviors that are depicted visually in Figure 9.

Table 30

*Means and Ranges of the Combined Children’s Engagement Across Phases
Paraeducator 2 (Leah)*

Study Phases	Children’s Engagement <i>M</i> (Range)
Baseline	68% (45% - 95%)
Intervention	88.8% (79% - 96%)

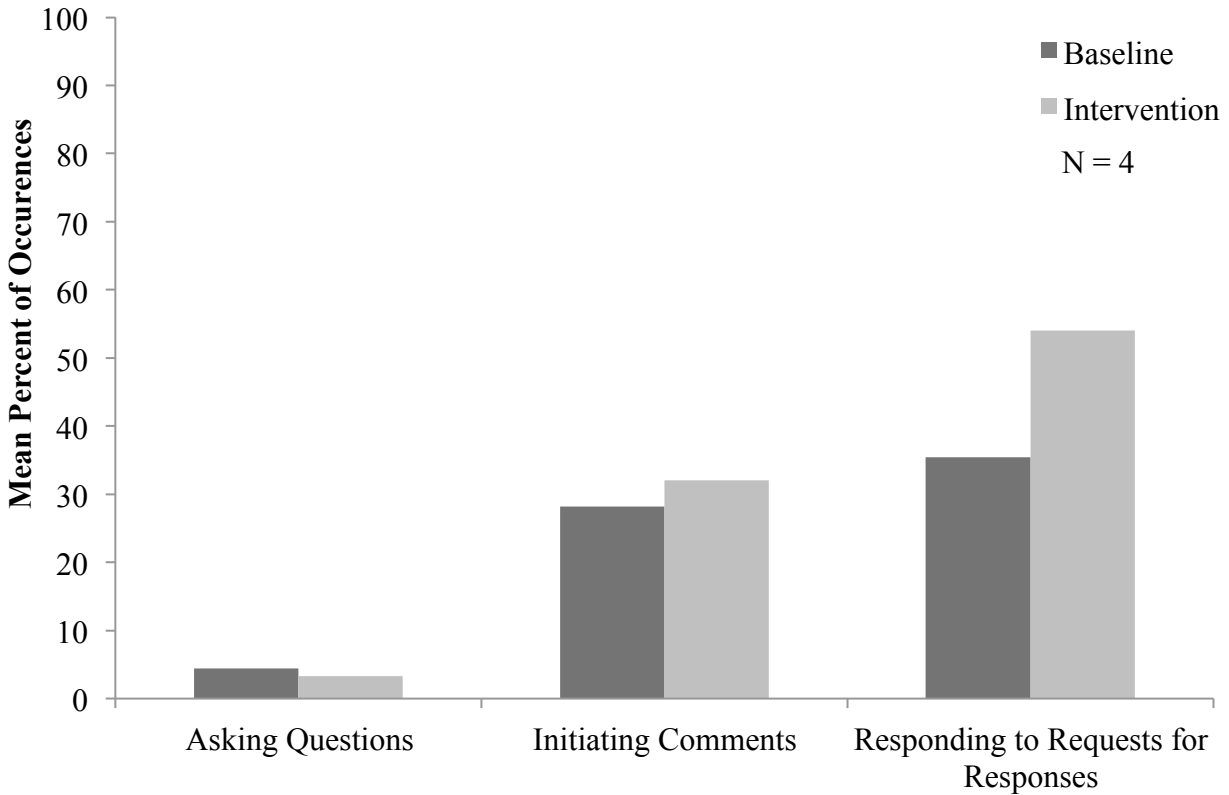
Note. *M* = Mean

Table 31

*Percentages of the Individual Variables of Child Engagement by Session:
Paraeducator 2 (Leah)*

Reading Sessions	# of 15 s Intervals	Children's Engagement Variables		
		Child Asking Question	Child Initiating Comment	Child Responding to Request for Response
<i>Baseline</i>				
Session 1	41	0	12%	54%
<i>Session 2</i>	<i>50</i>	<i>0</i>	<i>10%</i>	<i>40%</i>
Session 3	65	0	11%	34%
<i>Session 4</i>	<i>58</i>	<i>2%</i>	<i>12%</i>	<i>34%</i>
Session 5	56	2%	25%	45%
<i>Session 6</i>	<i>51</i>	<i>6%</i>	<i>37%</i>	<i>31%</i>
Session 7	47	6%	57%	32%
<i>Session 8</i>	<i>45</i>	<i>4%</i>	<i>20%</i>	<i>44%</i>
Session 9	38	8%	47%	16%
<i>Session 10</i>	<i>45</i>	<i>16%</i>	<i>51%</i>	<i>24%</i>
<i>Intervention</i>				
Session 11	75	5%	27%	47%
<i>Session 12</i>	<i>52</i>	<i>3%</i>	<i>27%</i>	<i>58%</i>
Session 13	64	3%	28%	65%
<i>Session 14</i>	<i>52</i>	<i>2%</i>	<i>44%</i>	<i>46%</i>

Note. The second reading of each book is italicized.



Children's Engagement in Paraeducator 2's Book Reading Group

Figure 9. This figure displays bar graphs that compare the mean percent of observed occurrences for each phase of the study (i.e., baseline, intervention and maintenance). The bars represent each of the three individual child engagement variables for the children in Paraeducator 2's (i.e., Leah) book reading group. There were four children in Leah's book reading group.

Table 32

Means and Ranges of Individual Variables of Child Engagement Across Phases: Paraeducator 2 (Leah)

Children's Engagement	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)
Asking Questions	4.4% (0 - 16%)	3.3% (2% - 5%)
Initiating Comments	28.2% (10% - 57%)	32% (27% - 44%)
Responding to Request for Response	35.4% (16% - 54%)	54.0% (46% - 65%)

Note. *M* = Mean

Children's overall engagement: Paraeducator 2 (Leah). As can be noted from an inspection of Table 30, the mean of the observed occurrences for the children's engagement

during baseline was 68%, which increased to a mean of 88.8% during intervention. There was no maintenance phase for Leah due to the ending of the school year.

Figure 7 provides a graphic display of the percent of observed occurrences of the combined children's engagement in Leah's small book reading group for each session within baseline, intervention, and maintenance. An inspection of Figure 7 shows that a visual analysis of a line that best fits the trend for baseline indicates a steady acceleration in the children's engagement during the baseline sessions. At the point of the intervention, the children's overall level of engagement decreases slightly from baseline and then accelerates in a manner that could have been predicted by continuing the baseline trend line through intervention. This would indicate that the children's increase in overall responding was more a function of continued participation in the book reading sessions rather than being impacted directly by the intervention.

It is, however, noteworthy to mention that the sessions after e-mail feedback was provided to Paraeducator 2 (Leah) at two points during intervention, there is an increase in the engagement of the children in the session after the first e-mail (Session 12). The session following the first e-mail feedback also showed an increase in Leah's use of dialogic reading strategies (see Figure 1). There is a very small decrease the children's engagement following the second e-mail feedback message (Session 14), which is also true for Leah's dialogic reading strategy implementation (see Figure 1). Of particular interest is that Leah has the greatest gain in her use of print referencing strategies in Session 13, which is also true of the children's engagement. Conversely, Leah's highest level of print referencing strategies was during Session 14, while the children's engagement decreased slightly. This also indicates the stronger influence of dialogic reading strategies on the children's responses.

If one compares the graphic display of Leah's use of dialogic book reading strategies, as

shown in Figure 1, with the overall engagement of the children in her group, as shown in Figure 7, a fairly similar pattern of responding is shown between her dialogic reading strategy occurrences and the children's engagement during baseline. There is also nearly an identical pattern between Leah's dialogic reading strategy occurrences and the overall children's engagement during intervention. Similar to the children's data for Paraeducator 1 (Amanda), the children's overall engagement level in Leah's book reading group was higher than her occurrence of dialogic reading strategies. And, also similar to the data for Leah, this pattern is not apparent when one compares Leah's print referencing strategies to the children's overall level of engagement. This also indicates that the dialogic reading strategies employed by Leah were more directly occasioning the children's engagement.

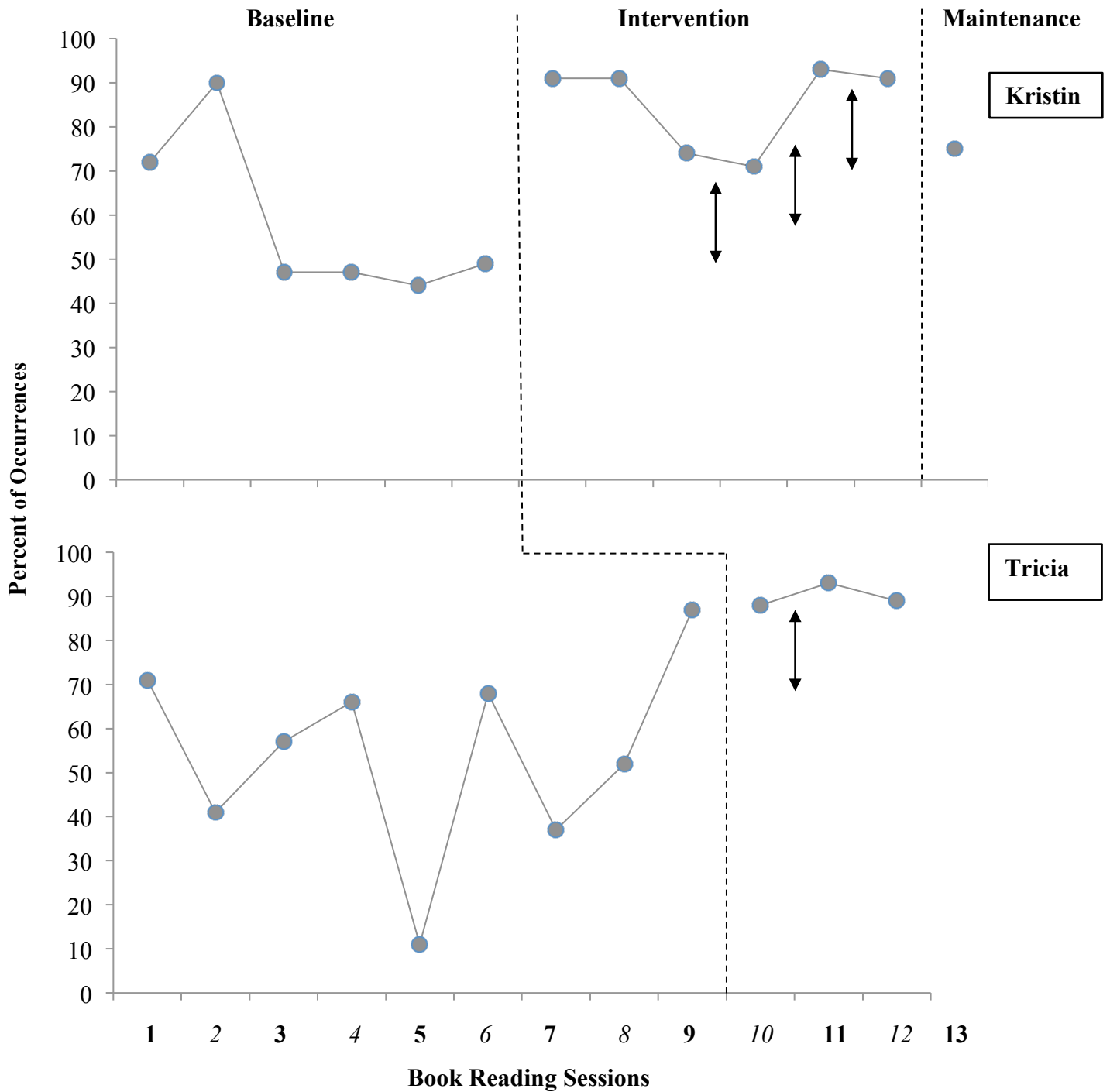
Individual variable of child engagement: Paraeducator 2 (Leah). Table 31 displays the percent of occurrences of each of the three children's engagement variables for each session of the baseline and intervention phases for Leah. Figure 9 employs bar graphs to provide a visual comparison of the mean percent of implementation for each of the three child engagement variables across each phase, whereas Table 32 reports the numerical means and ranges for the percent of observed occurrence for each type of child engaged response for each of the three phases.

Based on an inspection of the means as shown in Figure 9 and the means and ranges as shown in Table 32, gains were made from baseline to intervention for two of the three child engagement variables. Specifically, the mean change for the children's "commenting" increased from 28.2% to 32% and more notably, also increased from 35.4% to 54% for their "responding to requests for responses." However, the children's baseline mean percentage of occurrence for "asking questions" was 4.4% and declined to 3.3% during intervention. Once again, as in the

case of Amanda, these data clearly indicate that the higher level of responses found for “responding to requests for responses” is the most probably directly related to the fact that the dialogic reading strategies request responses.

Children’s Engagement for Pair Two: Paraeducator 3 (Kristin) and Paraeducator 4 (Tricia)

Figure 10 provides a graphic display of the children’s engagement for the second yoked pair of paraeducators’ (i.e., Kristin and Tricia) children’s combined engagement variables. This is followed by a report of the child engagement results for each of these paraeducators’ small group of children. Paraeducator 3 (Kristin) had four children in her book reading group and Paraeducator 4 (Tricia) had three children in her group. Results are reported for the combined child engagement variables as well as for each of the three individual child engagement variables.



1st Book Reading and 2nd Book Reading

Figure 10. Percent of observed occurrences of the combined children’s engagement variables for Paraeducator Pair One (i.e., Paraeducator 3: Kristin and Paraeducator 4: Tricia) during the book reading sessions. The combined engagement variables included “asking questions,” “initiating comments,” and “responding to requests for responses.” Breaks in the line connecting sessions represent phase changes. Vertical arrows indicate when feedback was e-mailed to the paraeducator.

Children’s engagement: Paraeducator 3. Figure 10 and Table 33 are related to the overall children’s engagement during Kristin’s book reading sessions. Figure 10 displays the percent of occurrences for the combined children’s engagement variables for each session across each phase and Table 33 displays the means and ranges of the percent of occurrences of the combined children’s engagement variables across each phase.

Table 34 shows the percent of the observed occurrences of each of the three individual types of child engagement variables for each of Kristin’s book reading sessions. Figure 11 displays a bar graph that provides a comparison of the means for the percent of observed occurrences for each of the individual child engagement behaviors for each phase. Finally, Table 35 sets forth the means and ranges of the observed occurrences of the individual child engagement behaviors that are depicted visually in Figure 11.

Table 33

*Means and Ranges of the Combined Children’s Engagement Across Phases:
Paraeducator 3 (Kristin)*

Study Phases	Children’s Engagement <i>M</i> (Range)
Baseline	58.2% (44% - 90%)
Intervention	85.2% (71% - 93%)
Maintenance ^a	75% (75% - 75%)

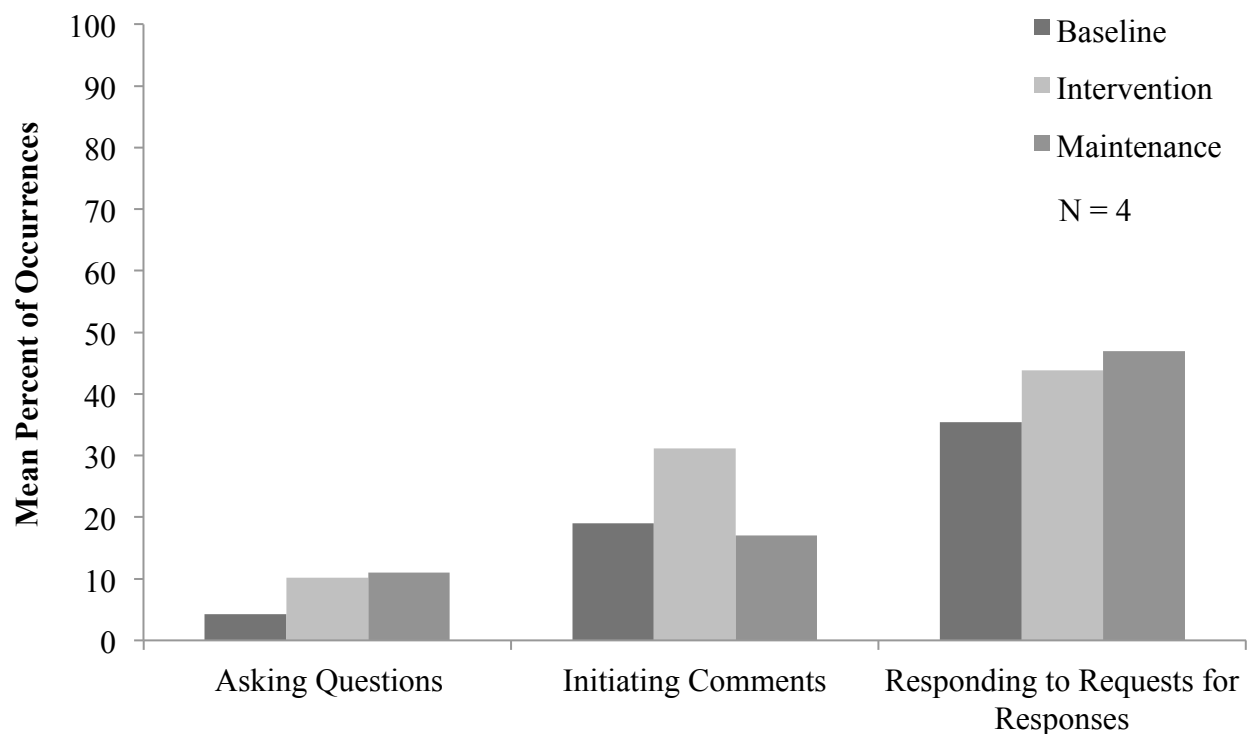
Note. *M* = Mean; ^a Maintenance was one day

Table 34

*Percentages of the Individual Variables of Child Engagement by Session:
Paraeducator 3 (Kristin)*

Reading Sessions	# of 15 s Intervals	Children's Engagement Variables		
		Child Asking Question	Child Initiating Comment	Child Responding to Request for Response
<i>Baseline</i>				
Session 1	22	14%	22%	36%
<i>Session 2</i>	<i>31</i>	<i>7%</i>	<i>35%</i>	<i>48%</i>
Session 3	36	0	19%	28%
<i>Session 4</i>	<i>38</i>	<i>3%</i>	<i>10%</i>	<i>34%</i>
Session 5	41	2%	10%	32%
<i>Session 6</i>	<i>47</i>	<i>0</i>	<i>15%</i>	<i>34%</i>
<i>Intervention</i>				
Session 7	67	9%	42%	40%
<i>Session 8</i>	<i>62</i>	<i>9%</i>	<i>39%</i>	<i>43%</i>
Session 9	83	19%	32%	23%
<i>Session 10</i>	<i>68</i>	<i>12%</i>	<i>18%</i>	<i>41%</i>
Session 11	60	11%	22%	60%
<i>Session 12</i>	<i>70</i>	<i>1%</i>	<i>34%</i>	<i>56%</i>
<i>Maintenance</i>				
Session 13	79	11%	17%	47%

Note. The second reading of each book is italicized.



Children's Engagement in Paraeducator 3's Book Reading Group

Figure 11. This figure displays bar graphs that compare the mean percent of observed occurrences for each phase of the study (i.e., baseline, intervention, and maintenance). The bars represent each of the three individual child engagement variables for the children in Paraeducator 3's (i.e., Kristin) book reading group. There were four children in Kristin's book reading group.

Table 35

Means and Ranges of Individual Variables of Child Engagement Across Phases: Paraeducator 3 (Kristin)

Child Engagement	Baseline M (Range)	Intervention M (Range)	Maintenance ^a M (Range)
Asking Question	4.3% (2% - 14%)	10.2% (1% - 19%)	11% (11%)
Initiating Comment	19% (10% - 35%)	31.2% (18% - 42%)	17% (17%)
Responding to Request for Response	35.4% (28% - 48%)	43.8% (23% - 60%)	47% (47%)

Note. M = Mean; ^a Maintenance was one day

Children's overall engagement: Paraeducator 3 (Kristin). As can be noted from an inspection of Table 33, the mean of the observed occurrences for the children's engagement during baseline was 58.2% that increased to a mean of 85.2% during intervention. There was

only one day of maintenance for Kristin due to ending of the school year for which the observed occurrences was 75%.

Figure 10 provides a graphic display of the percent of observed occurrences of the combined children's engagement in Kristin's small book reading group for each session within baseline, intervention, and maintenance. An inspection of Figure 10 shows that, while there is some variability in percent of observed occurrences during the first three days of baseline, a visual analysis of a line that best fits the trend for baseline indicates a decelerating trend in the children's engagement over the course of the baseline phase. However, it should also be noted that during the last four days of the baseline sessions the trend is flat. At the point of the intervention (Session 7), the children's overall level of engagement increases for two sessions (Session 7 and Session 8) and then decreases for two sessions (Session 9 and Session 10). Following the second e-mail feedback to Kristin, which was directly prior to Session 11, the children's overall engagement notably increases. However, following the final e-mail feedback to Kristin (Session 12) the children's engagement slightly decreases. Hence, while there is variability among the intervention sessions, the children's engagement appears to be flat or nonaccelerating, but at a higher level of performance than during baseline.

