

PARTNERING WITH PARAPROFESSIONALS:
EXPANDING PRESCHOOL CHILDREN'S RESPONSES
THROUGH DIALOGIC READING

by

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B. S. University of Central Florida, 2017

A thesis submitted in partial fulfillment of the requirements
for the degree of Master's of Arts
in the School of Communication Sciences and Disorders
in the College of Health Professions and Sciences
at the University of Central Florida
Orlando, Florida

Spring Term

2019

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ABSTRACT

Shared interactive reading is an evidence-based practice where professionals can collaborate to promote literacy and language skills in young children. Providing children with developmental disabilities (DD) the opportunity to gain language and preliteracy skills in early intervention is critical for their development as they are at a higher risk for falling behind in academics compared to their age-matched peers. This study evaluated the effectiveness of dialogic reading (DR) for children with DD. DR has been shown to be an effective strategy to teach typically developing preschool-aged children vocabulary, language, and literacy skills, however research in children with DD is limited. Results related to the different types of questions asked by paraprofessionals before and during a DR intervention showed one singular training of DR positively impacted paraprofessional's implementation of DR strategies and children's responses to prompts. A positive impact was found on children's language use during book readings.

ACKNOWLEDGMENTS

The completion of this thesis would not have been possible without the love and support from numerous people. I would like to thank my chair, Dr. Jacqueline Towson, for her never-ending encouragement, guidance, and support throughout this process. You have been an extraordinary mentor! I would like to thank the professors who guided me, specifically my thesis committee, Dr. Katy Green and Dr. Jennifer Kent-Walsh, for their advice and excellent feedback that helped shape this thesis. I could not have finished this without the research team assistance that helped code and input data. To the friends who encouraged me and visited me in the lab – you know who you are – thank you from the bottom of my heart. Thank you to my loving family, who constantly supported me at all hours of the day. You will never know how much your phone calls meant to me. I cannot thank you all enough. I thank God for this experience - I have truly been blessed beyond belief!

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CHAPTER ONE: INTRODUCTION

Developing oral language in preschool is necessary for children to become effective communicators as it affects their later language skills (Brannon & Dauksas, 2014; Carlson, Bitterman & Jenkins, 2012; Dennis, 2016; Kotaman, 2008; Marshall, 2013; Rahn, Coogle, & Storie, 2016). Specifically, vocabulary contributes to the oral language skills of children as they verbally recognize, understand, and use new words accurately. Reading to young children is an important contributor to their overall vocabulary, oral language, and literacy development (Bond & Wasik, 2009; Crain-Thoreson & Dale, 1999; Dennis, 2016). Specifically, reading to children allows for effective word learning, allowing the child to learn novel words within context. Preschoolers can benefit from support from their adult counterparts to expand upon their vocabulary knowledge and exposure to newly learned words. As preschoolers with developmental disabilities (DD) are at a greater risk for vocabulary difficulties (Hirn, Towson, Coleman, & McConnell, 2017; Messer & Dockrell, 2006), the impact of evidence-based interventions, such dialogic reading, should be investigated.

Significance of the Problem

Preschool children with developmental disabilities (DD) may struggle with learning language, vocabulary, and emergent literacy skills (Carlson et al., 2012; Dennis, 2016; Fleury, 2015; Hargrave & Sénéchal, 2000; Kotaman, 2008). More exposure to book reading helps children with learning the proper way to utilize print materials, alphabetical, phonological, and word knowledge, and engages them in oral conversations, thus expanding on their oral language (Brannon & Dauksas, 2014; Hirn et al., 2017; Justice & Ezell, 2002; Katims, 1994; Lonigan & Shanahan, 2009). Educating adults on the importance of reading to preschool children, with and

without disabilities, is crucial to support the children's language learning and future success (Blewitt & Langan, 2016; National Early Literacy Panel, 2008).

Shared interactive book reading is a specific type of reading which helps young children gain language and emergent literacy skills because it goes beyond strictly reading the book (Bond & Wasik, 2009; Brannon & Dauksas, 2014). Interactive book reading has also impacted social skills interactions such as joint attention (Fleury & Schwartz, 2016; Fleury, Miramontez, Hudson & Schwartz, 2013). Joint attention allows an adult and child to interact together in providing the definition of a word they read (Crain-Thoreson & Dale, 1999).

Dialogic reading (DR) is evidence-based intervention for preschool children that are typically developing and those at-risk and shows promise improvements for children with disabilities. The overall purpose of implementing DR is to get children to engage in dialogue around the book with guidance of the adult (Flynn, 2011). As the child understands more of his or her role as the storyteller, the adult gives more responsibility to the child to tell the story. Adults are encouraged to expand on the child's responses about the book through praise, expanding the utterance, and repetition (Lonigan & Whitehurst, 1998). DR also helps with direct vocabulary instruction through questioning, clarifying, repeating, and pointing to words (Brannon & Dauksas, 2014). Training adults in DR has shown positive impacts on enhancing the development of children's language skills (Lonigan, Purpura, Wilson, Walker, & Clancy-Menchetti 2013; Rezzonico, Hipfner-Boucher, Milburn, Weitzman, Greenberg, Pelletier, & Girolametto, 2015; Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1994). Prior data suggests paraprofessionals can be trained to include DR prompts in their book reading sessions (Fleury & Schwartz, 2016).

Purpose of the Study

Overall, there is positive evidence for DR. It is safe, feasible, and can be utilized in a variety of settings (i.e., home, school), providing optimal benefits with repeated reading sessions to help engage children with developmental disabilities in reading, literacy, language and vocabulary skills. DR has been shown to be an effective strategy for typically developing preschool-aged children and those considered at-risk to enrich their vocabulary, oral language, and emergent literacy skills; however, research in children with DD is limited. The purpose of this study is to investigate the frequency of the types of prompts adults use (how paraprofessionals implement DR strategies), and how DR helps with children with DD's responses.

Research Questions

It is hypothesized that when provided with a singular training DR, paraprofessionals will ask more book-related DR questions during book readings, which in turn, will promote an increase in children's responses. Therefore, it is hypothesized that DR may affect the verbal responses of children with DD.

Research Question One. What is the impact of paraprofessional implementation of DR prompt (types of questions) following a singular training in DR strategies?

Research Question Two. What is the impact of a DR intervention implemented by paraprofessionals on preschoolers with DD's verbal responses?

CHAPTER TWO: LITERATURE REVIEW

Language Difficulties of Children with Developmental Disabilities

Preschool children who are at risk for having deficits in language and literacy skills often struggle with vocabulary knowledge (Dennis, 2016; Kotaman, 2008). Children with DD benefit from strong oral language skills as it is helpful for developing and impacting their early literacy skills which are foundational to later literacy development (Speece, Roth, & Cooper, 1999).