If one compares the graphic display of Kristin's dialogic book reading strategies as shown in Figure 4 with the overall engagement of the children in her group as shown in Figure 10, a highly similar pattern is shown between dialogic reading strategies and engagement during baseline and a fairly similar pattern is shown during intervention. In addition, as in the cases of Paraeducators 1 and 2, there was a higher overall level of occurrence of child engagement than in the occurrences of the paraeducators' dialogic reading strategies. Interestingly, this similar pattern is also somewhat apparent when one compares Kristin's print referencing strategies to the

children's overall level of engagement during the intervention phase only.

Individual of child variable engagement: Paraeducator 3 (Kristin). Table 34 displays the percent of occurrences of each of the three children's engagement variables for each session of the baseline and intervention phases for Kristin. Figure 11 employs bar graphs to provide a visual comparison of the mean percent of implementation for each of the three child engagement variables across each phase, whereas Table 35 reports the numerical means and ranges for the percent of observed occurrence for each type of child engaged response for each of the three phases.

Based on an inspection of the means as shown in Figure 11 and the means and ranges as shown in Table 35, gains were made from baseline to intervention for all three of the child engagement variables. Specifically, the mean for the children's "asking questions" increased from 4.3%, to 10.2%, for "commenting" from 19 % to 31.2%, and for their "responding to requests for responses" from 35.4% to 43.8%. Interestingly, there were small increases from intervention to the single maintenance day for "asking questions" (10.2% to 11%) and for "responding to requests for responses" (43.8% to 47%). The maintenance day child engagement occurrences for "initiating comments" decreased from an intervention mean of 31.2% to 17%. As in the cases of Paraeducator 1 and Paraeducator 2, these data clearly indicate that the higher level of child engagement found for "responding to requests for responses" is most directly related to the fact that dialogic reading strategies pose questions to the children.

Children's engagement: Paraeducator 4 (Tricia). Figure 10 and Table 36 are related to the overall children's engagement during Tricia's book reading sessions. Figure 10 displays the percent of occurrences for the combined children's engagement variables for each session across each phase and Table 36 displays the means and ranges of the percent of occurrences of

the combined children's engagement variables across each phase.

Table 37 shows the percent of the observed occurrences of each of the three individual types of child engagement variables for each of Tricia's book reading sessions. Figure 12 displays a bar graph that provides a comparison of the means for the percent of observed occurrences for each of the individual child engagement behaviors for each phase. Finally, Table 38 sets forth the means and ranges of the observed occurrences of the individual child engagement behaviors that are depicted visually in Figure 11.

Table 36

*Means and Ranges of the Combined Children's Engagement Across Phases:
Paraeducator 4 (Tricia)*

Study Phases	Children's Engagement <i>M</i> (Range)
Baseline	54.4% (11% - 87%)
Intervention	90.0% (88% - 93%)

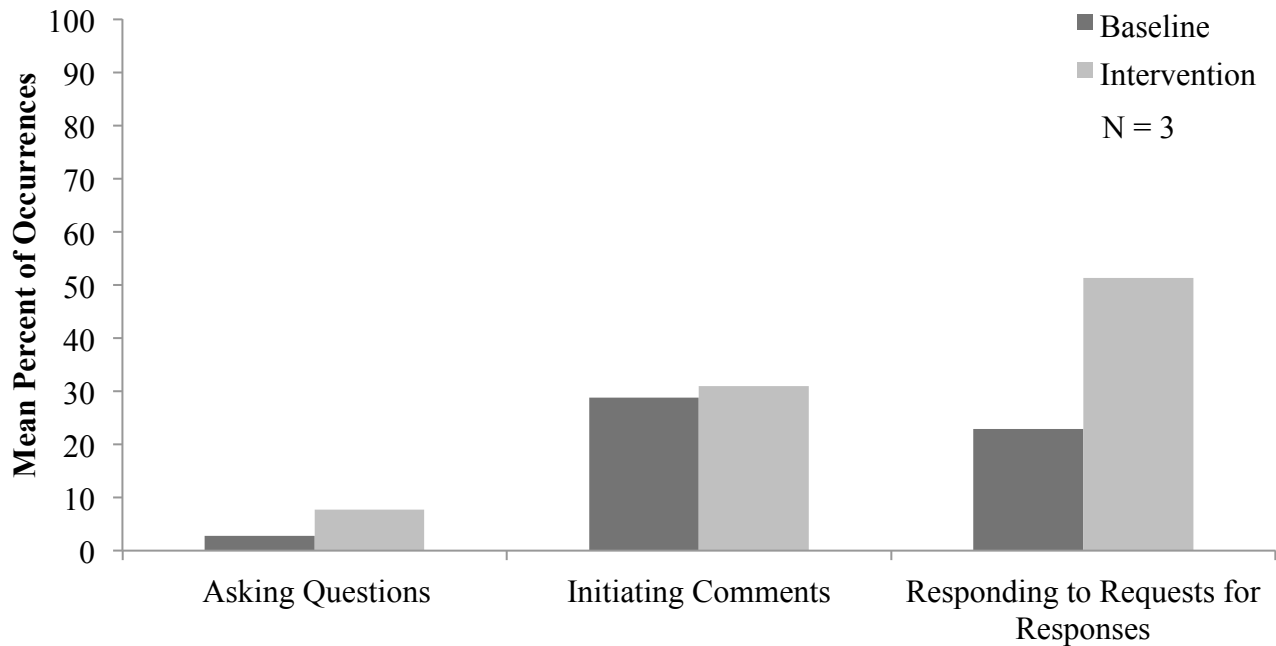
Note. *M* = Mean

Table 37

*Percentages of the Individual Variables of Child Engagement by Sessions:
Paraeducator 4 (Tricia)*

Reading Sessions	# of 15 s Intervals	Children's Engagement Variables		
		Child Asking Question	Child Initiating Comment	Child Responding to Request for Response
<i>Baseline</i>				
Session 1	38	0	47%	24%
<i>Session 2</i>	36	0	14%	27%
Session 3	40	12%	33%	12%
<i>Session 4</i>	39	3%	35%	28%
Session 5	27	0	0	11%
<i>Session 6</i>	48	0	32%	36%
Session 7	38	8%	13%	16%
<i>Session 8</i>	38	0	29%	23%
Session 9	41	2%	56%	29%
<i>Intervention</i>				
<i>Session 10</i>	50	10%	34%	44%
Session 11	31	3%	35%	55%
<i>Session 12</i>	29	10%	24%	55%

Note. The second reading of each book is italicized.



Children's Engagement in Paraeducator 4's Book Reading Group

Figure 12. This figure displays bar graphs that compare the mean percent of observed occurrences for each phase of the study (i.e., baseline, intervention, and maintenance). The bars represent each of the three individual child engagement variables for the children in Paraeducator 4's (i.e., Tricia) book reading group. There were three children in Tricia's book reading group.

Table 38

Means and Ranges of Individual Variables of Child Engagement Across Phases Paraeducator 4 (Tricia)

Child Engagement Variables	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)
Asking Questions	2.8% (2% - 12%)	7.7% (3% - 10%)
Initiating Comment	28.8% (0% - 56%)	31.0% (24% - 35%)
Responding to Request for Response	22.9% (11% - 36%)	51.3% (44% - 55%)

Note. *M* = Mean

Children's overall engagement: Paraeducator 4 (Tricia). Table 36 provides the mean of the observed occurrences for the children's engagement during baseline and intervention. During baseline, the mean of the observed occurrences was 54.4% and during intervention the mean significantly increased to 90.0%. Figure 16 provides a visual display of the percent of

observed occurrences of children's engagement in Tricia's book reading group for each session within two conditions. As shown in this figure, the children's overall engagement level was greater than their engagement level during baseline. A visual estimate of a trend line that best fits the occurrence of children's engagement across baseline and intervention indicates an accelerating trend.

As can be noted from an inspection of Table 36, the mean of the observed occurrences for the children's engagement during baseline was 54.4% that increased to a mean of 90% during intervention. There were no maintenance sessions for Tricia due to the ending of the school year.

Figure 10 provides a graphic display of the percent of observed occurrences of the combined variables for the children's engagement in Tricia's small book reading group for each session within baseline and intervention. An inspection of Figure 10 shows that a visual analysis of a line that best fits the trend for baseline indicates an accelerating trend which is primarily accelerating due to the influence of the final session of baseline (Session 9) which shows a notable increase over the previous sessions. Its impact is apparent when one takes into account the range for baseline (i.e., 11% to 87%), with the 87% representing the children's engagement for the final day of baseline. At the point of the intervention (Session 10), the children's overall level of engagement (i.e., $M = 90%$) remains stable or basically nonaccelerating just above the level represented during the final day of baseline. This high level of engagement is likely to represent a ceiling of potential engagement. As in the case of Leah (Paraeducator 2), it is less certain that the intervention impacted the children's increasing levels of engagement from baseline to intervention. The children's engagement during intervention seems predicted by the trend of their engagement in baseline and their final baseline level of engagement in Session 9.

If one compares the graphic display of Tricia's dialogic book reading strategies as shown in Figure 4, with the overall engagement of the children in her group, as shown in Figure 10, a fairly similar pattern of responding is shown between dialogic reading strategy occurrence and child engagement during baseline as well as during intervention. Comparably, as in the cases of Paraeducators 1, 2, and 3, there was a higher overall level of occurrence of child engagement that nearly mirrors the occurrences of the paraeducators' dialogic reading strategies. Additionally, similar to Paraeducators 1 and 2 and less like Paraeducator 3, the pattern of Tricia's occurrences of print referencing strategies (see Figure 4) is not reflective of the pattern of engagement that compares Kristin's print referencing strategies to the children's overall level of engagement (see Figure 10).

Individual variable of child engagement: Paraeducator 4 (Tricia). Table 37 displays the percent of occurrences of each of the three children's engagement variables for each session of the baseline and intervention phases for Tricia. Figure 12 employs bar graphs to provide a visual comparison of the mean percent of implementation for each of the three child engagement variables across each phase, whereas Table 38 reports the numerical means and ranges for the percent of observed occurrence for each type of child engaged response for each of the three phases.

Based on an inspection of the means as shown in Figure 12 and the means and ranges as shown in Table 38 gains were made from baseline to intervention for all three of the child engagement variables. Specifically, the mean for the children's "asking questions" increased from 2.8%, to 7.7%, for "initiating comments" from 28.8 % to 32%, and, more substantially for "responding to requests for responses" from 22.9% to 51.3%. As in the cases of the other paraeducators in this study, these data clearly indicate that the higher level of responses found for

“responding to requests for responses” is most directly related to the fact that the dialogic reading strategies pose questions to children.

Results of the Fidelity of Procedural Implementation: E-mail Feedback

Fidelity of procedural implementation was measured using with a fidelity checklist developed specifically for this study to evaluate whether each of the specific procedures related to the e-mail feedback were implemented. The e-mail feedback fidelity of implementation form can be found in Appendix I. In addition, Appendix I contains an example of the feedback provided to each of the four paraeducators who participated in this study.

During periodic fidelity checks, the researcher placed a check mark in a checkbox on the fidelity checklist form if the e-mail feedback step was performed during the intervention phase. Paraeducator 1 received two e-mails, Paraeducator 2 received two e-mails, Paraeducator 3 received three e-mails, and Paraeducator 4 received one e-mail, for a total of eight e-mails sent during the study. The procedural fidelity was checked for each of the eight e-mails. In all cases, all of the steps were performed; therefore the procedural fidelity for the e-mail component of the intervention was 100%.

Result of the Study’s Social Validation Procedure

The results of the social validity assessment are reported in the following section. Appendix F contains a copy of the questions posed for the social validity assessment.

Overall, the paraeducators’ perceptions about their participation in the study and the study procedures were positive. Some comments provided examples of alternative strategies and how study components were used or, if not used, why. The interview questions and paraeducator responses follow.

“How effective do you believe the computer-delivered information was in teaching about

strategies to implement for book reading to young children?”

In their responses to the question about the effectiveness of the computer-delivered information, the paraeducators indicated that they felt the computer-delivered information was effective in helping them learn more about shared book reading. Paraeducator 1 (Amanda) shared that she felt the computer-delivered instruction was “really good as it gave a lot of information and all kinds of strategies.” Amanda also indicated that the HTML lesson was extremely useful for an adult with limited experience in reading books aloud to young children. Paraeducator 3 (Kristin) shared that she felt the computer-delivered information was “very effective” in teaching about book reading strategies.

All four of the paraeducators stated that they felt the HTML lesson enabled them to learn more about how to encourage children’s engagement and active participation during shared book reading. Additionally, all of the ECSE paraeducators noted that they would recommend the computer-delivered learning format to other ECSE paraeducators in order to further develop their professional skills.

“What did you like and what did you not like about the computer-delivered instruction about book reading strategies?”

Comments related to the computer-delivered instructional format for teaching adults how to conduct shared book reading with young children were generally positive. For example, Paraeducator 1 (Amanda) expressed that she liked the way the technology-based information was provided in short segments and that the HTML lesson was “easy to navigate and use.” Paraeducator 2 (Leah) stated that she learned best “visually” and indicated that she found the video clips demonstrating how to use the dialogic reading and print referencing strategies “very helpful.” Paraeducator 4 (Tricia) said that she thought the HTML lesson was quite lengthy and

had difficulty watching the entire lesson in one sitting.

“What improvements would you suggest for the computer-delivered lessons?”

Paraeducator 1 (Amanda) stated that she noticed a couple of spelling errors in the HTML lesson and Paraeducator 2 (Leah) suggested that it would be helpful to divide the dialogic reading strategies and print referencing strategies into two separate HTML lessons. Paraeducator 3 (Kristin) did not have any suggestions for improving the HTML lesson and Paraeducator 4 (Tricia) expressed that she thought the lesson was very well organized.

“Would there have been an alternative approach or approaches to the computer-delivered instruction that you would have preferred to provide you with information about book reading strategies? If so, why would you have preferred this approach or approaches?”

Paraeducator 1 (Amanda) stated that her preferred learning style is visual. Paraeducator 4 (Tricia) expressed that she learns best when the information is presented in simple, easy to follow steps. Tricia printed a hard copy of the HTML document and highlighted the “training part” of the text with a marker to enhance her learning.

“How did you use the videotapes of your book reading sessions provided to you during the study?”

Regarding how they used the videotapes of the book reading sessions, Paraeducator 1 (Amanda) said that she reviewed the videotape daily and Paraeducator 4 (Tricia) said she reviewed the videotape a few days following the book reading session. Paraeducator 3 (Kristin) stated she used the videotape “as a tool to find ways to improve.” Paraeducator 2 (Leah) responded that she used the videotape in an attempt to improve on her skills and incorporate any self-assessed improvements into the next book reading session.

“Did you find having access to these videos helpful? If so, how was it helpful?”

All of the paraeducators indicated that they found having access to the videos helpful. Paraeducator 3 (Kristin) also expressed her appreciation for receiving a copy of the videotape to review at a time of convenience in the comfort of her own home.

“If you received written e-mail feedback on your book reading sessions, how effective or helpful did you find this feedback? Why or why not?”

Three of the paraeducators stated that they found the e-mail feedback they received helpful and effective. Paraeducator 3 (Kristin) commented, “I thought the constructive feedback was very helpful,” and further stated that she always received positive feedback. Kristin also stated that she felt that e-mail “was a great way to communicate and expressed appreciation for receiving comments on her strategy use, especially those she “needed to work on.”

Paraeducator 1 (Amanda) stated she was able to reflect on the e-mail feedback and Paraeducator 2 (Leah) said that she was eager to try out the suggestions provided in the e-mail feedback in order to improve upon her strategy use during the next book reading session. Paraeducator 4 (Tricia) reported that she did not look at her school e-mail on a regular basis due to lack of time in her work schedule.

“What could be done to improve the e-mail feedback you received?”

Paraeducators 1, 2, and 3 (i.e., Amanda, Leah, Kristin) expressed that they did not have any suggestions for improving upon the e-mail feedback. Paraeducator 4 (Tricia) stated that she would have liked to have time to read the e-mail feedback more thoroughly and reflect on the suggestions provided by the researcher.

“Is there an alternative approach or approaches to the e-mail feedback on your book reading that you would have preferred as a means of receiving feedback?”

Paraeducator 1 (Amanda) expressed that she would have enjoyed receiving feedback in

person as well as by e-mail. Paraeducator 3 (Kristin) answered this question by saying that receiving feedback via e-mail was a “great way” to communicate. Paraeducator 4 (Tricia) stated that she would have preferred to receive verbal feedback on her performance.

“Did you find your opportunity to interact with your lead teacher about your book reading session and the e-mail feedback you received necessary and/or useful? If so, how was it useful? If not, why was it not useful and/or necessary?”

Paraeducators 1 and 2 (i.e., Amanda, Leah) reported that they did not have the opportunity to interact with the ECSE teacher about their book reading sessions and the e-mail feedback. Paraeducator 3 (Kristin) stated that she and the ECSE teacher had a few brief conversations about the book sharing strategies and their satisfaction with the selection of the books for the shared book reading sessions. Paraeducator 4 (Tricia) stated that she and the ECSE teacher shared thoughts and ideas on the book reading sessions before the school day began and during recess. Another paraeducator stated that she and the ECSE teacher had a few brief conversations about the book sharing strategies and their satisfaction with the selection of the books for the shared book reading sessions.

“After participating in this study, do you believe there are benefits to reading the same book to young children for two consecutive book reading times? If you believe there are benefits, what are they? If you think there are drawbacks, what are they?”

All of the paraeducators indicated that they believed reading the same book to young children for two consecutive book reading sessions was beneficial. Paraeducator 1 (Amanda) responded to this question by saying, “Definitely,” and Paraeducator 2 (Leah) stated that reading the same book on two consecutive days helped the children recall parts of, or the entire story. Paraeducator 3 (Kristin) said that she felt reading the same book repeatedly enabled the children

to notice more details during the book reading, helped to reinforce the new vocabulary, and increased the conversations around the topic of the book. Paraeducator 4 (Tricia) said that she “noticed a lot of differences” in the children’s responses during the second book reading.

“Are there any other aspects about this study and your role as a participant in this study would like to share that would help us in considering effective ways to teach individuals new techniques and strategies in book reading?”

Paraeducator 3 (Kristin) indicated the HTML lesson was an excellent way for her to gain knowledge on how to ask questions while reading aloud to young children. Kristin also stated that she would like to share the HTML lesson with other paraeducators. Additionally, she said that she enjoyed reading the selected books aloud to the children. Paraeducator 4 (Tricia) expressed that it would have been helpful if the HTML lesson had included additional information on how to help children learn new words during the reading of the book.

Chapter 6

Summary and Discussion

This concluding chapter offers a summary and discussion of the main findings of the study are presented along with the relationship of the findings to the results reported in the Dennis (2010). Next, conclusions that can be drawn from the study and their implications are briefly discussed. Finally, limitations of the study are addressed and ideas for future research are shared.

As described in Chapter 1, this study employed a multiple baseline design across two yoked pairs of paraeducators working in early childhood special education classrooms and was designed to partially replicate and extend previous results of the Dennis (2010) study on the effects of a shared book reading intervention. Four paraeducators working in ECSE classrooms in elementary schools in a school district located near a large metropolitan area in the Midwest participated in this study. These participants represented a different role group than the participants in the Dennis (2010) investigation in order to ascertain how well the findings from the original study would transfer to other similar samples of early childhood educational personnel

Another aim of this study was to examine: (a) the book reading strategies as well as the quality of the interactions naturally used by paraeducators working in early childhood special education classrooms when engaging in shared book reading with preschool children; (b) the potential influence of the components within the intervention package (i.e., computer-based instruction, the availability of video records of each session and periodic e-mail feedback and (c) the results of the intervention on their children's engagement.

Discussion of the Main Findings

This section summarizes and discusses the main findings of this study pertaining to the seven research questions. The findings of each research question are discussed separately.

Research Question 1

Does the ECSE paraeducators' use of the computer-delivered multi-media instructional program, revised from the program employed in the Dennis (2010) study, result in an increase in their assessed knowledge of the book reading practices and strategies included in the program?

To address this question, the paraeducators' pre-quiz assessments of knowledge were compared to their post-quiz assessments that were given immediately following their completion of the computer-delivered instruction of the interactive HTML lesson about interactive shared book reading, the implementation of dialogic book reading strategies and print referencing strategies.

Pre-quiz to post-quiz knowledge scores. All of the paraeducators showed improvement in their assessed knowledge related to effective strategies for reading books to preschoolers from pre-quiz to post-quiz, as presented in Table 9 and Table 10 in the previous chapter. This finding indicates that the computer-delivered interactive HTML lesson was effective in teaching the paraeducators information about the book reading strategies. Based on an item analysis, the two most obvious gains were related to being able to identify specific strategies and understanding the concept of shared book reading.