Specifically, expressive language can be developed through verbal interactions between an adult and child, impacting overall oral language skills (Brannon & Dauksas, 2014).

Children with DD benefit from developing their vocabulary skills as it is impactful of their language use later in life. However, children with DD may struggle with learning vocabulary at an individual level, causing them to require more time to learn words (Davis, Lancaster, & Camarata, 2016). Having more exposure to words can increase a child's likelihood of recognizing vocabulary words and furthermore, result in fewer errors made in producing these same words (Dennis, 2016; Hirn et al., 2017). Knowing the error patterns related to vocabulary are important in understanding where children are having a breakdown in their language learning, which can be aided in intervention or therapy techniques used to enhance their language development. Parents may provide new words to their children without checking if their child understands the meaning of the word (Adamson, Bakeman, & Brandon, 2015).

Emergent literacy skills are important to develop because they are essential for later academic skills and knowledge needed to thrive as a student and scholar. The National Early Literacy Panel [NELP] (2008) found literacy outcomes with alphabet knowledge, phonological awareness, print concepts and oral language to be predictors of future success. Similar to the Matthew Effect, preschool-aged children with DD are at a higher risk for falling behind learning language compared to their age-matched peers, which can impact their academic life, making it

possible to remain low readers as they grow older if they are not provided with intervention or assistance (Dennis, 2016; Kotaman, 2008; Messer & Dockrell, 2006; Rahn et al., 2016). These children may not develop the reading skills needed in order to support the academic demands ahead of them (Lonigan et al., 2013).

Oral language related to emergent literacy. Oral language, as defined by Lonigan and Shanahan (2009), is “the ability to produce or comprehend spoken language, including vocabulary and grammar” (p. 281). Oral language relates directly to comprehensive language and phonological knowledge (NICHD Early Child Care Research Network, 2005). It is important for young children to obtain age appropriate oral language skills to express their wants, wishes, and needs accordingly. Oral language allows children to verbally respond to adults’ questions and create their own comments, allowing them to respond throughout conversations (Fleury & Schwartz, 2016; Fleury et al., 2013). Children with DD often have impairments in oral language as they are usually slower to respond or do not have the necessary skills in understanding how to properly use their oral language within certain contexts.

Concepts of print knowledge. Concepts of print knowledge refers to a child’s understanding of how to use print materials. Specifically, print knowledge is related to the concepts and functions of print, including knowing the names of the letters in the alphabet and word knowledge (Justice & Ezell, 2002; Justice, Logan, Işitan, & Saçkes, 2016; Lonigan & Shanahan, 2009; Zucker, Justice & Piasta, 2009). Print knowledge is important for children to know the proper way to read books, such as the direction of reading from left to right and top to bottom, in addition to knowing that sounds and letters spell words. Children with disabilities often display less of an interest in print compared to their age-matched peers (Justice et al., 2016;

Zucker et al., 2009). Therefore, children with DD may require different and more direct approaches to book reading facilitated by adults to acquire these skills.

Phonological awareness. Phonological awareness helps with a child's ability to manipulate oral language into sounds, words, and syllables. It is important that children are exposed to alphabet knowledge in order to decode and continue to improve in their emergent literacy skills, as it is essential for their future development of learning language (Whitehurst & Lonigan, 1998). Children with significant language impairments (SLI) have more difficulty with phonemic awareness and are at greater risk for delays compared to their age-matched peers (Thatcher, 2010). Children with more exposure to phonological awareness or letter knowledge interventions showed significantly increased growth compared to children who did not (Lonigan et al., 2013). Therefore, phonological awareness exposure enhances linguistic performance and is an important intervention for children with disabilities (Bond & Wasik, 2009; Brannon & Dauksas, 2014; Justice, Kaderavek, Bowles, & Grimm, 2005; Rahn et al., 2016).

Shared Interactive Book Reading

One intervention that has shown to result in improved language and emergent literacy skills for young children with disabilities is shared interactive book reading. Shared interactive reading is where the adult describes the illustrations of a book and asks the child questions to expand upon their understandings of the story (Fleury, 2015). Shared interactive book reading is commonly used to teach vocabulary and has been shown to positively impact the listening comprehension and alliteration detection of children (Hargrave & Sénéchal, 2000; Lonigan, Anthony, Bloomfield, Dyer, & Samwel, 1999; Rahn et al., 2016; Valdez-Menchaca & Whitehurst, 1992; Whitehurst, Arnold, Epstein, Angell, Smith, & Fischel, 1994; Whitehurst, Epstein et al., 1994; Whitehurst, Falco, Lonigan, Fischel, DeBaryshe, Valdez-Menchaca, & Caulfield, 1988). Shared interactive book reading is effective across numerous studies in children

with language delays and expressive language disabilities (Bond & Wasik, 2009; Brannon & Dauksas, 2014; Crain-Thoreson & Dale, 1999; Fleury & Schwartz, 2016; Rahn et al., 2016; Towson, Gallagher, & Bingham, 2016). Reading with children aids in their receptive and expressive language development, expanding their word knowledge by introducing vocabulary words for the child to learn and use (Hargrave & Sénéchal, 2000). In addition, shared interactive book reading allows children the opportunity to interact with adults to learn language in a unique way.

It is recommended to read to children every day because reading can positively impact children's vocabulary and engagement levels (Fleury, 2015; Fleury & Schwartz, 2016). As such, shared interactive book reading helps children gain literacy knowledge because it can target a variety of skills while reading the book. NELP (2008) reported shared interactive book reading has the largest impact on oral language outcomes, showing that frequent shared book reading helps positively impact children's vocabulary growth and emergent literacy skills (Fleury & Schwartz, 2016). Creating an environment in the home and making book reading part of the daily routine can help aid in the development of shared book reading (Carlson et al., 2012; Fleury, 2015). Adults' involvement within shared interactive book reading sessions with children is emphasized as it shows significant gains and helps enhance in children's language and literacy skills and can even improve their later reading abilities (Crain-Thoreson & Dale, 1999; Dale, Crain-Thoreson, Notari-Syverson, & Cole, 1996; Fleury, 2015; Fleury et al., 2013; Flynn, 2011). Additionally, shared interactive book reading in smaller settings of a classroom has proved to positively affect preschoolers' language skills and early literacy skills when they are given a more active role in the book readings (Hargrave & Sénéchal, 2000; Katims, 1994; Whitehurst, Epstein et al., 1994; van der Schuit, Peeters, Segers, van Balkom, & Verhoeven, 2009).

Furthermore, it is an affordable intervention that can be used in the schools or home (Fleury & Schwartz, 2016).

Having a conversation with children during book reading activities helps not only with their oral language development, but also their social interactions (Bond & Wasik, 2009; Crain-Thoreson & Dale, 1999; Dale et al., 1996). Joint attention within book reading has been shown to be effective for both parents of children with DD and typically developing alike (Dale et al., 1996). Additionally, children who receive feedback have more opportunities to see modeling of their language use and content and can practice by use of conversational partners, leading to scaffolding language for children (Bond & Wasik, 2009; Justice et al., 2005).

Emergent literacy skills impacted by shared interactive reading. Exposing preschool children with DD to reading is critical for their growth in the development of emergent literacy skills, as repeated readings with preschoolers has demonstrated an increase in children's oral language, print knowledge and comprehension skills (Brannon & Dauksas, 2014; Dale et al., 1996; Fleury & Schwartz, 2016; Fleury et al., 2013; Fleury, 2015; Hargrave & Sénéchal, 2000; Justice et al., 2016; Karweit, 1989; Katims, 1994; Kotaman, 2008; Lonigan, et al., 1999; Towson et al., 2016; van der Schuit et al., 2009). Children with disabilities are exposed less frequently to literacy interactions, therefore, impairing their vocabulary (Coogle, Floyd, & Rahn, 2018; Justice et al., 2016; van der Schuit et al., 2009). It is important young children with DD are provided with language and literacy interventions to experience gains in emergent literacy skills to close the gap compared to age-matched peers as they enter kindergarten (Green, Patton-Terry, & Gallagher, 2014). Shared interactive reading helps with improving vocabulary and vocabulary growth (Hargrave & Sénéchal, 2000; Karweit, 1989; Karweit & Wasik, 1996).

Children with and without disabilities benefit from more exposure to vocabulary and expansion of literacy skills. Consistent exposure to a particular book over time helps the child with learning the words, structure of how to read a book, and aids in reading. Being exposed to books and written language allows for the development of emergent literacy and furthermore, encourages children to understand print concepts of how to read books properly (e.g., reading from left to right) (Katims, 1994). Justice and colleagues (2005) discovered parents of children with SLI found shared book readings helpful for improving their child's phonological awareness and oral language skills. As further demonstrated by Lonigan and colleagues (2013), children who were in groups that received phonological awareness intervention in shared book reading activities also increased significantly in their vocabulary skills.

Reading comprehension. Reading comprehension is the ability of a child to understand and reflect on what they have read. Children display better comprehension when they are able to actively engage in story reading, affecting their overall reading comprehension and emergent literacy skills (Karweit, 1989). Children with disabilities may struggle with reading comprehension. However, evidence suggests children who are exposed to more book reading opportunities increases the vocabulary words they learn, which therefore can improve their reading comprehension (Carlson et al., 2012; Hargrave & Sénéchal, 2000; Kotaman, 2008; Rezzonico et al., 2015). Reading with children more frequently helps in aiding the development of reading comprehension, allowing children to develop metalinguistic skills by talking about book reading. Young children who struggle with reading and learning literacy may need to have modified readings and additional supports from their adult counterparts as a way to increase their literacy achievement (Fleury et al., 2013).

However, preschool children who are at risk for having poor vocabulary skills can acquire new vocabulary by being exposed to book readings (Hargrave & Sénéchal, 2000). Adults that use specific strategies before, during, and following book reading between adults and children can significantly impact and improve children's early language and literacy skills (Brannon & Dauksas, 2014; Crain-Thoreson & Dale, 1999; Dennis, 2016; Fleury & Schwartz, 2016; Karweit & Wasik, 1996; van der Schuit et al., 2009). Children become more engaged in reading tasks with active adult involvement (Crain-Thoreson & Dale, 1999; Flynn, 2011). Adults can incorporate shared book readings at home or in the classroom. Additionally, active engagement within shared book reading sessions can impact children's print knowledge and further improve their vocabulary skills as a learner and communicator (Rahn et al., 2016). Having the child walk through the pictures of a book prior to reading helps with familiarization (Fleury, 2015). Understanding the importance of developing early literacy skills for children is critical to help implement, and necessary to provide interventions for children who struggle.

Dialogic Reading

Dialogic reading (DR), a specific type of shared interactive reading, is an innovative approach to promote emergent literacy and language learning in children who are typically developing and those at-risk for language impairments (Fleury, 2015; Lonigan & Whitehurst, 1998; Whitehurst, Arnold et al., 1994; Whitehurst et al., 1988). However, there is limited research on the effects on implementing DR with preschool-aged children with DD (Towson et al., 2016; Towson, Fettig, Fleury, & Abarca, 2017). DR has been proven to help increase oral language skills, which require practice and feedback (Arnold, Lonigan, Whitehurst, & Epstein, 1994; Lonigan & Whitehurst, 1998; Lonigan et al., 1999; Valdez-Menchaca & Whitehurst, 1992; Whitehurst, Arnold et al., 1994; Whitehurst et al., 1988). DR uses specific types of questions to encourage children to talk during book reading sessions, implements the use of building more

vocabulary, and provides children with the opportunity to express themselves (Hargrave & Sénéchal, 2000).

Educating adults to implement DR is formulaic and can help adults understand how it is important for them to read with children (Brannon & Dauksas, 2014; Fleury et al., 2013; Towson et al., 2017). In typical shared book reading, the adult reads the story to the child and the child listens. However, there is a shift in roles for the use of DR, as the adult becomes the listener and leads the child to become the storyteller. The adult can do so by asking questions and prompting a response from the child, encouraging children to talk and interact more during the book readings, expanding upon oral language development. The adult is taught to expand upon the child's responses during DR as adults can make comments about the pictures or story events by asking questions (Fleury & Schwartz, 2016). By answering questions presented by adults about the text, this helps expose children to the language from the text in addition to allowing children to create their own responses (Fleury, 2015). Additionally, having more open-ended questions allows for the opportunity of the child to respond in conversation or comments throughout the book reading sessions.

DR uses the mnemonics known as "CROWD" and "PEER" to remember the steps and prompts (Fleury et al., 2013; Whitehurst et al., 1988; 1994). DR incorporates the types of prompts the adults can implement during reading by use of the acronym CROWD, known as Completion, Recall, Open-Ended, Wh-questions, and Distancing. The first type is Completion questions, which are when an adult asks the child to answer the question by filling in the blank at the end of a sentence. The second type is Recall, where an adult asks questions about the event or main idea of a story that previously occurred. Open-Ended questions give the child an opportunity to describe what is happening in the story or on a page. Next, adults can use Wh-

questions (e.g., who, what, where) asking about pictures or vocabulary words in the book. Lastly, Distancing is when the adult asks the child to relate the events in the story to their own experiences. Furthermore, adults use PEER to scaffold the child's language skills, referencing the adult to *Prompt* a child to say something, *Evaluate* what the child said, *Expand* on the child's response, and ask the child to *Repeat* what was discussed.