Comparison to the Dennis (2010) study. The paraeducators' improvement in knowledge about shared book reading from pre-quiz to post-quiz is consistent with the Dennis (2010) study. It is noteworthy that the pre-quiz and post-quiz scores obtained in the two studies are fairly similar. The paraeducators who participated in this study had pre-quiz scores that

ranged from 43% to 52% and post-quiz scores that ranged from 76% to 95% (see Table 9 in Chapter 5). The teachers in the Dennis study's pre-quiz scores ranged from 50% to 60% and their post-quiz scores ranged from 80% to 90%. It should be noted that the items in the present study's pre-quiz and post-quiz, although about similar content were not the same items used in the Dennis study. The consistency in assessed knowledge obtained in both studies does indicate that the computer-delivered content is effective as a means of providing information about book reading strategies. Because the assessments from the Dennis (2010) study and the present study were not the same and neither had undergone any reliability or validity analyses, the interpretation of the results must be guarded.

Research Question 2

What dialogic reading and print referencing strategies do Early Childhood Special Education (ECSE) paraeducators, with limited or no formal preparation in early literacy instruction, naturally employ during book reading?

The second research question is directed to the occurrence of the book reading strategies that the paraeducators naturally employed during the book reading sessions prior to intervention. Hence, a careful inspection of their use of each of the dialogic reading strategies and print referencing strategies during the baseline phase of this study, which occurred prior to the introduction of the intervention, is necessary to respond to this question. Tables 39, 40, and 41, which are shown on the following three pages, each offer an analysis of the paraeducators' use of the strategies within the baseline as well as the intervention and, in two of the cases the maintenance phase, for each of the paraeducators who participated in this study.

Baseline implementation of dialogic reading and print referencing strategies. Table 39 displays all four of the paraeducators' means and ranges for their percent of occurrence of the

combined dialogic book reading strategies (i.e., five strategies) and combined print referencing strategies (i.e., three strategies) across intervals. An inspection of this table shows that all four of the paraeducators implemented dialogic reading strategies during baseline, although the mean percent of occurrence was lower for all four during baseline than in intervention. This is interesting because the knowledge pre-quiz indicated that the paraeducators were not able to identify the strategy names, although Paraeducator 1 (Amanda) had a clear idea of the purpose of one of the strategies; thus she came very close to the correct name for one of the eight strategies. This finding may indicate that the paraeducators were modeling many of the interactions of their lead teachers who each held master's degrees in early childhood special education and had received formal training in early literacy. It is also eminent to note that all of the paraeducators performed well on the knowledge items that pertained to the value of reading aloud to children and the value of repeated reading as well as the basic strategies for introducing a book.

A comparison of the baseline means for dialogic reading strategies to the baseline means of the print referencing strategies, as shown in Table 39, clearly illustrates that while the paraeducators' dialogic strategy use was not high during baseline, it was notably higher than their use of print referencing strategies. Specifically, Paraeducator 1 (Amanda) had a baseline mean of 39% for the dialogic reading strategies and a mean of 3% for print referencing strategies, Paraeducator 2 (Leah) had a baseline mean of 37% for the dialogic reading strategies and a mean of 0.6% for the print referencing strategies, Paraeducator 3 (Kristin) had a baseline mean of 29% for the dialogic reading strategies and a mean of 0 for the print referencing strategies, and Paraeducator 4 (Tricia) had a baseline mean of 27% for the dialogic reading strategies and 0.6% for the print referencing strategies. This may indicate that their lead teachers were not modeling the print referencing strategies and/or that print referencing strategies are less

intuitively used when reading to young children than the dialogic strategies.

Baseline implementation of individual dialogic and print referencing strategies.

Table 40 and 41 display information about the occurrence of the individual dialogic reading and print referencing strategies used by the paraeducators across the phases of the study. Table 40 sets forth the means and ranges for the observed occurrences of each of the strategies; whereas Table 41 sets forth the rank order of their strategy means.

An inspection of Table 41 shows that during baseline the dialogic reading strategies were generally ranked higher than the print referencing strategies. Recall questions received the rank of “1” three times, the rank of “2” one time as well as the rank of “3” one time. Wh-word questions received a rank of “1” once, a rank of “2” once, and two ranks of “3.” Open-ended questions received two ranks of “2” and two ranks of “3.” Completion prompts received lower ranks than the previous three strategies (three ranks of “4” and one rank of “5”) and distancing questions received the lowest ranks among the five dialogic strategies (one rank of each of the following: “3,” “5,” “5.5,” and “6.”)

Table 39

Paraeducators' Means and Ranges of Occurrence of Combined Dialogic Reading Strategies & Combined Print Referencing Strategies

Paraeducators/Study Phases	Dialogic Reading Strategies <i>M</i> % (Range)	Print Referencing Strategies <i>M</i> % (Range)
Paraeducator 1: Amanda		
Baseline	39% (30% - 54%)	3% (0 - 7%)
Intervention	54% (32% - 80%)	13% (2% - 38%)
Maintenance (2 sessions)	70% (67% - 72%)	21% (17% - 25%)
Paraeducator 2: Leah		
Baseline	37% (28% - 56%)	0.6% (0 - 2%)
Intervention	62% (56% - 68%)	16% (1% - 53%)
Maintenance	NA	NA
Paraeducator 3: Kristin		
Baseline	29% (11% - 52%)	0
Intervention	50% (27% - 71%)	19% (0 - 35%)
Maintenance (1 session)	53%	10%
Paraeducator 4: Tricia		
Baseline	27% (17% - 42%)	0.6% (0 - 3%)
Intervention	54% (52% - 55%)	10% (4% - 17%)
Maintenance	NA	NA

Note. *M* = Mean, NA = Not Applicable

Table 40

Paraeducators' Means and Ranges of Observed Occurrence of Each Book Reading Strategy

Strategy	Paraeducator 1 Amanda			Paraeducator 2 Leah		Paraeducator 3 Kristin			Paraeducator 4 Tricia	
	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)	Maintenance ^a <i>M</i> (Range)	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)	Maintenance ^b <i>M</i>	Baseline <i>M</i> (Range)	Intervention <i>M</i> (Range)
Completion Prompts	4.3% (0 - 11%)	8.3% (0 - 29%)	7% (6% - 8%)	5.3% (0 - 24%)	6.5% (4% - 10%)	3% (0 - 11%)	8% (0 - 19%)	5%	2.7% (0 - 7%)	15% (6% - 21%)
Recall Questions	14.7% (4% - 40%)	15.7% (3% - 31%)	10% (6% - 14%)	13.3% (3% - 24%)	17% (2% - 35%)	9.5% (0 - 23%)	14.3% (3% - 31%)	8%	5.3% (0 - 10%)	10.7% (8% - 14%)
Open-ended Questions	7.3% (0 - 18%)	12.5% (0 - 24%)	31.5% (25% - 38%)	8.1% (2% - 18)	23% (10% - 35%)	8.7% (2% - 15%)	15% (2% - 23%)	29%	5% (0 - 12%)	10.7% (6% - 23%)
Wh-word Questions	12.4% (3 - 26%)	17.2% (8% - 27%)	12.5% (11% - 14%)	7.9% (2% - 22%)	14.3% (10% - 19%)	4.3% (0 - 13%)	13.8% (7% - 28%)	8%	14.0% (7% - 29%)	13% (10% - 16%)
Distancing Questions	0.4% (0 - 3%)	0.7% (0 - 2%)	8.5% (6% - 11%)	2.2% (0 - 7%)	2.5% (0 - 6%)	3.3% (0 - 8%)	2.3% (0 - 10%)	3%	0.3% (0 - 3%)	4.7% (3% - 7%)
Print Questions	0 (0)	0.7% (0 - 2%)	2.5% (0 - 5%)	0 (0)	6.3% (0 - 25%)	0 (0)	5.7% (0 - 13%)	4%	0.3% (0 - 3%)	2% (0 - 3%)
Print Comments	0.3% (0 - 2%)	0.3% (0 - 2%)	1.5% (0 - 3%)	0 (0)	5.3% (0 - 21%)	0 (0)	5% (0 - 8%)	1%	0 (0)	2% (0 - 3%)
Print Tracking	3.1% (0 - 5%)	12% (2% - 38%)	17% (17% - 17%)	0.6% (0 - 2%)	4% (1% - 7%)	0 (0)	7.8% (0 - 22%)	5%	0.2% (0 - 2%)	6% (3% - 11%)

Note. *M* = Mean; ^a - the maintenance phase for Paraeducator 1 was two sessions; ^b - the maintenance phase for Paraeducator 3 was one session

Table 41

Paraeducators' Means and Ranks of Observed Occurrence of Each Book Reading Strategy

Dialogic Reading Strategies & Print Referencing Strategies	Paraeducator 1 Amanda			Paraeducator 2 Leah		Paraeducator 3 Kristin			Paraeducator 4 Tricia	
	Baseline <i>M</i> (Rank)	Intervention <i>M</i> (Rank)	Maintenance ^a <i>M</i> (Rank)	Baseline <i>M</i> (Rank)	Intervention <i>M</i> (Rank)	Baseline <i>M</i> (Rank)	Intervention <i>M</i> (Rank)	Maintenance ^b <i>M</i> (Rank)	Baseline <i>M</i> (Rank)	Intervention <i>M</i> (Rank)
Completion Prompts	4.3% (4)	8.3% (5)	7% (6)	5.3% (4)	6.5% (4)	3.0% (5)	8.0% (4)	5% (4.5)	2.7% (4)	15.0% (1)
Recall Questions	14.7% (1)	15.7% (2)	10.0% (4)	13.3% (1)	17% (2)	9.5% (1)	14.3% (2)	8% (2.5)	5.3% (2)	10.7% (3.5)
Open-ended Questions	7.3% (3)	12.5% (3)	31.5% (1)	8.1% (2)	23% (1)	8.7% (2)	15.0% (1)	29% (1)	5.0% (3)	10.7% (3.5)
Wh-word Questions	12.4% (2)	17.2% (1)	12.5% (3)	7.9% (3)	14.3% (3)	4.3% (3)	13.8% (3)	8% 2.5	14.0% (1)	13.0% (2)
Distancing Questions	0.4% (6)	0.7% (6.5)	8.5% (5)	2.2% (5)	2.5% (7)	3.3% (4)	2.3% (8)	3% (7)	0.3% (5.5)	4.7% (6)
Print Questions	0 (8)	0.7% (6.5)	2.5% (7)	0 (7.5)	6.3% (5)	0 (7)	5.7% (0)	4% (6)	0.3% (5.5)	2.0% (7.5)
Print Comments	0.3% (7)	0.3% (8)	1.5% (8)	0 (7.5)	5.3% (6)	0 (7)	5.0% (7)	1% (8)	0 (8)	2.0% (7.5)
Print Tracking	3.1% (5)	12% (4)	17% (2)	0.6% (6)	4% (8)	0 (7)	7.8% (5)	5% (4.5)	0.2% (7)	6.0% (5)

Note. *M* = Mean; ^a – the maintenance phase for Paraeducator 1 was two sessions; ^b – the maintenance phase for Paraeducator 3 was one session

As evident in Table 41, the print referencing strategies generally fell in the lower baseline ranks. The highest baseline rank among the print referencing strategies was a single rank of “5” for print tracking. Print tracking also received one rank of “6” and two ranks of “7.” Print questions received one rank of “5.5,” one rank of “7,” one rank of “7.5,” and one rank of “8.” Print comments received two ranks of “7,” one rank of “7.5,” and one rank of “8.”

These results indicated the paraeducators in this study would benefit from guidance on the entire group of book reading strategies included in this study. For dialogic strategies, they particularly needed to be encouraged to help children relate the story or book content to their own lives and experiences. Additionally, the benefits of using completion prompts that create opportunities for young children to complete a sentence that is based on the structure of language also needed to be encouraged. Similar to these outcomes, research on training adults to use dialogic reading strategies have found that completion and distancing prompts are more complex than prompts such as open-ended or wh-word questions and, that even after training on the strategies, they tend to be used less than the more simplistic strategies [Blom-Hoffman, O’Neil-Pirozzi, &

Cutting, 2005; Briesch, Chafouleas, LeBel, & Blom-Hoffman, 2008; Whitehurst et al., 1994(b)].

Finally, the paraeducators used practically no print referencing strategies during baseline. Thus, they needed to develop an awareness of the benefits and outcomes of having children look at and talk about the print during book reading by commenting about the print, asking questions about the print, and tracking the print. This is not surprising in that research has indicated that print referencing techniques are not typically used when reading books to young children, and that these are strategies that must be taught (Justice, Kaderavek, Fan, Sofka & Hunt, 2009).

Comparison with the Dennis (2010) study. It is not possible to directly compare the initial baseline implementation of the book reading strategies by the teachers in the Dennis (2010) study with the baseline implementation by the paraeducators in this study for several reasons. First, the Dennis (2010) study reported the combined dialogic reading and print referencing strategy use, whereas this study reported the combined use of dialogic reading strategies and the combined use of print referencing strategies. Additionally, this study assessed individual strategy use for each of the eight strategies (i.e., five dialogic strategies and three print referencing strategies); whereas individual strategies were not assessed in the Dennis study. Finally, the Dennis (2010) study measured the rate per minute of the implementation of the combined strategies. This study measured the occurrence of the strategy implementation using interval recording based on 15-second consecutive intervals that yielded the percent of observed occurrence employed in this study.

However, some indirect comparisons can be made between the Dennis (2010) study and the present study. Specifically, in the Dennis study, the teachers' implementation of the strategies does indicate that some of the strategies occurred during baseline, although the reported rates are low. Further, Dennis (2010) also recorded what percent of the total eight

possible strategies were used once during each session. These data indicated that although all eight of the strategies were never used during a single session of baseline, while some strategies were always used. Thus, the relative stability of the baseline data in both studies showing low levels of strategy use supports the idea that some of the book reading strategies seem to be naturally used by the untrained adult readers in both studies, although it is most likely that the participants in both studies lacked awareness of the specific strategy they were using.

Research Question 3

Does the intervention package (comprised of the computer-delivered multi-media instructional package, daily opportunities to view their book reading sessions on a CD, and criteria based e-mail feedback) result in an increase of the paraeducators' use of dialogic and print referencing strategies?

This question addresses the impact of the intervention package on the book reading practices of the paraeducators. The impact on the overall use of the two types of book reading strategies will be discussed first. This will be followed by a discussion of the impact on the use of the individual strategies.

Combined dialogic and combined print referencing strategies. Table 39 displays the paraeducators means and ranges of occurrences for both the combined dialogic reading strategies and the combined print referencing strategies for each of the study phases. An inspection of this table indicates that the intervention led to increases in the mean strategy use for both types of strategies for all four paraeducators. However, an inspection of Figure 1 and Figure 4 (see Chapter 5), each of which provide a graphic display of the results of the two pairs of paraeducators' daily strategy use across the study phases, offers a clearer perspective of their performance and the possible impact of the differing components of the intervention package

(i.e., Figure 1 (Pair One: Paraeducator 1 - Amanda and Paraeducator 2 – Leah; and Figure 4 (Pair Two: Paraeducator 3 - Kristin and Paraeducator 4 - Tricia).

Pair one: Paraeducator 1 (Amanda) and Paraeducator 2 (Leah). As just stated, Amanda and Leah were the first pair. Amanda's book strategy implementation in response to the intervention will be discussed first, followed a discussion of Leah's response.

Amanda. An examination of Amanda's performance in Figure 1, the first person to receive the intervention, shows an immediate and notable consecutive increase over her baseline performance (dialogic reading $M = 39\%$ and print referencing $M = 3\%$) in her first two days of intervention for dialogic reading (68% and 80%) and first day of intervention for print referencing (38%). This change in her performance suggests that the interactive computer-delivered lesson was related to an increase in her initial use of strategies during intervention. However, Amanda then showed a marked drop in her performance to near baseline level by the third day of intervention for dialogic reading (44%) and second day of intervention for print referencing (9%). She received e-mail feedback prior to the fourth day and increased her performance (dialogic reading, 55% and print referencing, 14%), and then dropped to an even lower point than the first performance drop (dialogic reading, 32% and print referencing, 2%). Amanda then received her second e-mail feedback, which was prior to the sixth and last day of the intervention phase (Session 12). Once again, her performance increased (dialogic reading, 47% and print referencing, 6%) although it was lower than her performance after her first e-mail feedback. Interestingly, her performance for the two sessions of maintenance returned to her higher intervention performance level (72% and 67%).

While Amanda seemed to immediately benefit from the computer-delivered lesson and access to her video records, these components of the intervention package were not sufficient to

maintain her improved performance. The addition of e-mail feedback seemed to be a necessary component of the intervention for Amanda to maintain improved strategy implementation.

Leah. Leah, the second person in the pair, also showed an increase in her performance on the first day of intervention, immediately following her completion of the computer-delivered lesson. Based on the decrease in performance that had occurred with Amanda after several days of intervention, Leah received e-mail feedback prior to her second day of intervention (Session 12), which was followed by an increase in her performance level for both dialogic reading strategies and print referencing strategies for the next two sessions. She received her second e-mail feedback prior to Session 14. Interestingly, while her occurrence of dialogic reading strategies dropped just slightly, they remained well above baseline levels. However, it was with the occurrence of the second e-mail feedback that Leah had a marked increase in her print referencing strategies, which increased from 6% for Session 13 to 53% for Session 14. Session 14 was also the last day of her intervention phase. Due to the ending of the school year no maintenance phase was conducted with Leah.

The second e-mail feedback which was prior to Session 14 appeared to have a marked impact on her print referencing strategies, as her performance increased well out of the performance range that would have been predicted based on the moderately accelerating trend for her print referencing strategies prior to that session. The impact of the e-mail feedback was not as apparent for her dialogic reading strategies. Nevertheless, overall, the intervention package did positively affect her performance.

Pair two: Paraeducator 3 (Kristin) and Paraeducator 4 (Tricia). A similar pattern of performance differences that occurred for pair one (i.e., Amanda and Leah) also occurred with the second pair of paraeducators, Kristin and Tricia. Kristin's book strategy implementation in

response to the intervention will be discussed first, followed by a discussion of Tricia's response.

Kristin. An examination of Kristin's performance in Figure 4, as the first person to receive the intervention, shows an immediate increase in her performance following her review of the interactive computer-delivered lesson. While her dialogic reading strategy performance change was notably higher than the previous four days of baseline, it should be noted that on her second day of baseline, Kristin had a very high level of occurrence of the dialogic reading strategies (53%) that actually exceeded her dialogic reading strategy performance on her first day of intervention (50%). However, after this relatively high level of occurrences, she immediately dropped to a much lower and stable baseline performance for the remaining baseline sessions (i.e., 11%, 26%, 26%, and 25%).

Relative to Kristin's use of print referencing strategies, Kristin did not use any print referencing strategies during baseline. On the other hand, she showed consecutive session increases in her implementation of print referencing strategies for the first two days of intervention. By the third day of intervention (Session 9) Kristin's dialogic reading and print referencing strategy occurrences had both dropped, with print referencing returning to zero and dialogic reading returning to very near her lower baseline levels (27%). At this point, Kristin received e-mail feedback immediately prior to the fourth day of intervention (Session 10) and her performance for both dialogic reading and print referencing increased markedly (53% and 15%, respectively). Kristin continued to request feedback on her book reading strategy use so she received e-mail regarding her performance prior to Session 11. Additionally, Kristin received another email pertaining to her book reading session prior to Session 12. Kristin's performance on Session 11 reached its highest overall level for both dialogic reading (71%) and print referencing (35%), and then dropped just slightly for Session 12. Kristin had one day of

maintenance and showed a moderate drop in both types of reading strategies.

A review of Kristin's graphic data (Figure 4) and her specific session performance values (Table 19) indicate that while she initially seemed to benefit from the computer-delivered lessons, the e-mail feedback seemed essential to her improving performance. Further, the decrease in her performance level during the single day of maintenance may have been an indicator that Kristin would have continued to benefit from feedback on the strategies.

Once again, it is important to recall Paraeducator 3 (Kristin) had the lowest initial interactive ratings on behaviors that facilitated interactions during book reading, with three of her rating means falling below 2.0. Unlike the other three paraeducators, she received no rating at 3.0 during baseline. Interestingly, while Kristin had the second lowest educational level (one year of college), she had the most experience as a paraeducator (13 years). Kristin was also the paraeducator who had the second lowest pre-quiz knowledge score and lowest post-quiz knowledge score. When one considers her ratings on facilitating book reading and knowledge scores, as well as the behaviors that facilitate interaction, there is evidence that Kristin's knowledge and understanding of good book reading practices were slightly weaker than her peers and that she might need additional support to gain progress. The fact that Kristin appeared to find the e-mail feedback of extreme value and consistently sought additional feedback is a very positive indicator of her investment in learning and improving.

Tricia. Paraeducator 4, Tricia, was the second person in pair two to receive the intervention. An inspection of the graphic data (Figure 4) and specific session performances (Table 19) is similar to Leah's (Paraeducator 2) who was also the second paraeducator in the first pair. After a stable baseline performance, Tricia showed an increase in her occurrence of both dialogic reading (from 36% to 53%) and print referencing strategies from eight days of 0 and one

day of 2% during baseline to 4% in her first day of intervention following her completion of the computer-delivered lesson.