The impact of dialogic reading on language. DR has been linked to positive effects for preschool-aged children's vocabulary, language, and emergent literacy skills development (Arnold et al., 1994; Dale et al., 1996; Fleury et al., 2013; Katims, 1994; Kotaman, 2008; Lonigan et al., 2013; Rahn et al., 2016; Towson et al., 2016; Whitehurst et al., 1998). DR also has preliminary evidence related to positive impacts on communication and language of children with disabilities as determined by the What Works Clearinghouse (WWC, 2010, U.S. Department of Education). Before conducting DR, the adult may allow children to glance at the pictures of the book before reading it (Flynn, 2011). During DR, children are not only exposed to learning more vocabulary and language presented, but also are able to answer critical thinking questions stated by adults (Fleury et al., 2013). Children learn more vocabulary items during the DR intervention as DR enhances children's oral language and emergent literacy skills, impacting a child's ability to read, write, and improve in other areas of reading and academic tasks (Crain-Thoreson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Fleury & Schwartz, 2016; Hargrave & Sénéchal, 2000; Lonigan & Whitehurst, 1998; WWC, 2010, U.S. Department of Education). Comparing children who receive DR intervention or implemented more DR sessions in a variety of settings and those who do not, children in DR groups have received increased scores on expressive vocabulary assessment, concluding that DR enhances children's language

development (Hargrave & Sénéchal, 2000; Lonigan & Whitehurst, 1998; Valdez-Menchaca & Whitehurst, 1992; Whitehurst, Arnold et al., 1994).

Engagement. DR improves children's emergent literacy skills and elicits more language by spending more time engaging in books and a conversation about a book (Bond & Wasik, 2009; Fleury, 2015; Fleury et al., 2013). Children who are actively involved in DR are more engaged in book readings for longer times, can expand in their vocabulary knowledge and growth in learning, become active participants, and respond to an adult's questions more and have conversations about books (Brannon & Dauksas, 2014; Dale et al., 1996; Fleury, 2015; Fleury et al., 2013; Fleury & Schwartz, 2016; Hargrave & Sénéchal, 2000; Kotaman, 2008; van der Schuit et al., 2009). Book reading with children with DD needs to be more engaging in the discussion of the storybook to elicit more utterances and responses to questions involving critical thinking and having the child participate in communication (Dale et al., 1996; Fleury et al., 2013; Fleury & Schwartz, 2016; van der Schuit et al., 2009). Verbal responding is incorporated more often as children participate more when adults slow down their reading rate (Crain-Thoreson & Dale, 1999; Dale et al., 1996). Having more exposure to interactions composed by DR expands children's expressive language as it allows children to respond the conversation more (Brannon & Dauksas, 2014). Since oral language is an important component of language learning, utilizing DR can positively affect the oral language skills children use when responding to adults. The use of "wh" questions has been deemed the most effective when asking a child to retrieve information (Hargrave & Sénéchal, 2000; Wong, Moran, & Foster-Cohen, 2012). However, asking too many who/what questions may not positively impact the growth of a child's language, as the answers are typically one word, therefore not allowing for the child to produce longer utterances (Crain-Thoreson & Dale, 1999). Adults who ask too many questions encourages

opportunities for children to verbally respond and become more active in their participation of book reading, however, does not leave enough room for the child to verbally respond during the readings (Fleury & Schwartz, 2016).

Modifying. Adapting to the child's needs during readings and encouraging a welcoming reading environment is essential to promoting language growth. There are alternative ways to encourage children to engage in book readings (Fleury & Schwartz, 2016). Younger children or those with DD may not be able to fully respond to prompts if they cannot comprehend what is being asked, causing for DR procedures to be modified in order for the child to respond, as each child is on a different level of learning language and reading development (Crain-Thoreson & Dale, 1999; Dale et al., 1996; Fleury et al., 2013; Fleury & Schwartz, 2016; Lonigan et al., 1999). Modifying DR by using "special prompts" if the child is unable to answer a question helps simplify the question being asked, as it allows adults to request the child to point to an item in the storybook, answer yes/no questions, provide them with answer choices, and directly request children to repeat an answer (Fleury, 2015). Modification used for children with DD by implementing DR can positively impact their vocabulary knowledge to promote language learning, which is important when exposing children to new vocabulary words and to check their understanding, ensuring they are learning language.

Pause time. Pause time is a time delay after presenting the stimulus (or question) to a child (Crain-Thoreson & Dale, 1999; Dale et al., 1996; Justice et al., 2005). Incorporating pause time within DR showed effectiveness in increasing children's expressive and receptive vocabulary knowledge (Towson et al., 2016). Increasing the child's response time allows for the opportunity for a child to have ample amount of time to process and respond (Crain-Thoreson & Dale, 1999; Dale et al., 1996; Hirn et al., 2017, Messer & Dockrell, 2006). Allowing more time for

responding, especially if the child has a disability, helps with comprehension and responding to the adults' requests, in addition to increasing children engagement (Dale et al., 1996; Hirn et al., 2017). Allowing more time for children to complete their thoughts or to respond can also impact the response they formulate during book reading sessions.

Purpose

DR shows promise for improving language and emergent literacy skills in children typically developing and at-risk with emerging evidence for children with disabilities. Yet, it is unknown how DR is implemented by different providers and whether DR facilitates an increase in children's verbal responses. Therefore, the purpose of this study was to complete a secondary analysis of data to investigate how paraprofessionals implement DR strategies following a singular training and in turn how it impacts preschoolers with DD verbal responses. This study will add to the current literature by examining the types of questions that facilitate the most language responses in young children with DD. Additionally, results will inform future DR trainings for this population. The research questions are:

1. What is the impact of a singular training in DR on paraprofessional implementation of DR strategies (i.e., prompting, evaluating, expanding and requesting repetition)?
2. What is the impact of a DR intervention implemented by paraprofessionals on preschoolers with DD's verbal responses during book reading sessions?

CHAPTER THREE: METHODOLOGY

Study Design

This study was a secondary analysis from a larger study on educating paraprofessionals in preschool classrooms to implement DR (Towson, Green, & Abarca, 2019). In the original study, a multiple-probe across participants design was used to determine if a functional relation existed between a singular training in DR and paraprofessionals' implementation of DR strategies (i.e., CROWD, PEER). The study required a minimum of two or more baselines, occurring concomitantly, with the independent variable consequently introduced across baselines. Based on a priori design, the original study had a minimum of three data points collected in baseline, six while in intervention, and two in generalization. Paraprofessionals were instructed to read to the child participants three times a week; however, only two of the three book reading sessions were video recorded. This allowed a range of two to six data points collected per condition.

For this study, a descriptive approach was used to compare the differences before training paraprofessionals in DR strategies (baseline) to that following (intervention, generalization), both for adult and child behaviors. Means and ranges were calculated related to prompts asked during book readings, to what extent paraprofessionals implemented DR strategies, and the impact it had on children with DD's verbal responses.

Recruitment procedures. Recruitment for the original study was completed from regular and public charter schools within one school district located in the southeastern United States. Information about the study was distributed to all elementary school principals in the school district through a centralized research office. Six principals agreed to participate. Consent forms were distributed to eight paraprofessionals within the schools since there were two schools that contained more than one preschool program. Consent forms from the paraprofessionals and

children's parents were signed and collected in order to participate in the original study.

Participants for this study were then randomly selected from the original eight participants, with one selected from each of the multiple baseline phases.

Participants

Data for this study included four paraprofessionals and eight children with DD from randomly selected classrooms who were part of a larger study on educating paraprofessionals in DR strategies.

Child Participants. Based on the prior study, child participants met prior exclusionary criteria of: 1) being enrolled in a preschool classroom, either inclusive or self-contained, for children with DD, 2) had a current Individualized Education Plans (IEP) on file for a delay in language skills as defined by state requirements, 3) being between the ages of 3 years and 5 years, 11 months at the initial start of the study, 4) spoke English as their primary language, 5) had a minimum of a one-word vocabulary as determined by their teacher, and 6) parents who signed a consent form for their child to participate. Due to a variety of severity of disabilities, children who were blind, deaf, or hard of hearing were excluded from prior data collection.

Based on the classrooms randomly selected, a total of eight children ($n = 8$) were included in the present study. Three children were in self-contained classrooms and five children in inclusion classrooms. The primary eligibility was Developmental Delay (DD) for seven children and with one child identified with Autism Spectrum Disorder (ASD). Seven children had a secondary eligibility of Language Impaired (LI) and one child had a secondary eligibility of Other Health Impaired (OHI). The average age of the children at pretesting was 51.62 months, with the youngest child being 37 months and the oldest 59 months. There were five males and three females in this study. Race varied as four children were White, three were Hispanic/Latino, and one was unspecified. The home language reported had five children speaking English, two

children speaking Spanish, and one unspecified. Medical diagnoses were recorded for four children; three were diagnosed with ASD, one was diagnosed with Moebius Syndrome. All eight children received speech-language therapy. Additionally, five children received occupational therapy and one received physical therapy. Pretest scores from the Peabody Picture Vocabulary Test - Fourth Edition (PPVT-4; Dunn & Dunn, 2007), Expressive One-Word Picture Vocabulary Tests - Fourth Edition (EOWPVT-4; Martin & Brownell, 2010), Get Ready To Read!-Revised (GRTR-R; Whitehurst & Lonigan, 2010) and Preschool Language Scales- Fifth Edition (PLS-5; Zimmerman, Steiner, & Pond, 2011) were collected prior to this study beginning. See Table 1 for specific demographic data for children’s pretest scores.

Table 1. Demographics for Children Pretest Scores

	N	Minimum	Maximum	Mean	Std. Deviation
PLS Total	8	57	97	77.88	13.90
EOWPVT	8	62	104	85.88	13.85
GRTR	8	12	19	15.13	2.36
PPVT	8	71	116	86.38	14.89

Note. SS=Standard Score, PLS= Preschool Language Scales- Fifth Edition, EOWPVT= Expressive One-Word Picture Vocabulary Tests - Fourth Edition, GRTR-R = Get Ready To Read!-Revised, PPVT= Peabody Picture Vocabulary Test - Fourth Edition.

Adult participants. Data is reported for four paraprofessionals ($n = 4$). All adult participants were female. The average age of paraprofessionals was 55.57 years (range 48-64 years). While all worked in classrooms serving children with DD, two paraprofessionals were in inclusion classrooms and two were in self-contained classrooms. Half of the adult participants were Hispanic; one participant was White and another participant was African American. One

participant earned a Bachelor of Arts degree, one had an Associate's Degree, one had vocational school and one did not have a college degree. Only one adult participant was certified as a Child Development Associate. Adult participants had an average of 8.75 years of teaching and specifically an average of 6.13 years in preschool. No prior exposure to DR was reported.

Setting

The original study took place in five schools with seven classrooms that were inclusive or self-contained. Classrooms included in this study were randomly selected from four out of the seven classrooms. Of the four classrooms, two were inclusive with five child participants and two were self-contained with three participants. Paraprofessionals performed the intervention during the school day in a secluded area of the classroom, or in a separate area of a different classroom to obtain a quiet, less distracting area to read with the students and eliminate distractions. In addition, group sizes varied, from one to three children being read to at a time. Evidence has shown children's language skills increase with more exposures to book readings in general, despite the size of the group (Hargrave & Sénéchal, 2000; Karweit, 1989; Karweit & Wasik, 1996; Towson et al., 2016; Whitehurst, Arnold et al., 1994).

Intervention. The independent variable for this study was the combination of a singular 45-minute training using a PowerPoint presentation and accompanying handout (CROWD and PEER strategies) along with scripted books for intervention (see Materials and Procedures for specific details). The second author conducted the professional development training session in DR strategies, which included 10 steps. The 10 steps included descriptions of shared interactive readings, benefits of reading to children's literacy/language skills, definitions of DR and wait time, and examples of both CROWD and PEER. Additionally, a video example of DR was utilized, as well as an example of how books were scripted with the CROWD questions. A trial of guided practice for each participant was given, in addition to instructions on how to script a

book during the generalization phase. Any further questions or concerns were addressed at conclusion of the training. Paraprofessionals were given access to copies of the PowerPoint presentation and DR strategies before training concluded.

Materials. Story books used for the original study were selected from the “Read Together, Talk Together” program kit (RTTT; Pearson Early Learning, 2006). All books met the following selection criteria: a) colorful pictures and illustrations, b) text that increases adult-child interactions, c) deemed appropriate to use for preschool-aged children, d) ability to increase noun vocabulary in both the text read and pictures in the story, e) general storybook that did not relate to holidays or celebrations, to keep the data from being biased, and f) low chance of the books selected being read prior to participating in the study (Fleury et al., 2014; Hargrave & Sénéchal, 2000; Towson et al., 2016; Towson et al., 2019).

There were four books provided for baseline, unscripted and unaltered. Three separate books were utilized for intervention across all classrooms, with one book from intervention being the same as baseline phase for classroom. Books for intervention were scripted using typed questions with ten specific *prompts* to ask during the book readings (two each for each CROWD strategy). PEER strategies of DR were placed on a sticker on the inside cover of the book to help cue the paraprofessionals to use them during book readings. With the generalization condition, two new books were given to paraprofessionals to read without modifications (e.g., no scripted questions). However, in generalization, paraprofessionals were provided sticky notes and instructed to create their own ten *prompts* for the storybooks.