Similar to Leah, Tricia received her first and only day of e-mail feedback just prior to her second day of the intervention (Session 11). This resulted in a more than doubling of her print referencing strategies (i.e., 9%) and a small increase in her use of dialogic strategies (55%). On her third and final intervention session, Tricia almost doubled her print referencing strategies again (17%) and maintained her dialogic reading strategies (55%). Similar to Leah, the e-mail feedback seemed to have a more obvious impact on Tricia's use of print referencing strategies than her use of dialogic strategies, although the overall intervention package positively impacted her intervention performance.

Individual dialogic reading and print referencing strategies. Tables 40 and 41, which are located in this chapter, display information about the occurrence percentages of the individual dialogic reading and print referencing strategies used by the paraeducators across the phases of the study. Table 41 sets forth the means and ranges for the observed occurrence percentage of each of the strategies. Additionally, Figures 2, 3, 5, and 6 in (see Chapter 5) provide a comparison of the means for the individual strategies for each phase for Paraeducators 1, 2, 3, and 4, respectively. Table 41 sets forth the rank order of their strategy means.

As can be noted from an inspection of Table 40, Paraeducator 1's (Amanda) means from baseline to intervention increased for seven of the eight strategies and remained the same for one strategy (i.e., print comments). Paraeducator 2's (Leah) means increased for all eight strategies, and Paraeducator 3's (Kristin) means increased for seven of the eight strategies and decreased for one strategy (i.e., distancing questions). Finally, Paraeducator 4's (Tricia) means increased for all eight strategies. This would indicate that the intervention package had a positive effect on these

four paraeducators' implementation of the individual strategies. The relative degree of the paraeducators' individual strategy mean changes from one phase to another is better illustrated in the bar graphs found in Figures 2, 3, 5, and 6 (see Chapter 5). For the most part the "recall," "open ended," and "wh-word" questions showed the greatest mean gains. Interestingly, Paraeducator 1's largest mean increase was in print tracking (3.1% to 17%) and Paraeducator 4's largest mean increases were in completion prompts (2.7% to 15%) and print tracking (0.2% to 6.0%).

Table 41, which shows the rank order of the observed occurrence for each of the four paraeducators' individual strategy use for each phase of the study offers insight into the degree that the intervention impacted the relative frequency of individual strategies. It is interesting to note that while there were a number changes in the specific ranks of the strategies for each phase for all four of the paraeducators, these rankings generally stayed within a high, middle, or low ranking group. Specifically, there were only two incidences in which a rank changed from baseline to intervention by more than two ranks. These included Kristin's (Paraeducator 3) use of distancing questions that changed from a rank of "4" to a rank of "8" and Tricia's (Paraeducator 4) use of completion prompts that changed from a rank of "4" to a rank of "1." These results suggest that while the intervention package may have served to increase the overall frequency with which the paraeducators used dialogic reading strategies and print referencing strategies, for the most part, it only minimally impacted their tendency to use certain strategies more than others.

While dialogic strategies were used more frequently in baseline and intervention phases than the print referencing strategies by all four paraeducators, their use of completion prompts and distancing questions remained low within both phases. Hence, it appears that the paraeducators would have benefited from continued feedback on their use of print referencing

strategies as well as on their use of completion prompts and distancing questions.

As previously discussed in relation to Research Question 2, the dialogic strategies that were consistently used at lower levels in this study correspond to the results of much of the dialogic training research [(Blom-Hoffman, O'Neil-Pirozzi, & Cutting, 2005; Briesch, Chafouleas, LeBel, & Blom-Hoffman, 2008 Whitehurst et al., 1994(b)]. For example, Whitehurst et al., (1994b) found that while parents trained in dialogic reading increased their use of the more “simplistic” strategies (e.g., wh-word questions, open-ended questions) over their use of the more complex strategies (e.g., distancing prompts), which despite the training remained low.

The components in the present study intervention package share some features with previous studies that were directed to successfully training adults to use dialogic reading strategies. Specifically, the computer-delivered instructional program employed in this study featured multiple videos of individuals implementing dialogic reading and print referencing strategies and served a very similar purpose of instructional videotape. Videotapes were developed and successfully used as one of the initial and primary strategies employed to teach adults the dialogic reading techniques (Whitehurst, 1994a, 1994b). In a study by Arnold, Lonigan, Whitehurst, and Epstein (1994), these researchers found that children whose parents were trained via videotape performed significantly better than children whose parents were trained via direct training on two of the three post-test measures and also pointed to the cost-effective component of video training, when compared with ongoing training presentations by paid adults. Videotapes have continued to be featured prominently in the training of dialogic reading strategies (Blom-Hoffman, O'Neil-Pirozzi, & Cutting, 2005; Briesch, Chafouleas, LeBel, & Blom-Hoffman, 2008).

In a recent review of the outcomes of dialogic reading research and the training procedures employed to teach the book reading strategies, Cutting (2011) noted that pairing performance based feedback (PBF) with videotaped dialogic reading training may help caregivers use a wider range of dialogic reading strategies including the higher order strategies that have not been found as likely to increase as shown in previous research. Interestingly, the present study did employ e-mail feedback that was highly performance based, and the results indicated this component of the intervention it seemed to impact either the paraeducators overall performance on their strategy implementation, more obviously, the email feedback appeared to have a direct relationship to an increase in specific strategies that were among the least used.

Finally, while e-mail feedback is a less personal approach than the person-to-person coaching model, it offers similar opportunities for explicit feedback. As stated in Chapter 2, research is beginning to provide additional evidence that instructional coaching can lead to more effective teacher learning and greater student achievement (Knight, 2004; Killion & Harrison, 2006). For example, in a study conducted by Hsieh, Hemmeter, McCollum, & Ostrosky (2009), coaching was found to be very effective in promoting the use of early literacy strategies by teachers, who used more strategies after they received coaching than during the baseline phase of the study (Hsieh, Hemmeter, McCollum, & Ostrosky, 2009).

Comparison to the Dennis (2010) study. The Dennis (2010) found that the teachers did not make improvements in their rate per minute of strategy implementation or fidelity of their strategy implementation (i.e., use of each strategy at least once per session) until coaching was added to the intervention. The feedback that involved coaching was primarily e-mail feedback, but also included some face-to-face feedback. In the present study, the computer-delivered instruction did seem to result in an initial increase in all four paraeducators' implementation of

the strategies. However, the implementation of strategies by Amanda (Paraeducator 1) and Kristin (Paraeducator 3) was clearly not sustained after the delivery of the computer instructional program alone. Both of these paraeducators showed an overall worsening performance by the second or third session of intervention, which only began to improve when e-mail feedback was provided. Therefore, the addition of e-mail feedback seemed to be an essential component of the intervention package for these two paraeducators.

The need for the e-mail feedback component of the intervention package is somewhat less apparent for Leah's (Paraeducator 2) and Tricia's (Paraeducator 4) implementation of the strategies. Both improved their implementation of dialogic reading strategies following the computer-delivered interactive instructional program and maintained the higher performance level during intervention. It should be noted that Leah had a notable increase in her implementation of print referencing after receiving e-mail feedback

The role of the video records (provided to each paraeducator following each of their book reading sessions) in directly impacting their implementation of the strategies is difficult to isolate. The social validity results reveal that all four of the paraeducators commented on the value of the video records of their sessions and described how they used them as a means of reflecting upon and/or improving their performance.

Research Question 4

What affective interaction qualities and behaviors do ECSE paraeducators, with limited or no formal preparation in early literacy instruction, naturally employ when reading aloud to preschool children, as measured by a rating index for assessing the overall quality of the book reading interactions?

The paraeducators' affective interaction qualities and behaviors were rated each session

for qualities that facilitated positive book reading interactions and included variables such as: (a) using an accepting/warm approach, (b) using descriptive language, (c) following a child’s lead, (d) introducing the book effectively and extending the content, and (e) holding the book so the children can see the pages. Table 42 displays the means of their ratings across the study phases for each of these behaviors.

Facilitative behaviors in baseline. An inspection of Table 42 reveals that, although all of the paraeducators showed improvement on some of the rated behaviors, they were generally quite positive prior to the intervention for Paraeducators 1, 2, and 4. Paraeducator 3 (Kristin) had the lowest initial ratings, with three of her rating means falling below 2.0. Unlike the other three paraeducators, she received no rating of 3.0 during baseline. Interestingly, while she had the second lowest educational level (one year of college), she had the most experience as a paraeducator (13 years). She was also the paraeducator who had the second lowest knowledge pre-quiz knowledge score and lowest knowledge post-quiz score.

Table 42
Paraeducators’ Mean Ratings of Behaviors That Facilitate Positive Book Reading Behaviors

Facilitating Behaviors	Paraeducator 1 Amanda			Paraeducator 2 Leah		Paraeducator 3 Kristin			Paraeducator 4 Tricia	
	Baseline <i>M</i>	Intervention <i>M</i>	Maintenance ^a <i>M</i>	Baseline <i>M</i>	Intervention <i>M</i>	Baseline <i>M</i>	Intervention <i>M</i>	Maintenance ^b <i>M</i>	Baseline <i>M</i>	Intervention <i>M</i>
Acceptance/Warmth	3.0	3.0	3.0	3.0	3.0	2.5	3.0	3.0	3.0	3.0
Uses Descriptive Language	2.7	3.0	2.5	2.9	2.8	1.7	2.5	3.0	2.9	3.0
Follows Child’s Lead	2.7	3.0	3.0	2.6	2.8	2.5	3.0	3.0	2.4	3.0
Introduces/Extends	2.7	2.5	2.5	2.9	2.9	1.7	2.0	3.0	3.0	3.0
Holds Book So Child Can See Pages	2.7	2.5	2.0	2.8	2.8	1.8	2.8	3.0	3.0	3.0

Note. The rating scale scores: 0 = never, 1 = rarely, 2 = sometimes, 3 = often; ^a – the maintenance phase for Paraeducator 2 was 2 sessions. ^b – the maintenance phase for paraeducator 4 was 1 session.

A possible explanation for the generally positive ratings of behaviors that facilitate positive interactions (see Table 42) for most of the paraeducators is that they were modeling their lead teachers, which is similar to the explanation offered in relation to the use of book reading strategies during baseline and prior to the intervention. All of the paraeducators missed the item

on the knowledge pre-quiz concerning the quality of the interactions with children during book reading, except for Paraeducator 3, Kristin (see Table 10). However, if one examines the specific behaviors for which Kristin was rated under a 2.0 on the quality rating scale, it is noteworthy that the ratings for these variables are more related to book reading skills than to child interaction. For example, she scored under a 2.0 for “using descriptive language,” “introducing the book and extending concepts,” and “holding the book so the children can see the pages.” Kristin’s baseline score for “acceptance and warmth” and “following the child’s lead” were both 2.5.

A second possible explanation for the positive quality of the baseline book reading interactions may be that the warm, responsive nature of the teacher-child relationships was an extension of their ongoing interactions with children throughout the day. The researcher had noted the overall positive nature of the adult-child rapport and interactions during her time in the classrooms prior to and during the study. Thus, a kind, positive, and encouraging style was modeled and practiced by the lead teacher and appeared to be true of her observations of the paraeducators as well.

Comparison with the Dennis (2010) study. While the rating scale employed for this study was adapted from the same scale that was adapted and then employed in the Dennis (2010) study (i.e., *Indicator of Parent-Child Interaction*, Baggett, Carta, & Horn, 2006), there were several notable differences in how the affective qualities of the participants were ultimately assessed and reported.

The facilitative behaviors that were rated in the Dennis (2010) study included “acceptance/warmth,” “uses descriptive language,” “follows child’s lead,” “introduces/extends,” and “responds to distress.” The interrupting behaviors included “criticism/harsh voice,”

“restrictions/intrusions,” and “rejects child’s bid.” Thus, behaviors that were rated in the Dennis (2010) study included those considered facilitators of positive interactions and those that were considered interrupters of positive interactions

This study dropped the rating scale item “responds to distress” because there were no such incidents to rate and added the item “holds the book so children can see the pages.” The interrupter items were also dropped from the rating scale in this study due to the extremely low frequency of their occurrence.

In the Dennis (2010) study, the individual behaviors were initially rated as they were in this study. However, unlike this study, the ratings for each dimension of facilitative behaviors and each dimension of interruptive behaviors were totaled and then divided by the overall possible score to obtain a percentage.

During the baseline phase in the Dennis (2010) study, the quality of the book reading interactions varied among the teachers with baseline means for facilitators and interrupters of 65% and 33%, 40.8% and 18%, and 80.4% and 7%, respectively. The third teacher, who had the highest facilitative mean (80.4%) also had the lowest interrupter mean (7.7%). This variation in the results among the participants is similar to the present study, although this study’s lack of interrupters, differences for one of the facilitative behaviors, and the different scoring process prevents a complete comparison. However, in both studies, the participants demonstrated fairly positive behaviors during the book reading from the start, although the baseline results suggested a need to improve for two of the three teachers in the Dennis study.

The results of the present study also suggested a need to improve the qualitative ratings for one of the four paraeducators in this study. The lack of interrupting behaviors and need to respond to distress may be related to the modeled expertise of the lead ECSE teachers’

interaction style and the much smaller ratios of adults to children available in the early childhood special education classroom's book reading group. (It should be recalled that in the Dennis study the book reading was conducted with each of the three teacher's entire classroom group.)

Research Question 5

Does the intervention package result in the paraeducators improved use of affective interactional qualities during the book reading sessions as assessed qualitatively by a rating scale?

Table 42 displays the mean ratings of the paraeducators' behaviors that facilitate positive interactions or each of the study conditions. An inspection of this table shows that, with the exception of Kristin (Paraeducator 3), the paraeducators had high mean ratings during baseline and generally maintained or slightly improved their already high ratings during the intervention and, in the cases of Amanda and Kristin, in the maintenance phases of the study. For example, while Tricia's ratings were very high during baseline, she also improved on two of the variables (i.e., uses descriptive language - 2.9 and follows the child's lead - 2.4) that were under a 3.0 during baseline, thus resulting in her obtaining a 3.0 for all five facilitating behaviors during intervention. Leah's baseline and intervention ratings remained high and consistent. Thus, the already high ratings make it hard to access the value of the intervention for these paraeducator's use of behaviors that facilitate positive child interactions.

Amanda (Paraeducator 1) showed the most variable ratings. Her poorest set of ratings across the three phases of the study were for the variable, "holds book so child can see pages," for which she received 2.7 in baseline, a 2.5 in intervention, and a 2.0 during maintenance. She received one rating of 3.0 during baseline, three ratings of 3.0 in intervention and two ratings of 3.0 in maintenance. Thus, the impact of the intervention behaviors that facilitate positive child

interactions for Amanda does not seem strong.

Kristin (Paraeducator 3) had the lowest ratings during baseline, but her ratings notably improved during intervention and again during her single day of maintenance. She had two ratings of 1.7 and one rating of 1.8 during baseline; however, in the single session of maintenance all five rated facilitative behaviors were scored at the highest possible rating of 3.0. Thus, the intervention package seemed to have the most impact on Kristin's implementation of book reading behaviors that facilitate positive child interactions and the constructive e-mail feedback provided during intervention seemed to be a particularly strong motivator for Kristin. For example, one of the comments given as feedback to Kristin included guidance on holding the book in her dominant hand, with the pictures facing the children so the text could be read aloud with ease. It was noted in the subsequent book reading session that she repositioned her hand and held the book towards the children. Kristin also began asking the children if they could view the pictures in the book.

Comparison to the Dennis (2010) study. The intervention in both the Dennis (2010) study and the present study seemed to have a minimal impact on the participants who demonstrated high levels of facilitate behavior during baseline. Conversely, the intervention seemed to have a positive impact on the participants who had weaker facilitative behaviors in baseline in both studies. In the Dennis (2010) study, two teachers with baseline performances of a substantial use of interrupting behaviors showed a marked improvement in the quality of their interactions at the point that coaching was added to the intervention. However, the intervention did not seem to impact the behavior of one of the teachers who had initially high facilitative behavior and low interrupting behavior during baseline. These outcomes are similar to the outcomes just described for Kristin, who made considerable improvement as well as Leah and

Tricia, who already had facilitative behavior with high ratings.

Research Question 6

Does the children's engagement increase during the book reading with the implementation of the intervention?

Research question 6 examined the children's engagement in each of the four paraeducator's small book reading groups. As described in Chapter 5, the children in each of the four paraeducators' small book reading group demonstrated an increased level of engagement over the course of the study. These results are in line with the results of studies investigating the use of dialogic reading instruction that have consistently found to positively impact children's spontaneous language expression during book reading (Arnold, Lonigan, Crain-Thoreson & Dale, 1999; Hargrave & Sénéchal, 2000; Justice & Ezell, 2002; Justice & Pullen, (2003); Whitehurst, & Epstein, 1994; Whitehurst, et al., 1988; Whitehurst, Zevenbergen, Crone, Schultz, Velting, & Fischel, 1999).

The increased engagement of the children in this study is reflected in the mean gains across the study conditions for each paraeducator. These were as follows.

1. The mean of the observed occurrences of engagement for Amanda's (Paraeducator 1) group of children's during baseline was 66.3%. This increased to a mean of 84.5% during intervention and to a mean of 86% during her two days of maintenance.
2. The mean of the observed occurrences of engagement for Leah's (Paraeducator 2) group of children's during baseline was 68% and increased to a mean of 88.8% during intervention.
3. The mean of the observed occurrences of engagement for Kristin's (Paraeducator 3) group of children's during baseline was 58.2% and increased to a mean of 85.2% during

intervention. Kristin's mean then decreased to 75% during her single day of maintenance.

4. The mean of the observed occurrences of engagement for Tricia's (Paraeducator 4) group of children's during baseline was 54.4% and increased to a mean of 90% during intervention.

A visual inspection of the trend of data within phases in the graphic displays of the children's engagement in Amanda's (Paraeducator 1) group, as shown in Figure 7, (see Chapter 5) and Kristin's (Paraeducator 3) group, as shown in Figure 10 (see Chapter 5), indicates that the onset of the intervention resulted in their increased engagement. Relative to this finding, it should be recalled that while the paraeducators used dialogic strategies during baseline, their strategy use increased during intervention and they may have more intentionally used these strategies. And, of course, the occurrence of the implementation of the strategies increased during intervention.

Conversely the trend of data within phases in the graphic displays of the children's engagement in Leah's (Paraeducator 2) group, as shown Figure 7 (see Chapter 5), and Tricia's (Paraeducator 4) group, as shown in Figure 9 (see Chapter 5), indicate that the children's increasing levels of engagement were predictable before the onset of the intervention. These results suggest that the repeated opportunities to participate in the interactive shared book reading sessions may have been the primary factor in their increasing levels of engagement. The children had not previously participated in daily small group book reading sessions or experienced repeated readings of the same. Hence, just the regular opportunity to be engaged in a shared book reading interaction could easily have been the source of their increasing engagement.

Another interesting aspect of the children's engagement was their use of the individual engagement variables. The three behaviors measured as engagement variables were "asking questions," "initiating comments," and "responding to requests for responses." Tables 21, 27, 34, and 37 in Chapter 5 report the individual session percent of occurrences of the children's individual engagement variables for Paraeducators 1 through 4, respectively. Tables 29, 32, 35 and 38 in Chapter 5 report the means and ranges of the individual variables of child engagement for Paraeducators 1 through 4, respectively; and Figures 8, 9, 11, and 12 (see Chapter 5) display bar graphs comparing the means of the individual variables of child engagement for Paraeducators 1 through 4, respectively. A review of these data consistently reveals that the children in all four of the paraeducators' groups consistently engaged in responding to requests for responses most frequently, followed by initiating comments, and finally, by asking questions. Additionally, the largest mean gains from baseline to intervention and, in two cases to maintenance, occurred in their "responding to requests for responses." Three of the four paraeducators' groups of children had mean gains for the variable "initiating questions" and also for "asking questions." Further, the smallest mean gains occurred for "initiating comments."

The children's high level of "responding to requests to responses" was directly related to the fact that the dialogic reading strategies encourage responses from children and adults tend to use higher rates of wh-word questions as well as open-ended questions. Increased training was needed to ensure the children engaged in unsolicited commenting.

Comparison to the Dennis (2010) study. It is difficult to compare the children's assessed engagement in the present study with the Dennis (2010) study. As described previously, Dennis (2010) used individual children within each whole class group as the assessment focus for engagement. Further, she assessed engagement by using a rubric scoring system for level

and complexity of engagement that was adapted from McWilliam's (2000) *Scale for Teacher's Assessment of Routines Engagement (STARE)*. However, the baseline level and complexity of the focus children's engagement was consistently high and at a ceiling level. It was, therefore, not possible to determine the effects of the intervention. The fact that the Dennis (2010) study encountered this assessment challenge for measuring child engagement was the reason that a different approach to measuring engagement was selected for this study (i.e., three variables associated with the children's oral interactions during book reading and the measure of the children's interaction within each book group session).

Research Question 7

Do the ECSE paraeducators continue implementing the dialogic reading, print referencing strategies, and incorporating positive book reading interactions into the book reading sessions after all components of the intervention package have been terminated?