Measures

Adult questions coding. Videos were coded related to the types of questions the paraprofessionals asked during baseline, intervention, and generalization conditions. As part of the original study, paraprofessionals were trained in the strategies of DR: *prompt, evaluate,*

expand, and *repeat* (PEER) during book readings. Questions (*prompts*) paraprofessionals asked were coded according to DR strategies (CROWD). Questions were differentiated by what was asked. For example, with Open-Ended questions, children were asked to describe what was happening on the page; Recall questions related to something that already happened or occurred in the book. In addition to DR *prompts* (i.e., CROWD), all other prompts were coded by type (i.e., Phonics, Choice Making, Requesting Definitions) to classify the questions being asked if they did not fall into a CROWD mnemonic. See Appendix A for coding sheet.

Questions were only coded if they had an intentional meaning behind them requiring a child to respond to a book related question. Directive language by the paraprofessionals was not coded for this analysis (e.g., “Want a cracker?”, “Are your eyes on the page paying attention?”, “Can you sit up?”). If a second question was asked in relation to the original *prompt* yet changed the type of response the child is asked to give, it was coded as a new question. Questions such as “What?” were not counted as a *prompt* as it could be asked due to the fact that the adult may not have heard what the child said. Similarly, if the paraprofessional asked the child if they heard them, this type of question was not coded as it was not book related. Behavioral related prompts were not coded or were marked as “N/A”.

In addition to coding the original aspects of DR (i.e., PEER), “wait time” was also coded. As mentioned, prior, “wait time” was defined as the paraprofessional pausing at least three seconds since the time the *prompt* was asked. “Wait time” was marked as “Yes” if the paraprofessional asked a question and waited three seconds, whether or not the child answered. “Wait time” was coded “N/A” if the paraprofessional asked a question and the child responded before three seconds. If a paraprofessional asked a *prompt* then asked another immediately after, “wait time” was coded “No”; “N/A” was coded for the remainder of the coding section during

this *prompt*, as there was not an opportunity to *evaluate* or *expand*. This rule also applied if the children's response for "Does the child respond?" was "No" or "N/A", as the child did not have an opportunity to respond; thus, the remaining child's response section was coded as "N/A" (see Appendix A).

For the purposes of this study, either *evaluate* and/or *expand* was required to have a question classify as *repeat*. Having a minimum of either *evaluate* or *expand* was used to distinguish the difference between a *repeat* and a new question, as *repeat* can appear in different forms of a *prompt* (e.g., *repeat* can be a CROWD question). *Evaluate* for this study was defined as any response letting the child know if their answer is right or wrong, or the adult repeating the child's response verbatim in an affirming manner. *Expansions* were defined as the paraprofessional adding semantic or syntactic relevant information to the response the child provided. For the purposes of this study, it was determined that an adult can *evaluate* and *expand* even if the children do not respond to the question *prompted*. For example, if the adult asks, "What is it?" and the answer is a cup, yet no child responds, the adult may say, "It's a cup, it's a blue cup! What is it?" which shows *evaluate*, *expand*, and *repeat* in a fluid form of DR. For the coding sheets, *evaluate* and *expand* were coded as "Yes", "No", or "N/A", respectively. If the paraprofessional did not allow the child an opportunity to respond or no wait time was established (e.g., a question immediately asked following another question with no wait time given for the child to respond), *evaluate* and *expand* were coded as "N/A".

Additionally, a rule was established in order to track *R (repeat)* in PEER. For the purposes of this study, either *evaluate* and/or *expand* was required to have a question classify as *repeat*. For consistency across coding for IOA purposes, having either *evaluate*, *expand*, or both marked as "Yes" was a specific indicator as to whether or not the question the para asked was *R*.

If it appeared from intonation and pausing that two separate questions were asked, both questions were kept as *R* for *repeat* (e.g., “what’s the elephant, it’s so what?”). However, another rule was established to only count an *evaluation* or *expansion* if a rhetorical question was being asked, instead of indicating the rhetorical question as a *repeat*. For example, rhetorical questions asked by the paraprofessional were coded as *evaluation* if they repeated the question previously asked and added “right?” to the end of the question, causing it to become a rhetorical question (e.g., as the paraprofessional is responding to the child’s answer, “It’s a sink, right Child E? It’s a sink”). Seeing that this is during an *evaluation* or *expansion*, rhetorical questions in this situation were not considered as an independent, separate Yes/No question, since these rhetorical questions may not have been asked in a way that provided an opportunity for the child to respond.

Coding children’s responses. Children’s responses were analyzed through coding of video-recorded book reading sessions across all three conditions of book readings: baseline, intervention and generalization. Children’s responses were coded related to CROWD and PEER strategies implemented by the paraprofessionals during book reading sessions. Specifically, coding indicated if the child responded to an adult’s question (defined as answering a question on their own either correctly or incorrectly, and if so, on-topic; Fleury & Schwartz, 2016; see Appendix A). If a child responded within three seconds of the end of the paraprofessional’s *prompt*, “wait time” was counted as “N/A”. Children were assigned an alphabetical letter A-H according to their classroom (e.g., A-C, D and E, F and G, and H, respectively). For “Does the child respond?” it was coded as “Yes” if the child responds in any way, or “No” or “N/A” if not applicable, such as the paraprofessional asking another *prompt* before “wait time” was established.

A child could respond in three ways: verbal, gesture, or both simultaneously. If a child gestured, such as pointing to a picture in the book, their nonverbal response was only coded as “gesture”. If the child’s response was gestured, “N/A” was coded for the remaining child response section because there is no definitive way to clarify if the gesture is on- or off-topic. If the child said an utterance only, the response was coded as “verbal”. If the child responded simultaneously (i.e., gestured to a picture in the book and said an utterance simultaneously), both “gesture” and “verbal” were coded. Instances where children responded, and it could not be determined what they said, were coded as “unintelligible”. If part of the child’s response was interpreted, their intelligible words were coded; however, if the majority of their response was unintelligible, it was coded as such. If the response was “unintelligible”, the remaining child response section was coded as “N/A”, as it could not be determined what the child said, nor if their response was on- or off-topic. The researchers did not want to penalize the children for responses that were unintelligible, therefore, responses were recorded as a percentage to not skew the results.

If a child responded with a verbal or simultaneous response, there were various options for how to code the child’s response. The child’s answer was classified as being either an “On topic” (defined as relating to what is being read about or discussed on the page of the book), or “Off topic” (defined as if there is nothing cueing the child’s response and is not related to the particular question being asked) response.