The final research question examined whether or not the paraeducators maintained their use of the strategies and positive book reading qualities after the instruction was discontinued. Due to the ending of the school year, maintenance was limited to only two maintenance sessions for Amanda (Paraeducator 1) and to one maintenance session for Paraeducator 3 (Kristin). No maintenance book reading sessions were possible for the Paraeducator 2 (Leah) and Paraeducator 4 (Tricia). With such limited measures of maintenance performance, this question cannot be addressed.

Conclusions

Both the present study and the Dennis (2010) study findings support the feasibility of teaching adults to use dialogic reading and print referencing strategies with the presentation of training content via a computer based instructional interactive and media rich program or

programs along with the use of performance-based feedback. This treatment model offers an accessible and cost effective approach to educational personnel development. However, improvements to the methodology are also indicated by these studies outcomes.

Revision of the Computer-Delivered Instructional Program

Changes to the computer program in the Dennis (2010) were set forth in the study's report. This study followed most of the recommendations and the results of the social validity indicated there was an increased satisfaction with the computer by the participants in this study. Additionally, two of the paraeducators seemed to make sustainable gains following the experience with the program only, which did not occur in the Dennis (2010) study.

However, changes to this program are also indicated by the results. First, the computer program needs to be divided into smaller components so that the individual has more time to absorb smaller units or chunks of information. Individuals can then be allowed to move through the components at a self-selected pace or by following a specific schedule associated with a professional development plan. Possible program components follow.

- the value of interactive shared book reading for small groups that involve daily reading and repeated reading of books,
- selecting high quality books for young children,
- setting up a book reading environment for a small group of children,
- introducing and holding books while reading to young children,
- selecting appropriate books,
- establishing and maintaining warm, responsive interactions with young children during book reading,
- rationale for dialogic reading strategies (i.e., PEER) with explicit implementation

examples and guidelines),

- rationale for dialogic reading strategies (i.e., CROWD) with explicit implementation examples and guidelines,
- rationale for print referencing strategies with explicit implementation examples and guidelines for each strategy,
- selecting appropriate books, and
- follow-up practice activities.

In-Depth and Personalized Assessment of Professional Development Participants

Pre- and post-assessment items should probe for the participants' understanding of the rationale or value of practices as well as their awareness of implementation techniques. This approach could include paper-pencil, online assessment with traditional items, interviews of the participants, and requests for demonstrations.

Frequent and Responsive Performance Feedback

Provide frequent (daily to several times per week) performance based feedback that is specific to the skills being acquired and implemented by the professional development participants, particularly during the early acquisition of the skills. Depending on personnel resources, e-mail or face-to-face feedback, or a combination of feedback strategies, can be employed. Identify an efficient way of periodically capturing video of the participant's book reading session and use as a source for the participant's self-reflection and, if possible, provide instructional review and discussion. It is possible that participants could self record their sessions if time and personnel are issues.

Periodic Assessment of Participant Performance

One of the recommendations of the Dennis (2010) discussion was that consideration be

given to principles of adult learning and that appropriate and feasible elements be included in the professional development program or research investigation. Six adult learning characteristics that are based on a study of the effectiveness of four adult learning methods conducted by Trivette, Dunst, Hamby, and O'Herin (2009) were cited and include: (a) introduce, (b) illustrate, (c) practice, (d) evaluate, (e) reflect, and (f) mastery. Dennis (2010) noted that some means of illustrating the practice, self-evaluation, and reflection would have strengthened the study. Specifically, she identified the following suggestions: (a) opportunities to illustrate the practice of using specific early literacy strategies through role-playing and/or modeling, (b) providing opportunities for reflection through journaling, and (c) mastery through self-assessment. These practices also have relevance to this study.

Focus on Qualitative Elements of the Implementation of Individual Strategies

While this study employed clear definitions of the strategies to ensure the accuracy of measuring their implementation, the focus of the results was primarily on the percent of strategy occurrences. No measures were taken about the appropriateness of a specific strategy for the part of the book and content focus or to the needs of the child or children to which the strategy was directed. Attention to the quality and appropriateness of strategy implementation must be addressed.

Limitations of the Study

This section addresses the limitations of the study. In interpreting the results of this study, certain limitations should be addressed.

One of the study limitations is that it involved only a small number of paraeducators and children who resided in the same, largely affluent, community in the Midwest. Therefore, it is difficult to ensure that similar results would emerge with paraeducators and children from other

geographical and socioeconomic locations. A larger number of participants from a broader geographical basis that would better reflect the diversity to populations of relevance would contribute to generalizability of the findings.

Another limitation of this study is that the assessment of the participant's strategy implementation and the children's engagement was limited due to time constraints related to a delay in the study onset due to a participant's illness and to the ending of the school year. Extended intervention and maintenance conditions may have provided a more complete understanding of the full extent of the performance capabilities of the participants, the efficacy of the intervention package, and the optimal use of the intervention components.

While video data collection has a number of merits, there are also a number of factors that can interfere with the data collection and introduce limitations to interpreting the results of a study. Technical issues with the equipment can introduce problems that result in a loss of data, data that are of poor technical quality (e.g., poor sound, inadequate lighting), and data that are missing critical elements of the setting and participants. Challenges can occur due to the camera angles, size of the selected frame, and limited access to close-up views of subtle behavior. For example, the researcher believes that the lower interobserver reliability score obtained for the strategy of print tracking in this study is due to the difficulty in capturing this movement with the video frames.

A final limitation may be related to the selection of books for this study. While all of the selected books met criteria for quality and developmental appropriateness and were tied to the thematic units of the classrooms, it is possible that the paraeducators' lower implementation levels of certain strategies was, in part, connected to a lack of opportunities to use a strategy appropriately with the selected books. For example, completion prompts are not easily

implemented with some children's books.

Suggestions for Future Research

Suggestions for future research on teaching early childhood personnel to implement interactive book reading strategies are provided in this section. First, replications of the present study that expand and vary the participants and refine the professional development strategies associated with this study are of interest. The use of computers to deliver instructional content should also be explored as the capability of technology continues to expand. Assessment that is directed to the elements of effective performance based feedback for teaching and supporting the implementation of early literacy strategies are also needed.

Additionally, research is needed that examines the instructional and support strategies that build upon earlier research and ensure that adults increase and sustain their use of print referencing strategies and the more complex dialogic strategies, such as distancing prompts. Professional development approaches that ensure that adults are sufficiently trained to effectively use strategies that facilitate young children's initiation of interactions during book reading, such as making comments and asking questions, need to be designed and implemented.

Finally, the design of any study that is directed to teaching adults to learn to use specific book reading strategies should ensure that the time frame for the study is adequate for extended observations. Adults need sufficient time to learn specific book reading strategies as well as time to practice implementing the strategies.

References

- Addy, S., & Wight, V. R. (2012, February). *Basic facts about low-income children, 2010: Children under age 18*. (NCCP Fact Sheet). New York, NY: National Center for Children in Poverty. Retrieved November 1, 2012, from http://www.nccp.org/publications/pub_1049.html
- Al Otaiba, S., & Hosp, M. K. (2004). Providing effective literacy instruction to students with Down syndrome. *Teaching Exceptional Children, 36*(4), 28-35.
- Anderson, R. C., Hiebert, E. H., Scott, J. A., & Wilkinson, I. A. (1985). *Becoming a nation of readers*. Washington, DC: National Institute of Education.
- Armbruster, B., Lehr, F., and Osborn, J. (2002). "Teaching Our Youngest: A Guide for Preschool Teachers and Child Care and Family Providers." Early Childhood Task Force. U.S. Department of Education and the U.S. Department of Health and Human Services. Available: <http://www.ed.gov/teachers/how/early/teachingouryoungest/index.html>
- Armstrong, K., Cusumano, D. L., Todd, M., & Cohen, R. (2008). Literacy training for early childhood providers: Changes in knowledge, beliefs, and instructional practices. *Journal of Early Childhood Teacher Education, 29*(4), 297-308. doi:10.1080/10901020802470085
- Arnold, D. S., & Whitehurst, G. J. (1994). Accelerating language development through picture book reading: A summary of dialogic reading and its effect. In D. K. Dickinson (Ed.), *Bridges to literacy: Children, families, and schools* (pp. 103-128). Malden, MA: Blackwell Publishing.
- Baggett, K. M., Carta, J. J., & Horn, E. (2006). *Indicator of parent-child interaction (IPCI)*. Juniper Gardens Children's Project, Kansas City: Kansas.
- Baker, L., & Scher, D. (2002). Beginning reader's motivation for reading in relation to parental beliefs and home reading experiences. *Reading Psychology, 23*(4), 239-269.

- Bellon, M. L., & Ogletree, B. T. (2000). Repeated storybook reading as an instructional method. *Intervention in School and Clinic, 36*(2), 75-81.
- Bishop, D. V. M. and Adams, C. (1990). A prospective study of the relationship between specific language impairment, phonological disorders and reading retardation. *Journal of Child Psychology and Psychiatry, 31*(7), 1027–1050. doi: 10.1111/j.1469-7610.1990.tb00844.x
- Blom-Hoffman, J., O’Neil-Pirozzi, T.M., Cutting, J. (2006). Read together, talk together: The acceptability of teaching parents to use dialogic reading strategies via videotaped instruction. *Psychology in the Schools, 43*(1), 71-78.
- Bloom, L. (1970). *Language development: Form and function in emerging grammars*. Cambridge, MA: MIT Press.
- Bond, M. A., & Wasik, B. A. (2009). Conversation stations: Promoting language development in young children. *Early Childhood Education Journal, 36*(6), 467-473.
- Briesch, A. M., Chafouleas, S. M., Lebel, T. J., & Blom-Hoffman, J. A. (2008). Impact of videotaped instruction in dialogic reading strategies: An investigation of caregiver implementation integrity. *Psychology in the Schools, 45*(10), 978-993.
- Britto, P. R., & Brooks-Gunn, J. (2001). Beyond shared book reading: Dimensions of home literacy and low-income African American preschoolers' skills. In J. Brooks-Gunn & P. R. Britto (Eds.), *New directions for child and adolescent development: Vol. 92. The role of family literacy environments in promoting young children's emerging literacy skills* (pp. 73–93). New York: Jossey-Bass.
- Brown, K. G. (2001). Using computers to deliver training: Which employees learn and why? *Personnel Psychology, 54*(2), 271-296. San Francisco: Jossey-Bass.
- Boudreau D. M., & Hedberg, N. L. (1999). A comparison of early literacy skills in children with

- specific language impairment and their typically developing peers. *American Journal of Speech-Language Pathology*, 8(3), 249-260.
- Bus, A. G. (2001). Joint caregiver–child storybook reading: A route to literacy development. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (pp.179-191). New York: Guilford Press.
- Bus, A. G., van Ijzendoorn, M. H., & Pelligrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research*, 65(1), 1-21.
- Button, K., & Johnson, M. (1997). The role of shared reading in developing effective early reading strategies. *Reading Horizons*, 37(4), 262-273.
- Carnahan, C. R., Williamson, P., Clarke, L., & Sorensen, R. (2009). A systematic approach for supporting paraeducators in educational settings: A guide for teachers. *Teaching Exceptional Children*, 41(5), 34-43.
- Chamberlin, B. B., & Scot, T. P. (2002). Creating Sustainable Technology Integration with Teachers, *Journal of Computing in Teacher Education* 19(1), 23-28.
- Clay, M. M. (1979). *The early detection of reading difficulties*. Portsmouth, NH: Heinemann.
- Collins, M. (2006). ESL preschoolers' English vocabulary acquisition from storybook reading. *Reading Research Quarterly*, 40(4), 406-408.
- Cortiella, C. (2011). *The State of Learning Disabilities*. New York, NY: National Center for Learning Disabilities.
- Crain-Thoreson, C, & Dale, P. S. (1999). Enhancing linguistic performance: Parents and teachers as book reading partners for children with language delays. *Topics in Early Childhood Special Education*, 19(1), 28-39.

- Crews, D. (1978). *Freight Train*. New York: Harper Collins Children's Books.
- Crowe, L., Norris, J. A., & Hoffman, P. R. (2000). Facilitating storybook interactions between mothers and their preschoolers with language impairments. *Communication Disorders Quarterly, 21*(3), 131-46.
- Dahlgren Sandberg, A., & Hjelmquist, E. (1997). Language and literacy in nonvocal children with cerebral palsy. *Reading and Writing: An Interdisciplinary Journal, 9*(2), 107-133
- Daniels, V. I., & McBride, A. (2001). Paraeducators as critical team members: Redefining roles and responsibilities. *NASSP Bulletin, 85*(623), 66-74. doi: 10.1177/019263650108562308
- Dale, P. S., Crain-Thoreson, C., Notari-Syverson, A., & Cole, K. (1996). Parent-child book reading as an intervention technique for young children with language delays. *Topics in Early Childhood Special Education, 16*(2), 213-235.
- Darling-Hammond, L. & McLaughlin M.W. (1996) Policies that support professional development in an era of reform. In M. W. McLaughlin and I. Oberman (Eds.), *Teacher Learning: New Policies, New Practices* (pp. 202-218). New York: Teachers College Press.
- Dennis, L. R. (2010). Effects of training on teacher's use of early literacy strategies during book reading. (Doctoral dissertation, The University of Kansas.) Retrieved from <http://kuscholarworks.ku.edu/dspace/handle/1808/7086>.
- Dennis, L. R., & Horn, E. (2011). Strategies for supporting early literacy development. *Young Exceptional Children, 14*(3), 29-40.
- DesJardin, J. L., Ambrose, S. E., & Eisenberg, L. S. (2009). Literacy skills in children with cochlear implants: The importance of early language and joint storybook reading. *Journal of Deaf Studies and Deaf Education, 14*(1), 1-21.

- DeTemple, J. M. (2001). Beginning literacy with language. In D. K. Dickinson (Ed.), *Beginning literacy with language: Young children learning at home and school* (pp. 21–51). Baltimore: Brooks.
- Dhonau S., & McAlpine, D. 2002; "Streaming" best practices: Using digital video teaching segments in the FL/ESL methods course *Foreign Language Annals* 35(6), 632-636.
- Dickinson, D. K. (2001). Book reading in preschool classrooms. In D. K. Dickson & P. O. Tabors (Eds.), *Beginning literacy with language* (pp. 175-204). Baltimore, MD: Paul H. Brookes.
- Dickinson, D. K., & Brady J. P. 2006. Toward effective support for language and literacy through professional development. In *Critical Issues in Early Childhood Professional Development*, edited by M. Zaslow and I. Martinez–Beck. Baltimore, Md.: Brookes.
- Dickinson, D. K., & McCabe, A. (2001). Bringing it all together: The multiple origins, skills, and environmental supports of early literacy. *Learning Disabilities Research and Practice*, 16, (4), 186-202.
- Dickinson, D. K., & Smith, M. (1994). Long-term effects of preschool teachers book readings on low-income children's vocabulary and story comprehension. *Reading Research Quarterly*, 29(2), 105-122.
- Dickinson, D. K., & Tabors, P. O. (2002). Fostering language and literacy in classrooms and homes. *Young Children*, 57(2), 10-18.
- Dollins, C. (2008). *The ABCs of Literacy: Preparing Our Children for Lifelong Learning*. Nashville: Cumberland House Publishing, Inc.
- Duursma, E., Augusta, M., & Zuckerman, B. (2008). Reading aloud to children: The evidence. *Archives of Disease in Childhood*, 93(7), 554-557.

- Elley, W. B. (1989). Vocabulary acquisition from listening to stories. *Reading Research Quarterly, 24*(2), 174-187.
- Ennis, S. R., Ríos-Vargas, M., & Albert, N.G. (2011). *The Hispanic population: 2010 U.S. Census Briefs*. Retrieved April 3, 2012 from <http://www.census.gov/prod/cen2010/briefs/c2010br-04.pdf>
- Erickson, K. A., Koppenhaver, D. A., Yoder, D. E., & Nance, J. (1997). Integrated communication and literacy instruction for a child with multiple disabilities. *Focus on Autism and Other Developmental Disabilities, 12*(3), 142-150.
- Ezell, H. K., & Justice, L. M. (2005). Shared storybook reading: Building young children's language and emergent literacy skills. Baltimore: Paul H. Brookes Publishing Co., Inc.
- Fitzharris, L., Blake Jones, M., & Crawford, A. (2008). Teacher knowledge matters in supporting young readers. *The Reading Teacher, 61*(5), 384-394.
- Fletcher, K. L., & Reese, E. (2005). Picture book reading with young children: A conceptual framework. *Developmental Review, 25*(1), 64-103.
- Fox, M. (2001). Reading magic: Why reading aloud to our children will change their lives forever. Harcourt: Orlando.
- French, N. K. (2002). Maximize paraprofessional services for students with learning disabilities. *Intervention in School and Clinic, 38*(1), 50-55.
- French, N. K. & Pickett, A. L. (1997). Paraprofessionals in special education: Issues for teacher educators. *Teacher Education and Special Education, 20*(1), 61-73.
- Frosch, C., Cox, M., & Goldman, B. (2001). Infant parent attachment and parental and child behavior during parent toddler storybook interaction. *Merrill-Palmer Quarterly, 47*(4), 445-474.

- Fung, P., Chow, B., & McBride-Chang, C. (2005). The impact of a dialogic reading program on deaf and hard-of-hearing kindergarten and early primary school-aged students in Hong Kong. *Journal of Deaf Studies and Deaf Education, 10*(1), 82–95.
- Gallagher, A., Frith, U., & Snowling, M. J. (2000). Precursors of literacy delay among children at genetic risk of dyslexia. *Journal of Child Psychology and Psychiatry, 41*(2), 203-213.
- Garmston, R., & Wellman, B. (1999). *The Adaptive School: A sourcebook for developing collaborative groups*. Norwood, MA: Christopher-Gordon Publishers, Inc.
- Ghere, B. & York-Barr, J. (2007). Paraprofessional turnover and retention in inclusive programs: Hidden costs and promising practices. *Remedial and Special Education, 28* (1), 21-32.
- Giangreco, M. F. (2003). Working with Paraprofessionals. *Educational Leadership, 61*(2), 50-53.
- Glaser, C. W., Rieth, H. J., Kinzer, C. K., Colburn, L. K., & Peter, J. (1999). A description of the impact of multimedia anchored instruction on classroom interactions. *Journal of Special Education Technology, 14*(2), 27-43.
- Gormley, S., & Ruhl, K. L. (2005). Dialogic Shared Storybook Reading: An instructional technique for use with young students in inclusive settings. *Reading & Writing Quarterly, 21*(3), 307-313.
- Hammett, L. A., van Kleeck, A., & Huberty, C. J. (2003). Patterns of parents' extratextual interactions during book sharing with preschool children: A cluster analysis study. *Reading Research Quarterly, 38*(4), 442-468.
- Hargrave, A. C., & Sénéchal, M. (2000). A book reading intervention with preschool children who have limited vocabularies: The benefits of regular reading and dialogic reading. *Early Childhood Research Quarterly, 15*(1), 75-90.
- Hart, B. & Risley, T. R. (1995). *Meaningful Differences in the Everyday Experience of Young*

American Children. Baltimore: Paul H. Brookes Publishing Co.

Haverila, M (2011). Prior e-Learning experience and perceived learning outcomes in an undergraduate e-learning course. *Journal of Online Learning and Teaching*, 7(2), 206-218.

Available at: http://jolt.merlot.org/vol7no2/haverila_0611.pdf

Hodges, C. B. (2004). Designing to Motivate: Motivational Techniques to Incorporate in ELearning Experiences. *Journal of Interactive Online Learning*, 2(3), 1-7.

Holdaway, D. (1979). *The foundations of literacy*. New Hampshire: Heineman. Individuals with Disabilities Education Act of 2004, P.L. 108-446.

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education.

Exceptional Children, 71(2), 165-179.

Hsieh, W. Y., Hemmeter, M. L., McCollum, J. A., & Ostrosky, M. M. (2009). Using coaching to increase preschool teachers' use of emergent literacy teaching strategies. *Early Childhood Research Quarterly*, 24(3), 229-247. doi:10.1016/j.ecresq.2009.03.007

Institute on Community Integration. (n.d.). Para eLink Core Competency Area 3: Assessment, Diagnosis, and Evaluation. Minneapolis: University of Minnesota. Retrieved March 29, 2007, from http://ici2.umn.edu/elink/general/c3_units.html

International Reading Association (IRA) & NAEYC. 1998. Learning to read and write:

Developmentally appropriate practices for young children. A joint position statement of the International Reading Association and the National Association for the Education of Young Children. *Young Children* 53 (4): 30-46. Online:

www.naeyc.org/about/positions/pdf/PSREADS98.PDF

Jalongo, M. R. (2004) *Young children and picture books*: Washington D.C. National Association

of Young Children.