If a child’s response was “On Topic”, it could be divided into two subsections: “Correct” and “Incorrect” (this will be referred to as “If response: On topic, Correct” and “If response: On topic, Incorrect”, respectively). An “If response: On topic, Correct” is the targeted answer the paraprofessional is asking the child to say. If a child responds to a *prompt* and their response is

on-topic, yet incorrect, it was coded as “If response: On topic, Incorrect”. This was also determined if the child repeated part of the *prompt* asked. For example, with Choice Making questions, if the child selected the choice that was the incorrect answer, yet semantically related, it was coded as “Does the child respond?” “Yes”; “If response: On topic” was “Yes”, “If response: On topic, Correct” was “No”, and “If response: On topic, Incorrect” was “Yes”. For Choice Making prompts with choices that had no meaningful relation to the target answer and were off-topic, the response was automatically coded as “If Response: Off topic, Incorrect”.

If a child’s response was off-topic, “If response: Off topic” and “Incorrect” were coded as “Yes” (this will be referred to as “If response: Off topic, Incorrect”, respectively). If the child responded with an “If response: On topic, Correct” or “If response: On topic, Incorrect” answer, the “If response: Off topic” and “If response: Off topic, Incorrect” were automatically coded as “N/A”. For Choice Making prompts with choices that had no meaningful relation to the target answer and were off-topic, the child’s response was coded as “Yes” for “If Response: Off topic, Incorrect”.

If the child responded to a *prompt* with a question, it was coded if the child’s question was “If Response: On topic” or “If Response: Off topic”, with the remaining child response section coded as “N/A”. Furthermore, Distancing questions could not have a right or wrong answer (e.g., “What games do you like to play?”). Thus, a rule was established to have the child response section coded as “N/A” not to penalize the child from responding, unless their answer was specifically distinguishable as an on- or off-topic response. If children responded with “I don’t know” as their answer to a *prompt*, their responses were coded as “Yes” for “If Response: On-topic” and “N/A” for the remaining child responses section. This became a rule as the answer

“I don’t know” is not considered correct nor incorrect and therefore, this response should not be penalized.

Children’s responses were coded according to the child who answered the paraprofessional’s *prompt* first. At the beginning of data collection, if the classroom had more than one child and multiple children responded to a *prompt*, a rule was created to code only the response of the first child who answered the *prompt* for consistency across videos and classrooms. For example, whichever child answered the question first, only that response was coded. Occasionally, if there were multiple children in a classroom, paraprofessionals would ask the same question for each child to respond, which was counted as *repeat*, respectively. However, this was not relevant to all paraprofessionals as some classrooms did not have multiple children present during book readings.

Inter-observer agreement. Inter-Observer Agreement (IOA) was completed for 25% of the data collected. A research assistant (RA) was trained to a criterion of 90% agreement in how to code the data using the coding system and rules (see Appendix A) by the first author; then, they completed a video example together before the RA began performing IOA. This allowed the RA an opportunity to ask questions or seek clarification while completing the video example with the first author to familiarize the RA with the codes and rules. An additional trial was completed independently by the RA to achieve a criterion of 90% agreement. The RA and first author’s individual codes of the same video were compared to ensure the RA’s training was effective before continuing with IOA coding. IOA remained in the acceptable range (86-100%); therefore, no retraining was required. Videos were randomly selected for coding across participant classrooms and intervention conditions for reliability. IOA was determined by

dividing the total amount of possible agreements minus the disagreements of the RA by the total number of observations made, multiplied by 100.

IOA was calculated with an average per classroom as follows: classroom one = 81%, classroom two = 92%, classroom three = 78%, and classroom four = 98%, with an overall average of 87% agreement. Disagreements were resolved by the first author reviewing the video section of proposed disagreements to finalize the outcome. The most common disagreements were if the start time of questions coded was different or if questions were analyzed and written individually compared to being separated by a comma or pause in the way the questions were asked by the paraprofessional. Undergraduate RAs calculated the frequency of the total number of responses per video and transferred the results to a coding totals sheet. RAs did not include *repeat* questions in the total column since they were duplicates of a question that was marked as a CROWD or other question. All occurrences of responses for both adults and children (e.g., points to picture, “If response: Off topic”) and *evaluate* and *expand* were calculated by percentage. Data from the coding totals sheets were imputed into an excel database by an RA with IOA completed on 20% of the data (100%) to ensure accuracy of entry.

Procedures

Following recruitment and consent, children were pretested for descriptive purposes using norm-referenced language assessments (i.e., PPVT-4; EOWPVT-4; GRTR-R; and PLS-5). As part of the original study, paraprofessionals were randomly selected to determine which classroom would enter the intervention phase first, second, third, and fourth. Each paraprofessional had a baseline phase for a minimum of three and up to eight storybook sessions. During baseline, paraprofessionals were encouraged to read storybooks to their students the way they normally would, without receiving any additional instruction.

Once the paraprofessionals completed the baseline phase, they received a one-time 30-minute training in DR and were provided with DR tools (i.e., PEER, CROWD, DR with scripted books) upon entering the DR intervention phase. Scripted books were given to the paraprofessionals to read three times a week using CROWD and PEER strategies. DR sessions were completed for three weeks in the intervention phase. During intervention, paraprofessionals were instructed to ask the ten scripted *prompts* within the book and utilize the PEER strategy. Wait time was also introduced and defined as the adult waiting following presentation of a *prompt* if a child did not respond within three seconds of it being asked. If no child responded, paraprofessionals were told to repeat the question, and then if there was again no response, to model the appropriate response, such as a verbal model of the exact response the adult wants the child to say (Towson et al., 2019). Following the intervention phase of three weeks, participants moved to generalization. Each paraprofessional was provided with one book per week and instructed to develop ten *prompts* (i.e., five on vocabulary and five using CROWD *prompts*) and present them during the readings implementing PEER. At least two of the three weekly book readings were video recorded. All students were post-tested following completion of the study using the same measures as pre-test.