- Jiménez, T. C., Filippini, A. L., & Gerber, M. M. (2006). Shared reading within Latino families: An analysis of reading interactions and language use. *Bilingual Research Journal*, 30(2), 431-452.
- Justice, L. M., & Ezell, H. K. (2002). Use of storybook reading to increase print awareness in at-risk children. *American Journal of Speech-Language Pathology*, 11(1), 17-29.
- Justice, L. M., & Ezell, H. K. (2004) Print referencing: An emergent literacy enhancement strategy and its clinical application. *Language, Speech, and Hearing Services in Schools* 35 (2), 185-193.
- Justice, L. M. & Kaderavek, J. (2002) Using shared storybook reading to promote emergent literacy. *Teaching Exceptional Children*. 3(4), 8-13.
- Justice, L.M., Kaderavek, J., Fan, X., Sofka, A. & Hunt, A. Accelerating preschoolers' early literacy development through classroom-based teacher-child storybook reading and explicit print referencing; *Language, Speech and Hearing Services in the Schools* 40(1), 67-85.
- Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early Childhood Research Quarterly*, 23(1), 51-68.
- Justice, L. M., Meier, J., & Walpole, S. (2005). Learning new words from storybooks: an efficacy study with at-risk kindergartners. *Language, Speech, and Hearing Services in Schools*, 36(1), 17-32.
- Justice, L. M., and Pullen, P. C. (2003). Promising interventions for promoting emergent literacy skills: Three evidence-based approaches. *Topics in Early Childhood Special Education*,

23(3), 99-113. DOI: 10.1177/0271121403023003010

- Kaderavek, J. N., & Justice, L. M. (2005). The effect of book genre in the repeated readings of mothers and their children with language impairment: A pilot investigation. *Child Language Teaching and Therapy, 21*(1), 75-92.
- Kaderavek, J. N., & Justice, L. M. (2002). Shared storybook reading as an intervention context: Practices and potential pitfalls. *American Journal of Speech-Language Pathology, 11*(4), 395-406.
- Kennedy, C. H. (2005). Single-case designs for educational research. Allyn and Bacon: Boston.
- Kennedy, E. J., & Flynn, M. C. (2003). Training phonological awareness skills in children with Down syndrome. *Research in Developmental Disabilities, 24*(1), 44-57.
- Kindle, K., (2011). Same book, different experience: A comparison of shared reading in preschool classrooms, *Journal of Literacy and Literacy Education, 7*(1), 13-34.
- Klein, L. G., & Knitzner, J. (2007). *Promoting Effective Early Learning: What Every Policymaker and Educator Should Know*. National Center for Children in Poverty, Columbia University, Mailman School of Public Health, 1-8.
- Knight, J., Bradley, B., Hock, M., Skrtic, T., Knight, D., Brasseur-Hock, I., Deshler, D., Ruggles, M., & Hatton, C. (2012). You can learn a lot by watching: How video can be used to accelerate professional learning. *The Journal of Staff Development, 33*(2), 18-23.
- Koppenhaver, D., Coleman, P., Kalman, S., & Yoder, D. (1991). The implications of emergent literacy research for children with developmental disabilities. *American Journal of Speech and Language Pathology, 1*(1), 38-44.
- Koppenhaver, D. A., & Erickson, K. A. (2003). Natural emergent literacy supports for preschoolers with autism and severe communication impairments. *Topics in Language*

- Disorders*, 23(4), 283-292.
- Kpanja, E. (2001). A study of the effects of video tape recording in microteaching training. *British Journal of Educational Technology*, 32(4), 483-486. doi: 10.1111/1467-8535.00215
- Lane, K. L., Bocian, K. M., MacMillan, D. L., & Gresham, F. M. (2004). Treatment integrity: An essential—but often forgotten—component of school-based interventions. *Preventing School Failure*, 48(3), 36-43.
- Larkin, M. J. (2001). Providing support for student independence through scaffolded instruction. *Teaching Exceptional Children*, 34(1), 30-34.
- Lee, V. E., & Burkam, D. T. (2002). *Inequality at the Starting Gate: Social Background Differences in Achievement as Children Begin School*. Washington, DC: Economic Policy Institute.
- Liboiron, N., & Soto, G. (2006). Shared storybook reading with a student who uses alternative and augmentative communication: A description of scaffolding practices. *Child Language Teaching and Therapy*, 22(1), 69-95.
- Likins, M. (2002). Paraprofessionals: Key members of instructional teams: *The Utah Special Educator*, 23(2), 6-7.
- Lonigan, C. J., Anthony, J. L., Bloomfield, B. G., Dyer, S. M., & Samwel, C. S. (1999). Effects of two shared reading interventions on emergent literacy skills of at-risk preschoolers. *Journal of Early Intervention*, 22(4), 306-322.
- Lonigan, C. J., & Whitehurst, G. J. (1998). Relative efficacy of parent and teacher involvement in a shared-reading intervention for preschool children from low-income backgrounds. *Early Childhood Research Quarterly*, 17, 265-292.

- Lyon, G. R. (1996). Learning disabilities. *The Future of Children*, 6(1): 54-76.
- Martin, B. (1967). *Brown Bear, Brown Bear, What Do You See?* New York: Harcourt, Brace, and Company.
- McDonnell, S. A., Friel-Patti, S., & Rosenthal-Rollins, P. (2003). Patterns of change in maternal-child discourse behaviors across repeated storybook readings. *Applied Psycholinguistics*, 24(3), 323-341.
- McKenzie, J. (2001). How teachers learn technology best. *Educational Technology Journal*, 10(6), Retrieved February 1, 2012 from <http://fno.org/mar01/howlearn.html>
- McWilliam, R. A. (2000). Scale for Teacher's Assessment of Routines Engagement. In R. A. McWilliam and A. M. Casey (Eds.), *Engagement of every child in the preschool classroom* (pp.168-170). Baltimore, MD: Paul Brookes Publishing.
- Mirenda, P. (2003). "He's not really a reader...": Perspectives on supporting literacy development in individuals with autism. *Topics in Language Disorders*, 23(4), 271-282.
- Moschovaki, Eleni, & Meadows, Sara. (2005). Young children's spontaneous participation during classroom book reading: Differences according to various types of books. *Early Childhood Research & Practice* [Online], 7(1). Retrieved October 1, 2011 from <http://ecrp.uiuc.edu.www2.lib.ku.edu:2048/v7n1/moschovaki.html>
- Nathan, L., Stackhouse, J., Goulandris, N., & Snowling, M. J. (2004). The development of early literacy skills among children with speech difficulties: A test of the "critical age hypothesis." *Journal of Speech, Language, and Hearing Research*, 47(2), 377-391.
- National Association for the Education of Young Children (1998). A joint position statement by NAEYC and International Reading Association (IRA): Learning to read and write: Developmentally appropriate practices for young children. *Young Children*, 53(4), 30-46.

- National Center for Education Statistics. (2001). *Entering kindergarten: Findings from the condition of education 2000*. Washington, DC: U.S. Department of Education, 1-36.
Retrieved from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2001035>
- National Early Literacy Panel (NELP). (2009). *Developing early literacy: Report of the National Early Literacy Panel, a scientific synthesis of early literacy development and implications for intervention*. Washington, DC: National Institute for Literacy.
- National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups* (NIH Publication No. 00-4754). Washington, DC: U.S. Government Printing Office.
- National Poverty Center (n.d.), *Poverty facts: How does poverty differ across subgroups*.
Retrieved from <http://www.npc.umich.edu/poverty/>
- National Staff Development Council. (2001). *Standards for Staff Development (Revised)*. Oxford, OH: NSDC.
- Neuman, S. B., Celano, D., Greco, A., & Shue, P. (2001). *Access for all: Closing the book gap for children in early education*. Newark, DE: International Reading Association.
- Newman, F., & Scurry, J. (2001). Online technology pushes pedagogy to the forefront. *The Chronicle of Higher Education* [On-line]. Available: <http://chronicle.com>.
- Nielsen D. C., & Dinner Friesen, L. (2012): A Study of the Effectiveness of a Small-Group Intervention on the Vocabulary and Narrative Development of At-Risk Kindergarten Children, *Reading Psychology*, 33(3), 269-299.
- No Child Left Behind Act of 2001, Pub. L. No. 107-110, § 1119 (January 8, 2002).

- Norris, J. A., & Hoffman, P. R. (1990). Language intervention within naturalistic environments. *Language, Speech, and Hearing Services in Schools, 21*(2), 72–84.
- O'Connor, R. E., & Jenkins, J. R. (1999). The prediction of reading disabilities in kindergarten and first grade. *Scientific Studies of Reading, 3*(2), 159-197.
- Otaiba, S. A. (2004). Weaving moral elements and research-based reading practices in inclusive classrooms using shared book reading techniques. *Early Child Development and Care 174*(6), 575-589.
- Otaiba, S., & Hosp, M. K. (2004). Providing effective literacy instruction to students with Down syndrome. *Teaching Exceptional Children, 36*(4), 28-35.
- Paulson, L., Noble, L., Jepson, S., & van den Pol, R. (2001). *Building early literacy and language skills*. Longmont, CO: Sopris West
- Pelligrini, A. D., Perlmutter, J. C., Galda, L., & Broday, G. H. (1990). Joint reading between black Head Start children and their mothers. *Child Development, 61*(2), 443-453.
- Pianta, R. C., Mashburn, A. J., Downer, J. T., Hamre, B. K., and Justice, L. (2008). Effects of web-mediated professional development resources on teacher-child interactions in pre-kindergarten classrooms. *Early Childhood Research Quarterly, 23*(4) 431–451.
- Piasta, S. B., Justice, L. M., McGinty, A. S., & Kaderavek, J. N. (2012). Increasing young children's contact with print during shared reading: Longitudinal effects on literacy achievement. *Child Development, 83*(3), 810–820.
- Pickett, A.L., & Gerlach, K. (Eds.). (1997). *Supervising paraeducators in school settings: A team approach*. Austin, TX: PRO-ED.
- Pickett, A. L. Roles and responsibilities of paraeducators working with learners with developmental disabilities: Translating research in practices. In H. Parette & G.

- R. Peterson-Karlan (Eds). *Research-based practices in developmental disabilities* (2nd ed. pp. 501-520). Austin, TX: Pro-Ed.
- Pierce, P., Abraham, L., Rosenketter, S. E., Knapp-Philo, J., & Summer, G. (2008). Literacy development. In P. J. Winton, J. A. McCollum, & C. Catlett, (Eds.), *Practical approaches to early childhood professional development: Evidence, strategies, and resources* (pp. 187-206). Washington, DC: Zero to Three.
- Podhajski, B., & Nathan, J. (2005). Promoting early literacy through professional development for child care providers. *Early Education and Development, 16*(1), 161-181.
doi:10.1207/s15566935eed1601_2
- Poglinco, S., Bach, A., Hovde, K., Rosenblum, S., Saunders, M., & Supovitz, J. (2003, May). *The heart of the matter: The coaching model in America's Choice schools*. Philadelphia: Consortium for Policy Research in Education, University of Pennsylvania. Retrieved December 4, 2012 from http://www.cpre.org/Publications/Publications_Research.htm
- Pollard-Durodola, S. D., Gonzalez, J. E., Simmons, D. C., Kwok, O., Taylor, A. B., Davis, M. J., Kim, M., & Simmons, L. (2011). The effects of an intensive shared book reading intervention for preschool children at risk for vocabulary delay. *Exceptional Children, 77*(2), 161-183.
- Price, L., van Kleeck, A., and Huberty, C. J. (2009). Talk during book sharing between parents and preschool children: A comparison between storybook and expository book conditions. *Reading Research Quarterly, 44*(2), 171-194.
- Price, L. H., Bradley, B. A., Smith, J. (2012). A comparison of preschool teachers' talk during storybooks and information book read alouds. *Early Childhood Research Quarterly, 27*(3), 426-440.

- Reading is Fundamental (2011, October 1). *Choosing Books for Young Children*, Retrieved October 1, 2011 from <http://www.rif.org/us/literacy-resources/articles/choosing-books-for-young-children.htm>
- Reese, E., & Cox, A. (1999). Quality of adult book reading affects children's emergent literacy. *Developmental Psychology*, 35(1), 20-28.
- Rieth, H. J., Bryant, D. P., Kinzer, C. K., Colburn, L. K., Hur, S. J., & Hartman, P. (2003). An analysis of the impact of anchored instruction on teaching and learning activities in two ninth-grade language arts classes. *Remedial and Special Education*, 24(3), 173-184.
- Rikys, B. (1992). *Red Bear*. New York: Dial Books for Young Children.
- Rabidoux, P. C., & MacDonald, J. D. (2000). An interactive taxonomy of mothers and children during storybook interactions. *American Journal of Speech-Language Pathology*, 9(4), 331-344.
- Roberts, J., Jergens, J., & Burchinal, M. (2005). The role of home literacy practices in preschool children's language and emergent literacy skills. *Journal of Speech, Language, and Hearing Research*, 48(2), 345-359.
- Romeo-Cutting, J. E., "The use of video-based instruction, performance feedback and role play in teaching caregivers of preschool aged children to use dialogic reading strategies" (2011). *Psychology Dissertations*. Paper 19. <http://hdl.handle.net/2047/d20001018>
- Rush, K. (1999). Caregiver-child interactions and early literacy development of preschool children from low-income environments. *Topics in Early Childhood Special Education*, Vol. 19(1), 3-14.
- Scarborough, H. S., & Dobrich, W. (1994). On the efficacy of reading to preschoolers. *Developmental Review*, 14(2), 245-302.

- Sénéchal, M., and LeFevre, J. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development, 73*(2), 445-460.
- Sheridan, S. M., Edwards, C. P., Marvin, C. A., & Knoche, L. L. (2009). Professional development in early childhood programs: Process issues and research needs. *Early Education and Development, 20*(3), 377-401.
- Snow, C., Baines, W., Chandler, J., Goodman, I., & Hemphill, L. (1991). *Unfulfilled expectations: Home and school influences on literacy*. Cambridge, MA: Harvard University Press.
- Snow, C. E., Burns, S. M., & Griffin, P. (Eds.). (1998). *Preventing Reading Difficulties in Young Children*. Chapter 4: Predictors of Success and Failure in Reading. Washington, DC: National Academies Press.
- Sonnenschein, S., & Munsterman, K. (2002). The influence of home-based reading interactions on 5-year-olds' reading motivations and early literacy development. *Early Childhood Research Quarterly, 17*(3), 318-337.
- Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual difference in the acquisition of literacy. *Reading Research Quarterly, 21*(4), 360-407.
- Stebbins, H., & Knitzer, J. (2007). *State Early Childhood Policies: Highlights from the Improving the Odds for Young Children Project*, New York: National Center for Children in Poverty, June 2007.
- Steckelberg, A. L., & Vasa, S. F. (1998). How paraeducators learn on the web. *Teaching Exceptional Children, 30*(5), 54-59.
- Steiner, L., & Kowal, J. (2007). *Principal as Instructional Leader: Designing a Coaching Program That Fits. Issue Brief*. Center for Comprehensive School Reform and

Improvement.

- Strickland, D. S., & Riley-Ayers, S. (2006, April). Early Literacy: Policy and Practice in the Preschool Years. National Institute for Early Education Research Preschool Policy Brief. (10) (pp. 1-11). Retrieved from <http://nieer.org/publications/policy-matters-policy-briefs/policy-brief-early-literacy-policy-and-practice-preschool>.
- Stuart, M. (1995). Prediction and qualitative assessment of five- and six-year-old children's reading: A longitudinal study. *British Journal of Educational Psychology*, 65, 287–296.
- Sulzby, E., & Teale, W. (1991). Emergent literacy. In R. Barr, M. L. Kamil, P. B. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research: Volume two* (pp. 727-757). New York: Longman.
- Teale, W. H. (2003). Reading aloud to young children as a classroom instructional activity: Insights from research and practice. In A. van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On reading books to children: Parents and children* (pp. 114-140). Mahway, NJ: Lawrence Erlbaum Associates.
- Trelease, J. (2001). *The Read-Aloud Handbook* (5th ed.). New York: Penguin Books.
- Trivette, C. M., Dunst, C. J., Hamby, D. W., & O'Herin, C. E. (2009). *Characteristics and consequences of adult learning methods and strategies*. Retrieved December 5, 2012 from the Center for Practical Evaluation website: <http://www.practicalevaluation.org>
- van Kleeck, A. (2008). Providing preschool foundations for later reading comprehension: The importance of and ideas for targeting inferencing in storybook sharing interventions *Psychology in the Schools*, 45(7), 627-643.
- van Kleeck, A., Gillam, R. B., Hamilton, L., & McGrath, C. (1997). The relationship between middle-class parents' book-sharing discussion and their preschooler's abstract language

- development. *Journal of Speech, Language, and Hearing Research*, 40(6), 1261-1271.
- van Kleeck, A., Stahl, S. A., & Bauer, E. B., (Eds.). 2003. *On reading books to children: Parents and teachers*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- van Merriënboer, J. J. G., Clark, R. E., & de Croock, M. B. M. (2002). Blueprints for complex learning: The 4C/ID*-model. *Educational Technology Research and Development*, 50(2), 39-64.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wagner K. (2003). The effects of the attainment of functional assessment skills by preschool teachers and their assistants on students' classroom behavior. (Doctoral dissertation, The University of Central Florida.) Retrieved from http://etd.fcla.edu/CF/CFE0002088/Wagner_Karen_R_200805_PhD.pdf
- Wasik, B. A., & Bond, M. A. (2006). The effects of a language and literacy intervention on Head Start children and teachers. *Journal of Educational Psychology*, 98(1), 63-74.
- Wasik, B. A., & Bond, M. A. (2001). Beyond the pages of a book: Interactive book reading and language development in preschool classrooms. *Journal of Educational Psychology*, 93(2), 243-250.
- Watkins, R. V., & Bunce, B. H. (1996). Natural literacy: Theory and practice for preschool intervention programs. *Topics in Early Childhood Special Education*, 16(2), 191-212.
- Wetzel, C. D., Radtke, P. H., & Stern, H. W. (1994). *Instructional effectiveness of video media*. Hillsdale, N.J: Lawrence Erlbaum Associates.
- Whalon, K., Hanline, M., & Woods, J. (2007). Using interactive storybook reading to increase language and literacy skills of children with autism spectrum disorder. *Young Exceptional*

Children, 11(1), 16-26.

What Works Clearinghouse. (2006). *Intervention Report: Shared Book Reading*. Rockville, MD:

Retrieved from <http://ies.ed.gov/ncee/wwc/interventionreport.aspx?sid=458>

What Works Clearinghouse. (2007, January). *Interactive Shared Book Reading (Revised report)*.

Rockville, MD: Retrieved from

<http://ies.ed.gov/ncee/wwc/interventionreport.aspx?sid=240>

What Works Clearinghouse. (2010, April). *Dialogic Reading (Revised report)*. Rockville, MD:

Retrieved from <http://ies.ed.gov/ncee/wwc/interventionreport.aspx?sid=135>

Whitehurst, G. J., Arnold, D. S., Epstein, J. N., Angell, A. L., Smith, M., & Fischel, J. E. (1994).

A picture book reading intervention in day care and home for children from low income families. *Developmental Psychology*, 30(5), 679-689.

Whitehurst, G. J., Epstein, J. N., Angell, A. L., Payne, A. C., Crone, D. A., & Fischel, J. E.

(1994). Outcomes of an emergent literacy intervention in Head Start. *Journal of Educational Psychology*, 86(4), 542-553.

Whitehurst, G. J., Falco, F., Lonigan, C. J., Fischel, J. E., DeBaryshe, B. D., Valdez-Menchaca,

M. C., & Caulfield, M. (1988). Accelerating language development through picture-book reading. *Developmental Psychology*, 24(4), 552-559.

Whitehurst, G. J., & Lonigan, C. J. Child Development and Emergent Literacy. 1998. *Child*

Development, 69(3), 848-872. Retrieved from <http://www.jstor.org/stable/1132208>

Whitehurst, G. J., Zevenbergen, A. A., Crone, D. A., Schultz, M. D., Velting, O. N., & Fischel, J.

E. (1999). Outcomes of an emergent literacy intervention from Head Start through second grade. *Journal of Educational Psychology*, 91(2), 261-272.

Yaden, D. B., Smolkin, L., & Conlon, A. (1989). Preschooler's questions about pictures, print

convention and story text during reading aloud at home. *Reading Research Quarterly*, 24(2), 188-214.

Zevenbergen, A. A., & Whitehurst, G. J. (2003). Dialogic reading: A shared picture book reading intervention for preschoolers. In A. van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On reading books to children: Parents and teachers* (pp. 177-200). Mahwah, NJ: Erlbaum.

Zimmaro D. (2004). *Writing Good Multiple-Choice Exams*, Measurement and Evaluation Center: University of Texas, Austin.

Appendix A

IRB Approval, Participant Informed Consent, and Child Assent Script

3/21/11
HSCL #19285

Cheryl Snyder
4909 Crane Ave.
Kansas City, MO 64136

The Human Subjects Committee Lawrence Campus (HSCL) has received your response to its expedited review of your research project

19285 Snyder/Thompson (SPED)
Effects of an Instructional Procedure on Preschool Classroom Paraeducators'
Implementation of Strategies during Shared Book Reading

and approved this project under the expedited procedure provided in 45 CFR 46.110 (f) (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

The Office for Human Research Protections requires that your consent form must include the note of HSCL approval and expiration date, which has been entered on the consent form(s) sent back to you with this approval.

1. At designated intervals until the project is completed, a Project Status Report must be returned to the HSCL office.
2. Any significant change in the experimental procedure as described should be reviewed by this Committee prior to altering the project.
3. Notify HSCL about any new investigators not named in original application. Note that new investigators must take the online tutorial at http://www.rcr.ku.edu/hsc/hsp_tutorial/000.shtml.
4. Any injury to a subject because of the research procedure must be reported to the Committee immediately.
5. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.

Please inform HSCL when this project is terminated. You must also provide HSCL with an annual status report to maintain HSCL approval. Unless renewed, approval lapses one year after approval date. If your project receives funding, which requests an annual update approval, you must request this from HSCL one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

Jan Butin
Associate Coordinator
Human Subjects Committee Lawrence

cc: Barbara Thompson

Human Subjects Committee Lawrence

Youngberg Hall | 2385 Irving Hill Road | Lawrence, KS 66045-7563 | (785) 864-7429 | Fax (785) 864-5049 | www.rcr.ku.edu/hsc

Department of Special Education

ADULT PARTICIPANT INFORMED CONSENT STATEMENT

*The Effects of an Instructional Procedure on Preschool Classroom Paraeducators’
Implementation of Comprehension Strategies during Shared Book Reading*

(Name of the Study)

INTRODUCTION

We know that the lead teacher in the classroom in which you work as a paraeducator has talked with you about a book reading study and that you have indicated an interest in participating. This study is part of a doctoral research study in the Department of Special Education at the University of Kansas. The Department supports the practice of protection for all individuals participating in research. This purpose of this letter is to provide you with more information about the study in order to enable you to decide whether you would like to participate. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with the school district or the services it may provide to you, or the University of Kansas.

PURPOSE OF THE STUDY

The purpose of this study is to learn whether or not the training procedures provided to you improve or increase your use of specific book reading strategies or techniques when reading to small group of young children. We are also interested in whether the use of these strategies results in the children’s increased interest or engagement in the book’s content. When these skills or book reading techniques are used it is often called a “shared” book reading activity. Research has shown that these strategies support the children’s development of important early reading and writing skills.

PROCEDURES

If you participate in this study, you will be asked to engage in several procedures. First you will be asked to read to the same small group of four children three times per week during class time. I will be videotaping every book reading sessions involving you and your group of children. The book reading sessions will last about 15-20 minutes and will occur three times a week. The time commitment for participating in the study is approximately 8-10 weeks.

At some point early in the study you will also be asked to complete a knowledge assessment

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about early literacy instruction and then to begin and complete computer delivered lessons that will present the targeted book reading strategies and to take the knowledge test again, after completing the training. After you have completed the computer-based training and taken the knowledge test, you will be provided with a copy of the videotape of each of your book reading sessions for your review and reflection. You will also have permanent access to a copy of the computer delivered lessons on the targeted strategies. Additionally, at some point in the study, the researcher may provide you with written feedback on your use of the strategies via E-mail following each book reading session. Finally, upon completion of the study, you will be asked to participate in a brief interview that will enable us as researchers to gather information about your perceptions of the study procedures.

Since it is difficult to watch too many things at once, we need to videotape each book reading session. Later, we will watch the videotapes to collect the study data. Thus, your permission for videotaping is necessary for your participation in this study and you will be asked to indicate your understanding of this in the study consent form provided with this letter. The videotapes will be used for data collection only by the researcher or a trained graduate student only and stored in a locked cabinet.

Consent for any future use of the videotapes for professional presentations to inform others about the study procedures and results and/or for training other educators to use the strategies. A place to indicate your consent for the use of the videotapes is also placed in the study consent form but is optional.

RISKS

The cost associated with your participation in this study will be the time and effort involved in engaging in the study procedures just described.

BENEFITS

You will receive direct benefits from the study by having the opportunity to learn and practice effective strategies that can be implemented during shared book reading with young children.

PAYMENT TO PARTICIPANTS

While direct compensation for participation will not be provided, the copies of the children's books used in the study will be provided to the program for addition to classroom libraries at the conclusion of the study. You will receive copies of the videotapes of your book reading sessions

Department of Special Education

to keep for further practice and reflection and a copy of the computer-based lessons on the book reading strategies.

PARTICIPANT CONFIDENTIALITY

Your name will not be associated in any publication or presentation with the information collected about you or with the research findings from this study. Instead, as researcher(s) we will use a study number or a pseudonym rather than your name. We keep all identifying information about you and the study tapes used for data collection in a separate, locked file in order to maximize the security of this information and will destroy this material when the study is completed. Your identifiable information will not be shared unless required by law or you give written permission.

Permission granted on this date to use and disclose your information remains in effect indefinitely. By signing this form you give permission for the use and disclosure of your information for purposes of this study at any time in the future.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form provided with this letter and you may refuse to do so without affecting your right to any services you are receiving or may receive from the school district or the University of Kansas or to participate in any programs or events of the school district or the University of Kansas. However, if you refuse to sign, you cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about you, in writing, at any time, by sending your written request to:

**Cheryl Snyder, University of Kansas, Department of Special Education, 1122 W.
Campus Rd., JRP 405, Lawrence, KS 66045**

If you cancel permission to use your information, the researcher will stop collecting additional information about you. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

Department of Special Education

If you want more information about this study or about the researchers, please contact Cheryl Snyder by phone (816-289-9139) or email (csnyder@ku.edu) or Barbara Thompson by phone (785-550-8141) or email (bthomps@ku.edu).

For additional questions about your rights as a participant, you may call

(785) 864-7429 or write the:

**Human Subjects Committee Lawrence Campus (HSCL),
University of Kansas,
2385 Irving Hill Road, Lawrence, Kansas 66045-7563,
Mary Denning, Director, mdenning@ku.edu.**

We hope you will agree with us that this study is an opportunity for to learn more about to effectively provided individuals such as yourself with information about how to use effective techniques when reading books to young children. If you agree participate in the study, please fill out and sign the study consent and authorization form on the following page. We understand the many demands on your time and truly appreciate your consideration of this study!

Researchers

Cheryl K. Snyder
Principal Investigator
Department of Special Education
1122 W. Campus Rd., JRP 405
University of Kansas
Lawrence, KS 66045
(816) 289-9139



Barbara J. Thompson, Ph.D.
Faculty Supervisor
Department of Special Education
1122 W. Campus Rd., JRP 404
University of Kansas
Lawrence, KS 66045
(785) 864-0692

Department of Special Education

PARTICIPANT CERTIFICATION

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding in the study titled *The Effects of an Instructional Procedure on Preschool Classroom Paraeducators' Implementation of Comprehension Strategies during Shared Book Reading*. I understand that if I have any additional questions about my rights as a research participant, I may call

(785) 864-7429 or (785) 864-7385, write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email mdenning@ku.edu.

I agree to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

By checking this box I agree to the videotaped recordings for the purpose of this study and understand that this is necessary for my participation in the study. *

By checking this box I agree to future use of the videotaped recordings for professional presentation and/or training purposes. *

** Paraeducators and children will not be identified in the videotapes.*

Type/Print Participant's Name

Date

Participant's Signature

Researcher Contact Information:

Cheryl K. Snyder
Principal Investigator
Department of Special Education
1122 W. Campus Rd., JRP 405
University of Kansas
Lawrence, KS 66045
(816) 478-8594

Barbara J. Thompson, Ph.D.
Faculty Supervisor
Department of Special Education
1122 W. Campus Rd., JRP 404
University of Kansas
Lawrence, KS 66045
(785) 864-0692

Department of Special Education

PARENT-GUARDIAN INFORMED CONSENT STATEMENT

*The Effects of an Instructional Procedure on Preschool Classroom Paraeducators'
Implementation of Comprehension Strategies during Shared Book Reading*

(Name of the Study)

Dear (Parents/Guardian Name):

We know that your child's teacher has talked with you about the book reading study and that you have indicated an interest in having your child participate. This study is part of a doctoral research study in the Department of Special Education at the University of Kansas. The Department supports the practice of protection for all individuals participating in research. The purpose of this letter is to provide you with more information about our plans in order to enable you to decide whether you would like your child to participate.

The goal of this study is to help us to learn whether or not some training provided to the teaching assistants or paraeducators in your child's school improves their book reading skills to small groups of young children and that the use of these skills results in the children showing increased interest or engagement in the book's content. When these skills or book reading techniques are used, the activity is often called a "shared" book reading activity. The interactions the adult reader and the children share about the book are intended to encourage the children's interest in the book and support the development of important early reading and writing skills.

The KU team will videotape each book reading session involving your child's classroom paraeducator and a small group of four children that, if you sign the consent form, will include your child.

Prior to starting the group, we will explain the study in simple terms to your child, demonstrate how the videotaping works, and ask if she or he wants to join the group. Your child's preference to participate or not to participate will be honored

The book reading sessions will last about 15-20 minutes and will occur three times a week. The study will last approximately 8-10 weeks; all sessions will be during the school day. The books are both stories and factual books that have been written for young children that have been carefully reviewed by early childhood experts for high quality and appear on numerous recommended book lists. They have also been matched to the topics your child is learning about in the classroom.

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Since it is difficult to watch too many things at once, we need to videotape each book reading session. Later, we will watch the videotapes to collect the study data. Additionally, your child's paraeducator (and possibly your child's lead teacher) will watch the tapes so that he or she can review and reflect on how well they are using the new procedures for reading books to young children. Therefore, in order for your child to participate we will ask you to indicate your permission on the consent form for us to videotape the book reading activity for data collection purposes. We must obtain additional consent from you if you are willing for us to also use the tapes for training and professional presentations that inform others about the study procedures and results. While we will include a place for you to indicate your consent for this use of the tapes, this is *NOT* required for your child to participate in this study

There is no risk associated with your child to participation in this study. However, there are benefits to participating in this study. Your child will have the opportunity to be a part of a small group book reading session in addition to the regular time the teacher reads to everyone. These small "shared" book reading activities involve interactive conversation between the adult and children about the book's content. Research has shown that these interactions have improved skills such as understanding of the book's content, improved vocabulary, and knowledge about books and written print. These important skills will support further development of reading and writing skills. Your child will not receive any compensation for participating in the study.

Your child's name will not be associated in any data collection forms or any publication or presentation with the information collected about your child or with the research findings from this study. Instead, the researcher will use a study number or a pseudonym rather than your child's name. We keep all identifying information about your child and the study tapes used for data collection in a separate, locked file in order to maximize the security of this information and will destroy this material when the study is completed. Your child's identifiable information will not be shared unless required by law or unless you give written permission.

Please know that your child's participation in our study is strictly voluntary. *You are not required to sign the Consent and Authorization form provided with this letter.* You also have the right to withdraw your child from the study at any point during the study by cancelling your permission for your child's participation in writing, at any time during the study by sending your written request to:

**Cheryl Snyder, University of Kansas, Department of Special Education,
1122 W. Campus Rd., JRP 405, Lawrence, KS 66045**

If you cancel permission to use your child's information, the researchers will stop collecting

Department of Special Education

additional information about your child. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

Your refusal to give consent for your child to participate or your withdrawal of your child from the study will have no effect on your or your child's rights to any services that you and/or your child are currently receiving or may be eligible for in the future.

Permission granted on this date to use and disclose your information remains in effect indefinitely. By signing this form you give permission for the use and disclosure of your child's information, excluding your child's name, for purposes of this study at any time in the future.


If you want more information about this study or about the researchers, please contact Cheryl Snyder by phone (816-289-9139) or email (csnyder@ku.edu) or Barbara Thompson by phone (785-550-8141) or email (bthomps@ku.edu). For additional questions about your rights as a participant, you may call (785) 864-7429 or write the:

**Human Subjects Committee Lawrence Campus (HSCL), University of Kansas,
2385 Irving Hill Road, Lawrence, Kansas 66045-7563,
Mary Denning, Director, mdenning@ku.edu.**

We hope you will agree with us that this study is an opportunity for your child to benefit from small group book reading sessions and for us to learn more about how to teach individuals how to use effective techniques when reading books to young children. If you decide you want your child to participate in the study, please fill out and sign the study consent and authorization form on the following page. We understand the many demands on your time and truly appreciate your consideration!

Sincerely,

Cheryl K. Snyder, Ed.S.
Principal Investigator
Department of Special Education
1122 W. Campus Rd., JRP 405
University of Kansas
Lawrence, KS 66045
(816) 478-8594


Barbara J. Thompson, Ph.D.
Faculty Supervisor
Department of Special Education
1122 W. Campus Rd., JRP 404
University of Kansas
Lawrence, KS 66045
(785) 864-0692

Title of Investigation:

Effects of an Instructional Procedure on Preschool Classroom Paraeducators' Implementation of Strategies During Shared Book Reading

Child Assent Script:

Hi, my name is Cheryl Snyder and I'm from the University of Kansas. I'm here to learn about ways grownups read books to children like you and your friends.

I would like to come to your classroom for a while and videotape (*paraeducator's name*) reading a book to you and three of your friends. She will read you a book and talk about it for a few days every week for a while.

See this video camera? (*Show child video camera.*) I will set it up in your classroom so I can make a videotape of your storybook reading time. Would you like to see how it works? (*Provide demonstration of the taping for the child – let them view the results.*)

You do not have to be in the storybook reading group if you don't want to. Do you have some questions for me? Would you like to be in (*paraeducator's name*) book reading group?

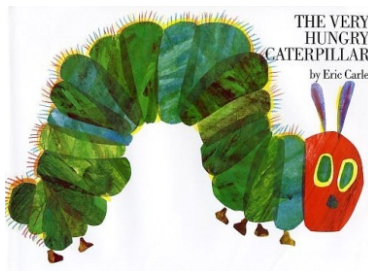
Appendix B

Computer-Delivered Interactive Lesson Examples

Examples of Recall Prompts

Two examples of recall prompts pertain to the book, *The Very Hungry Caterpillar*, by Eric Carle. After you read the book, you might ask the children, “*Can you remember some of the foods that the caterpillar ate?*”

Or before you begin reading the book for a second or third time you might ask, “What did the caterpillar turn into at the end of *the story?*”



Non-verbal Print Referencing Techniques

4. Tracking Print with Your Finger

You track print *as you are reading the print* by following along with your finger directly under print. Or you can guide a child's finger along under the word or sentence you are reading.

Let's watch a short video of Christopher Bergeron, the author and illustrator of the book *Sara is a Chicken*, tracking the print as he reads this book to his young son, Liam.

To view the video clip, **Double Click** on the screen directly below.

(Note: it may take a few seconds for the video to load.)

Appendix C

Knowledge Pre-quiz and Post-quiz

Knowledge Pre-Quiz for Book Reading Study

Name: _____ Date: _____

1. It is a good idea to read the same book to young children more than once to gain the most benefits.

True

False

2. Research indicates that we should read to young children at least three times or more a week.

True

False

3. What are three things you should tell the children about a book when you introduce it to them?

a.

b.

c.

4. If you were reading a story for the *very first time*, which approach should you be following?
- a. allow the children to ask as many questions as they want
 - b. select 2 rare words to explain
 - c. read from beginning to end without a pause
5. A “**picture walk**” is when you briefly stop after you read each page and explain the illustration before reading the next page.

True

False

6. Interactions between a teacher and children about the text and illustrations is **THE** critical element in increasing children's language skills and vocabulary.

True

False

7. Shared book reading means that we share books with young children by placing the books in a center or book area after we have read them.

True

False

8. Dialogic reading is a specific form of shared book reading.

True

False

9. The quality of interactions between adults and children is an important consideration during book reading. Circle the item that ***best*** describes what quality of interactions would look like?
- a. asking questions of the children throughout the story
 - b. smiling, making positive comments, making eye contact, responding to children's interactions
 - c. encouraging the children to wait until the end of the story to comment or ask questions and then having a discussion about the book
 - d. managing children who are easily distracted
10. Research indicates that young children naturally like to look at the written text when a book is being read aloud to them.

True

False

11. Write the name of the type of *prompt, strategy, or technique* each of the following items represents in *a – h* below.
- a. *“What did Goldilocks eat in the three bears’ house?”*
 - b. *“Where on the page is baby bear’s chair?”*
 - c. *“Why is it not a good idea to go into someone’s house when they are not there like Goldilocks did?”*
 - d. *“We saw some bears when we went to the zoo last week. What other animals did we see?”*

- e. Read the words - *“Humpty Dumpty sat on a wall, Humpty Dumpty had a great”* -- and then stop and wait.
 - f. *“Can you point to the first word on this page?”*
 - g. *“Look at the words in the bubble. They say what Mom is thinking.”*
 - h. Running your finger under the words when you are reading aloud to young children.
12. To prepare to read a book to young children it is a good idea to do several things. Please identify one thing you believe is important to do.

Knowledge Post-Quiz for Book Reading Study

Name: _____ Date: _____

1. Write the name of the type of *prompt, strategy or technique* each of the following items represents in *a – h* below.
 - a. “*What did Goldilocks eat in the three bears’ house?*”
 - b. “*Where on the page is baby bear’s chair?*”
 - c. “*Why is it not a good idea to go into someone’s house when they are not there like Goldilocks did?*”
 - d. “*We saw some bears when we went to the zoo last week. What other animals did we see?*”
 - e. Read the words - “*Humpty Dumpty sat on a wall, Humpty Dumpty had a great*” -- and then stop and wait.
 - f. “*Can you point to the first word on this page?*”
 - g. “*Look at the words in the bubble. They say what Mom is thinking.*”
 - h. Running your finger under the words when you are reading aloud to young children.”

2. Research indicates that young children naturally like to look at the written text when a book is being read aloud to them.

True

False

3. What are three things you should tell the children about a book when you introduce it to them?

a.

b.

c.

4. Shared book reading means that we share books with young children by placing the books in a center or book area after we have read them.

True

False

5. Interactions between a teacher and children about the text and illustrations is **THE** critical element in increasing children's language skills and vocabularies.

True

False

6. If you were reading a story for the *very first time*, which approach should you be following?
- a. allow the children to ask as many questions as they want.
 - b. select 2 rare words to explain
 - c. read from beginning to end without a pause

7. Dialogic reading is a specific form of shared book reading

True

False

8. The quality of interactions between adults and children is an important consideration during book reading. Circle the item that ***best*** describes what quality of interactions would look like?

- a. asking questions of the children throughout the story
- b. smiling, making positive comments, making eye contact, responding to children's interactions
- c. encouraging the children to wait until the end of the story to comment or ask questions and then having a discussion about the book
- d. managing children who are easily distracted

9. A "**picture walk**" is when you briefly stop after you read each page and explain the illustration before reading the next page.

True

False

10. To prepare to read a book to young children it is a good idea to do several things. Please identify one thing you believe is important to do.

11. It is a good idea to read the same book to young children more than once to gain the most benefits.

True

False

12. Research indicates that we should read to young children at least three times or more a week.

True

False

Appendix D

Quality Rating Index for Paraeducator-Child Interaction

Definitions and Examples for Rating Paraeducator Facilitators

Paraeducator Facilitators	Definitions	Examples	Non-Examples
<u>Acceptance/Warmth</u>	<ul style="list-style-type: none"> • Smiling • Making a positive comment to or about child • Agreeing with something child has said • Indicating appropriate behavior • Stating child made a good effort 	<ul style="list-style-type: none"> • Paraeducator smiles and says, “Good job! That was a great answer!” • Paraeducator smiles and says, “You are doing a great job listening.” 	<ul style="list-style-type: none"> • Paraeducator responds in a flat, monotone voice • Child becomes frustrated and teacher inappropriately responds (e.g., laughs)
<u>Uses Descriptive Language</u>	<ul style="list-style-type: none"> • Rated based upon teacher’s use of descriptive language and imitation or expansion on child’s interests and vocalizations 	<ul style="list-style-type: none"> • Child is looking at the book and says, “There is a duck.” The paraeducator responds, “That’s right, the duck is waddling down to the pond. 	<ul style="list-style-type: none"> • Simply naming colors, counting, or naming off objects • Making sounds, repeating words, making brief statements
<u>Follows Child’s Lead</u>	<ul style="list-style-type: none"> • Following child’s lead by noticing what the child is interested in and commenting on the child’s interest 	<ul style="list-style-type: none"> • Child says, “That girl seems sad. I was sad the other day,” and the paraeducator responds, “Can you tell me what happened?” 	<ul style="list-style-type: none"> • The child says, “That girl seems sad,” and the paraeducator responds, “So let’s move on and talk about what’s on the next page.”
<u>Introduces/Extends to Maintain or Extend Child Focus</u>	<ul style="list-style-type: none"> • Paraeducator introduces book in novel or interesting manner to maintain and/or extend child’s focus • Paraeducator may use words, voice tone, facial expressions, and gestures in an interesting way 	<ul style="list-style-type: none"> • Paraeducator turns the page and with a surprised expression and a hand over her mouth says, “Oh, my goodness. I can’t believe what happens next!” 	<ul style="list-style-type: none"> • Paraeducator reads aloud in a monotone voice, uses few or no gestures, and little or no change in facial expression

table continues

Paraeducator Facilitators	Definitions	Examples	Non-Examples
<u> Holds Book so Child Can See Print and Pictures </u>	<ul style="list-style-type: none"> • Paraeducator holds the book so that child can view the pictures and see printed page adequately most of the time • Paraeducator holds book so child can easily see what words or lines of text are pointed out or tracked by the paraeducator's index finger 	<ul style="list-style-type: none"> • Paraeducator holds the book with the pages facing the child • Paraeducator pauses adequately for the child to get a good look at the picture and the print on the page • When pointing to a word or tracking a line with her finger, paraeducator holds the book so the child can easily see her finger pointing or moving in a sweeping motion under the words on a line 	<ul style="list-style-type: none"> • Paraeducator primarily holds the book in a way that the child cannot view the pictures or print • Paraeducator shows the pages so briefly that the child cannot get an adequate view of the pictures or print on the pages

Note. Adapted from *Indicator of Parent-Child Interaction* (Baggett, Carta, & Horn, 2006)

Rating Form for Paraeducator-Child Interactions

Date:				
Paraeducator Code:				
Book Reading Session:				
Session Length:				
Paraeducator Facilitators				
1. Acceptance/warmth	0	1	2	3
2. Uses descriptive language	0	1	2	3
3. Follows child's lead	0	1	2	3
4. Introduces/extends	0	1	2	3
5. Holds book so child can see print and pictures	0	1	2	3
Total = _____ out of 15 _____ %	0 = never 1 = rarely 2 = sometimes 3 = often			

Note. Scoring Hint: While you are observing, make a tally mark next to the paraeducator facilitator each time you observe an example that meets the definition. Count the total number of tally marks and circle the corresponding value. Divide the total of the ratings for the five facilitators by 15 and multiply by 100 to obtain a percent.

Appendix E

Interactive Shared Book Reading Coding Manual

Interactive Shared Book Reading Coding Manual

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Appendix

Introduction

The coding system for this study is a frequency count to analyze the occurrence of the use of book sharing strategies and the types of child responses during book reading interactions. Each book sharing strategy and type of child response has been assigned a specific code. The codes will be used to track the average number of times a strategy is implemented and a type of child response occurs in a 15-second interval. All of the definitions for the book sharing strategies and types of child responses are contained in the main section of this manual.

The Format of this Coding Manual

This manual is divided into several sections. The first section includes a description of the coding system for this study. The main section of this manual presents detailed coding guidelines and relevant examples for book sharing strategies followed by procedures for coding the children's participation and types of child responses to be coded. The Appendix contains a coding manual supplement and the forms for recording the data and calculating interrater reliability.

The Coding System for this Study

Video clips will be analyzed before, during, and after the paraeducators have been instructed to implement the book sharing strategies. The paraeducator and a small group of children serve as the focus of the observations. The total number of minutes of the book reading sessions will be recorded so that the rate of occurrence for each strategy can be determined. As each videotape is viewed, the observer will record the use of the strategy or strategies by the paraeducator and types of child responses that occurred during the book reading session. The observer will record the presence of the strategy or child response as soon as it is completed. Data will be collected from the videotaped session if the session meets the following criteria:

- (a) the visual and audio quality of the videotape is sufficient for data collection to occur,
- (b) the complete story is read aloud to the children, and
- (c) the shared book reading session is uninterrupted.

Videotaping the Interactive Shared Book Reading Sessions

Materials and Equipment

The materials and equipment you will need for videotaping the book reading sessions include: (a) a video camera (b) a tripod, (c) videotapes, and (d) a battery pack.

Steps for Videotaping the Book Reading Sessions

It is the videotaper's job to capture the interactions of the book reading sessions. The videotaper should act in a detached manner throughout the videotaping of the book reading session rather than as an observer or participant. The use of the tripod helps to minimize interaction with the videotaper. The camera should be operated from a battery pack so an electrical outlet will not constrain the placement of the camera. The steps for videotaping the book reading sessions are:

1. Prepare the equipment for videotaping prior to your arrival.
Place your personal belongings in a spaced designated by the preschool classroom teacher or locked in your car.
2. Position the camera on the tripod in a location where the book reading can be captured.
3. Set the date/time clock on the camera so it will be recorded on the videotape.
4. Keep the paraeducator and children in view. Be sure the paraeducator and children are in focus by manually focusing the video camera.
5. Refrain from interacting with the children as much as possible and redirect their attention to the paraeducator as necessary.

6. Stop the videotaping after the book reading session is over.
7. Pack up the videotaping equipment.
8. Label the videotape with your initials, the paraeducator's code, the book reading session date, the book reading session start time, and the book reading session ending time.
9. Remember to recharge the batteries after each videotaping session.
10. File the videotape in the designated storage space and return the camera equipment.

Procedures for Coding the Interactive Shared Book Reading Sessions

Materials and Equipment

The materials and equipment you will need for coding the book reading sessions include: (a) the DVD of the book reading session, (b) a computer, (c) the coding manual, (d) blank data coding forms, and (e) pencils.

Steps for Coding the Book Reading Sessions

The steps for coding the book reading sessions are:

1. Be sure the DVD is fully rewound.
2. Record your initials, the paraeducator's code, the number of children in the group, the date, the start time, the end time, and the total session time on the data coding form.
3. Insert the DVD into the DVD Rom Drive of your computer.
4. Start coding from the beginning of the videotaped book reading session until the end of the videotaped book reading session.
5. Feel free to stop and restart the video clip as needed.
6. Whenever you observe the paraeducator using a strategy during the reading of the book you will need to: (a) determine the type of strategy that was used and (b) circle the code for the appropriate strategy.

7. Whenever you observe a child making a response during the reading of the book you will need to: (a) determine the type of response that was made and (b) circle the code for the appropriate child response.
8. If you have difficulty determining what the paraeducator or child is saying, view the video clip again. Make your coding judgment if you can hear the paraeducator or child speaking the second time.
9. Write any observational notes about the book reading session in the space provided at the bottom of the data coding form.
10. Stop coding when the book reading session ends.

DIALOGIC READING STRATEGIES

Strategy	Description of Strategy	Examples of Strategy Use
Completion prompts	The paraeducator pauses at the end of a sentence for the child to say a word or phrase that is missing.	<p>1. During a book reading session of <i>Brown Bear, Brown Bear, What Do You See?</i>, the paraeducator reads the words in the story and the child completes the sentence. <u>Paraeducator</u>: “Blue horse, blue horse, what do you see? I see a green frog ...” Child: “Looking at me.”</p>
Recall prompts	The paraeducator asks the child to remember various aspects of the story as the book is being read, at the end of the story, or before a story is being reread.	<p>1. After reading the book <i>I Went Walking</i>, the paraeducator asks the children, “Can you name some of the animals the boy saw while he was taking a walk?”</p> <p>2. Before reading the book <i>A Pocket for Corduroy</i> again, the paraeducator asks, “What is the name of this book?”</p>
Open-ended prompts	The paraeducator asks open-ended questions during the reading or rereading of a book. Inferential and prediction questions are usually open-ended.	<p>1. After reading the book <i>Peter’s Chair</i> the paraeducator engages the children in a brief conversation about the story: “How do you think the boy feels now?”</p> <p>2. While looking at a page in a book during the rereading of the book the paraeducator says to the children, “Tell me what’s happening in this picture.”</p>
Wh-word prompts	The paraeducator asks questions that begin with who, what, where, and when.	<p>1. While reading the book <i>The Snowy Day</i>, the paraeducator briefly pauses to a picture in the book of Peter wearing his hat and coat and asks the children: “What is Peter wearing in this picture?”</p> <p>2. During the reading of the book, <i>A Pocket for Corduroy</i>, the paraeducator asks the children, “Where did Susie and her mother go?”</p>
Distancing prompts	The paraeducator asks the child to provide examples from his or her background that relate to the story.	<p>1. After reading a book about zoo animals the paraeducator says to the children, “Do you remember when we went to the zoo last week? Which animals did we see at the zoo that are in this book?”</p> <p>2. After looking at the cover of the book <i>Goodnight Moon</i>, the paraeducator says to a child, “Tell me what you have in your bedroom.”</p>

PRINT REFERENCING STRATEGIES

Strategy	Description of Strategy	Examples of Strategy Use
Questions about print	The paraeducator asks questions about the print on the book's cover or pages in the book	<p>1. While pointing to the word <i>bear</i>, the paraeducator asks the children, "<i>Can you show me where the letter b is in this word?</i>"</p> <p>2. The paraeducator points to the letter <i>M</i> in the word <i>Mouse</i> that is written on the cover of the book <i>If You Give a Mouse a Cookie</i> and asks, "<i>Does anyone know the name of this letter?</i>"</p>
Comments about print	The paraeducator provides comments about the print on the book's cover or pages in the book	<p>1. The paraeducator points to the period at the end of the sentence and says, "<i>This dot is called a period. When I reach the end of the sentence and see this dot I stop reading.</i>"</p> <p>2. The paraeducator draws the children's attention to the capital letter <i>R</i> on the cover of the book <i>Rosie's Walk</i> and says, "<i>This letter is a capital R.</i>"</p>
Tracking the print	The paraeducator tracks the print with his or her index finger	<p>1. The paraeducator points to the first word that is written on the first line of the page and says, "<i>I start reading here.</i>" Then the paraeducator slowly moves his or her index finger from left to right directly beneath the words on the first line of the page: "<i>I read all of the words on the first line of the page and go in this direction.</i>" The paraeducator moves his or her finger from left to right beneath the words on the next line and says, "<i>Then I go to the next line and read all of the words to the end of the line.</i>"</p> <p>2. The paraeducator draws his or her index finger along the words in the title on the front cover of the book and says, "<i>The title of this book is If You Give a Pig a Pancake.</i>"</p>

TYPES OF CHILD ENGAGEMENT

Child Responses	Response Description	Examples of Child Responses
Asking a question related to the story	The child asks a question related to the story	<p>1. During the book reading session the child asks, “<i>What is a laundromat?</i>” The paraeducator pauses to explain the meaning of the word by saying, “<i>A laundromat is a place where customers put money into washing machines and dryers so they can wash and dry their clothes.</i>”</p> <p>2. The paraeducator draws the children’s attention to a hedgehog that is depicted in an illustration in the book by saying, “<i>Let’s look at this picture. It’s a picture of a hedgehog.</i>” A child asks, “<i>What is a hedgehog?</i>” The paraeducator answers by saying, “<i>A hedgehog is a wild animal that has sharp quills on its back and lives in the woods.</i>”</p>
Initiating a comment related to the story	The child initiates a comment related to the story	<p>1. During the book reading session the child comments, “<i>I like to play in the snow!</i>”</p> <p>2. The paraeducator pauses briefly during the reading of <i>The Patchwork Quilt</i> to talk about the story with the children. A child comments, “<i>My mama made a quilt for my bed.</i>”</p>
Responding to the paraeducator’s request for a response related to the story	The child responds to the teaching assistant’s request for a response related to the story	<p>1. During the book reading session, the paraeducator asks the children, “<i>Have you ever planted a garden?</i>” A child responds, “<i>I planted a garden with my daddy.</i>”</p> <p>2. After the book reading session, the paraeducator asks the children, “<i>What does the spider catch in her web?</i>” A child responds, “<i>A fly.</i>”</p>

**Code Definitions for Variables to be Coded Via Video Tape on the
Interval Recording Data Collection Form**

Adult Variables to be Coded

Dialogic Reading Strategies	Definition	Code
Completion prompts	Fill in the blank (i.e., a pause for a child to say a word or phrase)	C
Recall questions	Require children to remember aspects about the book	R
Open-ended questions	Questions that require the child to respond in his or her own words	O
Wh-word questions	Questions that begin with wh-words (i.e., who, what, where,)	W
Distancing questions	Questions that require the child to relate the content of the book to aspects of his or her life	D

Print Referencing Strategies	Definition	Code
Print questions	Questions about the print (e.g., Do you see the letter “S” on this page?)	PQ
Print comments	Comments about the print (e.g., Point to the word and say, “That word says <i>hen</i> .”)	PC
Print tracking	Tracking finger along the text while reading aloud	PT

Child Variables to be Coded

Child Engagement	Definition	Code
Child questions	Child asks a question related to the story	CQ
Child comments	Child initiates a comment related to the story	CC
Child responding to request for a response	Child responds to the paraeducator’s request for a response related to the story	CR

Appendix F
Data Collection Forms

Individual Book Reading Session Data Collection Cover Form

Session Date: ____/____/____/

Coder's Initials: _____ Paraeducator's Code: _____ # of Children _____

Start Time (hr./min./sec.): ____/____/____/ Ending Time (hr./min./sec.): ____/____/____/

Total Number of Minutes & Seconds in Session - Minutes: ____/ Seconds: _____

Please fill out this cover form for each completed session of video data collection. Compile the completed data collection forms in page order for the session.

<i>Variables</i>	15 Second Observation Intervals														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ADULT Dialogic Reading Strategies CROWD	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
ADULT Print Referencing	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ
	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC
	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT
CHILD Responses	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ
	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC
	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
<i>Variables</i>	15 Second Observation Intervals														
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ADULT Dialogic Reading Strategies CROWD	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
ADULT Print Referencing	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ
	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC
	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT
CHILD Responses	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ
	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC
	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
Comments:															

<i>Variables</i>	15 Second Observation Intervals														
	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
ADULT Dialogic Reading Strategies CROWD	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
ADULT Print Referencing	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ
	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC
	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT
CHILD Responses	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ
	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC
	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
<i>Variables</i>	15 Second Observation Intervals														
	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
ADULT Dialogic Reading Strategies CROWD	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
ADULT Print Referencing	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ	PQ
	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC
	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT
CHILD Responses	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ	CQ
	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC
	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
Comments:															

Appendix G
Interobserver Agreement Calculation Sheets

INTEROBSERVER AGREEMENT CHECK CALCULATION

DIALOGIC READING STRATEGIES

	Completion	Recall	Open-ended	Wh-words	Distancing	TOTALS	
Primary Coder (PC)							
Reliability Coder (RC)							
Agree (A)							Overall % Agreement A/A+D = x 100 =
Disagree (D)							
Percentage Agreement (%)	A/A+D =	A/A+D =	A/A+D =	A/A+D =	A/A+D =		

INTEROBSERVER AGREEMENT CHECK CALCULATION

PRINT REFERENCING STRATEGIES

	Print Question	Print Comment	Print Tracking	TOTALS	
Primary Coder (PC)					
Reliability Coder (RC)					
Agree (A)					Overall % Agreement A/A+D = x 100 =
Disagree (D)					
Percentage Agreement (%)	A/A+D =	A/A+D =	A/A+D =		

INTEROBSERVER AGREEMENT CHECK CALCULATION

CHILD ENGAGEMENT

	Child Asking Question	Child Initiating Comment	Child Responding to Request for Response	TOTALS	
Primary Coder (PC)					
Reliability Coder (RC)					
Agree (A)					Overall % Agreement $A/A+D =$ $x 100 =$
Disagree (D)					
Percentage Agreement (%)	$A/A+D =$	$A/A+D =$	$A/A+D =$		

INTEROBSERVER AGREEMENT CHECK CALCULATION

QUALITY INDICATORS

	Acceptance/ Warmth	Descriptive Language	Follows Child's Lead	Introduces/ Extends	Holds Books for Easy Viewing	TOTALS	
Primary Coder (PC)							
Reliability Coder (RC)							
Agree (A)							Overall % Agreement A/A+D = x 100 =
Disagree (D)							
Percentage Agreement (%)	A/A+D =	A/A+D =	A/A+D =	A/A+D =	A/A+D =		

Appendix H

Sequence of Books for the Book Reading Sessions

Sequence of Books for the Book Reading Sessions

Paraeducator	Book Reading Sessions	Book Titles
1 (Amanda)	1, 2	We Planted a Tree
	3, 4	Wild Weather Soup
	5, 6	Fancy Nancy: Earth Day is Every Day
	7, 8	Recycle Everyday
	9, 10	Over in the Jungle
	11, 12	The Umbrella
	13, 14	Out of the Ocean
2 (Leah)	15, 16	If You Give a Cat a Cupcake
	1, 2	Fancy Nancy: Earth Day is Every Day
	3, 4	Recycle Everyday
	5, 6	Over in the Jungle
	7, 8	Jack's Garden
	9, 10	Out of the Ocean
	11, 12	The Umbrella
3 (Kristin)	13, 14	Up, Down, and Around
	1, 2	We Planted a Tree
	3, 4	Fancy Nancy: Earth Day is Every Day
	5, 6	Recycle Everyday
	7, 8	Over in the Jungle
	9, 10	The Umbrella
	11, 12	Up, Down, and Around
4 (Tricia)	13	Wild Weather Soup
	1, 2	We Planted a Tree
	3, 4	Wild Weather Soup
	5, 6	Fancy Nancy: Earth Day is Every Day
	7, 8	Recycle Everyday
	9, 10	Over in the Jungle
	11, 12	Up, Down, and Around

Appendix I

E-mail Feedback Fidelity Implementation Checklist

**Guidelines for Email Performance Feedback Steps and Fidelity of
Researcher's Implementation of Feedback Checklist**

Steps to Follow for Providing Written Feedback to the Paraeducator Via Email	* Place a check (✓) in the box for each of the 8 email performance steps if it has been followed. Do NOT check if the step has not been completed.
A. Review videotaped session by: a. specifying and describing positive achievements b. specifying and describing areas for growth c. providing suggestions for specified growth areas	1. _____ At least one positive achievement is described—focus on quality indicators and teacher dialogic and print referencing variables. 2. _____ At least one area of growth is described—or an explanation of the lack of need for targeting growth area is provided 3. _____ At least one suggestion for each specified growth area is provided (unless a growth area is explained as not needed).
B. Include data summary from video to provide the paraeducator with visual data for their achievements and areas for growth	4. _____ Data summary of interval data collection is provided.
C. Ask the paraeducator to email you with any questions or comments about how things are going and/or comments about strengths or challenges	5. _____ Request is made for follow-up email from paraeducator.
D. Ask the paraeducator to set 1 to 3 goals for the forthcoming session and provide it via email or verbally by the next videotaping session. Explain that they may continue to use previously set goal(s).	6. _____ Request that the paraeducator set one to three goals (may continue using previously set goal or goals). 7. _____ Keep record of each paraeducator's goals or goals by date of videotaping session. If the paraeducator does not set a goal, record this.
E. Respond to any questions or comments emailed from the paraeducator	8. _____ A response is made to each paraeducator's follow-up email for a specific session if the paraeducator sent follow-up emails.

* Score by adding the checkmarks and dividing by 8. Convert answer to percentage.

Selected Samples of E-mail Feedback with Components

Selected Samples of E-mail Feedback	E-mail Feedback Components
<p>You did a great job using the book reading strategies today! The pictures in <i>The Umbrella</i> book are beautiful – what a great book for children to learn more about the animals that live in the rainforest.</p>	(1) Commenting on strategy implementation
<p>Pointing out the Spanish words to the children was wonderful. Children love to learn and repeat new words. :)</p>	(2) Recommending general tips on reading aloud
<p>One suggestion to work on during the next few book reading sessions is tracking the print. This is done by moving your pointer finger under the words on the book's cover or page in the book.</p>	(3) Providing suggestions for area of growth
<p>You could do this for just a few pages so the children begin to learn that we read the words from left to right, top to bottom, etc. You could also have the children show you where you start reading next or ask them, "Where do we start reading?"</p>	(4) Suggesting ways to expand on strategy use
<p>It's also always good to ask open-ended questions during the reading of the book. These kinds of questions help children think about what is going on in the story. Some examples are: "How do you think Carlos feels?" or "What do you think will happen next?"</p>	(5) Offering further clarification of strategy use
<p>Let me know if you have one or two goals you would like to work on for the remaining book reading sessions.</p>	(6) Encouraging paraeducator to set goal(s)
<p>Please e-mail me with any questions or comments about how things are going with the book reading.</p>	(7) Requesting response to feedback via e-mail

Appendix J
Social Validity Assessment

PARAEDUCATOR SEMI-STRUCTURED INTERVIEW QUESTIONS

Name _____ Age _____

Total Years Working as a Paraeducator _____

Total Years Working in Current School _____

Educational Background _____

Areas of Professional Development and Training _____

Telephone _____

E-mail _____

1. How effective do you believe the computer-delivered information was in teaching about strategies to implement for book reading to young children?
2. What did you like and what did you not like about the computer-delivered instruction about book reading strategies?
3. What improvements would you suggest for the computer-delivered lessons?

4. Would there have been an alternative approach or approaches to the computer-delivered instruction that you would have preferred to provide you with information about book reading strategies? If so, why would you have preferred this approach or approaches?
5. How did you use the videotapes of your book reading sessions provided to you during the study?
6. Did you find having access to these videos helpful? If so, how was it helpful?
7. If you received written e-mail feedback on your book reading sessions, how effective or helpful did you find this feedback? Why or why not?
8. What could be done to improve the e-mail feedback you received?
9. Is there an alternative approach or approaches to the e-mail feedback on your book reading that you would have preferred as a means of receiving feedback?
10. Did you find your opportunity to interact with your lead teacher about your book reading session and the e-mail feedback you received necessary and/or useful? If so, how was it useful? If not, why was it not useful and/or necessary?
11. After participating in this study, do you believe there are benefits to reading the same book to young children for two consecutive book reading times? If you believe there are benefits, what are they? If you think there are drawbacks, what are they?

12. Are there any other aspects about this study and your role as a participant in this study you would like to share that would help us in considering effective ways to teach individuals new techniques and strategies in book reading?