A secondary analysis of preexisting video-recorded data was completed from a study evaluating the effects of educating paraprofessionals in DR strategies with preschool children with DD. Detailed study methods from the original study have been published (Towson et al., 2019). Data coding sheets were adopted from previous research (Fleury, 2015). Across all conditions (baseline, intervention, generalization), a minimum of two videos per week were coded per DR *prompt* types (i.e., CROWD) and use of *evaluate*, *expand* and *repeat*. Child data was collected as related to response to the paraprofessional's questions and analyzed according

to the coding sheet (see Measures and Appendix A). As videos varied in length related to variance in length of book readings, with the shortest videos approximately three minutes and thirty seconds (3:30), the author coded only three minutes and thirty seconds across all videos for consistency. If a *prompt* was asked within the start of the one minute mark of coding (1:00), a rule was decided that if it is part of a prior question (i.e., before the one minute mark), it was not to be included in coding for this analysis. In other words, coding started at one minute for the first “complete” sequence observed. If the question was asked moments before the end of the coding time, the last question was coded appropriately and continued until the question was answered, the paraprofessional continued reading, or asked another question. If a question was asked within the last five seconds of the time the video coding concluded, the analysis of the video was extended only to code how the child answered the question and if the paraprofessional used PEER to answer that question. Moreover, if there was a question asked at the conclusion of the time exactly at three minutes and thirty seconds of coding the video, that particular question was not coded in this analysis.

Data Analysis

Descriptive statistics were used for demographic information and data. For research question one, all CROWD questions (*prompt*) and *evaluate*, *expand*, and *repeat* were totaled for the average across each phase separately by school, then combined for a total average of all four schools. An average frequency across phases (e.g., baseline, intervention, generalization) was used to determine if the DR intervention positively paraprofessionals implementation of the DR strategies. To answer research question two, percentages were calculated and analyzed for how the children responded (verbal, gesture, or both simultaneously), if the response was on- or off-topic, and if so, if the response was correct or incorrect. The first author completed all coding

and a second trained RA completed coding for 25% of the data. The first author was blind to the conditions during the coding.

CHAPTER FOUR: RESULTS

For answering this study's research questions, data for the total number of CROWD *prompts* were analyzed according to frequency, whereas the child response section, *evaluate*, *expand*, and adult behaviors excluding CROWD were converted to percentages. A frequency procedure was assessed for both research questions. Overall, the data indicated that paraprofessionals were more likely to ask the most questions during the intervention condition, and children responded more in the generalization condition, compared to the other conditions.

Research Question One

To answer the first research question on examining how a singular training in DR impacted paraprofessionals' use of DR strategies while reading to their students, the average number of total *prompts* and types of *prompts*, as well as *evaluate*, *expand*, and *repeat* were calculated for each condition.

Use of prompts. During baseline, the total average number of *prompts* used by paraprofessionals (both DR and non-DR specific) by paraprofessionals across all schools was 8.06 (range 2.00 – 14.75; see Figure 1). Of these *prompts* (both DR and non-specific DR *prompts*), the highest frequency noted for baseline was Yes/No (2.21; range 1.50 - 4.17), followed by Wh- questions (2.08; range 0.00 - 3.00) and Completion (1.38; range 0.00 - 5.00). Lower frequencies seen in baseline were Phonics (0.31; range 0.00 - 0.75), Requesting Definitions (0.23; range 0.00 - 0.75), and Distancing (0.06; range 0.00 - 0.25).

Results during intervention, on average, positively increased related to the DR strategies implemented. The total average frequency of *prompts* (both DR and non-DR *prompts*) asked across all schools during book reading sessions in intervention was 17.72 (range 14.50 – 19.50; see Figure 2). *Prompts* that had the highest frequency in intervention were Wh- questions (10.24; range 6.33 - 13.80), followed by Completion (1.96; range 0.83 - 3.33) and Recall (1.77;

range 1.40 - 2.33). The lowest frequencies during intervention were seen in Requesting Definitions (0), Choice Making (0.25; range 0.-0 - 0.50) and Phonics (0.38; range 0.-7 - 0.20).

During generalization there was a total average of all *prompts* initiated by paraprofessionals across four schools at 15.25 (range 12.75 - 18.50). The highest frequencies *prompts* during generalization were Wh- questions (5.06; range 2.50 - 6.25), Completion (3.00; range 1.50 - 5.00), and Yes/No (1.94; range 0.75 - 3.50). The lowest amount of questions asked during generalization was Choice Making (0.63; range 0.00 - 1.50), Requesting Definitions (0.31; range 0.00 – 1.25) and Phonics (0.31; range 0.00 - 0.50). See Figures 1 and 2.

Use of evaluate, expand and repeat. Across classrooms overall, for *evaluate*, there was a 15% increase from baseline to intervention. However, there was no meaningful difference of percentages between intervention and generalization. Related to the remainder of the DR strategies, baseline percentages were highest (46%) for *evaluate* (range 11.00 - 73.00%) and lowest (34%) for *expand* (range 9.00 - 45.00%). *Repeat* was seen at a frequency of 0.63 (range 0 – 1.25). Intervention had percentages of 61% for *evaluate* (range 49.00 - 77.00%) and 37% for *expand* (range 24.00 – 52.00%). *Repeat* was seen at a frequency of 3.01 (range 2.00 – 5.20) for intervention. Generalization percentages were 61% for *evaluate* (range 41.00 - 71.00%) and 35% for *expand* (range 22.00 - 47.00%). *Repeat* had an average frequency of 1.31 (range 0.75 – 1.75) (see Table 2). Results from each classroom showed *repeat* increased in frequency from baseline to intervention overall, yet in classroom three, *repeat* actually decreased in frequency. However, there were no noticeable gains in *expand* from baseline to generalization, as percentages did not drastically change. Additionally, *expand* decreased from baseline to generalization in two classrooms.

Research Question Two

To answer the second research question, the impact implementation of DR had on children's responses, a mean and range were compared across the three conditions. In averages across all four classrooms, children's responses increased as demonstrated by a shift in frequency from baseline (61.57%; range 33.33 - 77.64%) to intervention (84.69%; range 71.62 - 93.42%), with a slight increase in generalization at 85.94% (range 79.86 – 97.50%). Of the children's responses during baseline, 61% (range 33.00 - 98.00%) were verbal. Responses were further categorized by being on-topic (70%; range 33.00 - 97.00%) and if on-topic, the correct response (45%; range 0.00 - 73.00%). Therefore, during baseline, children were more likely to respond verbally to questions; their answers were on-topic, and correct. The intervention condition implementing DR strategies by paraprofessionals showed that children's responses were seen to be mostly verbal (66%; range 49.00 - 80.00%), on-topic (92%; range 89.00 - 94.00%) and correct (63%; range 43.000 - 75.00%). For generalization, the most frequent responses of children were verbal (74%; range 62.00 - 91.00%), on-topic (82%; range 54.00 - 96.00%), and correct (62%; 43.00 - 71.00%). Furthermore, across all conditions, children with DD's responses were verbal and their answers were correct, and therefore, on-topic. The percentage of on-topic responses increased from 70% in baseline, to 92% in intervention and 83% during generalization, respectively, showing a positive trend in children with DD's responses from implementing DR strategies in book readings.

The highest amount of simultaneous responses from children (both gesture and verbal responses) was seen during intervention (28%; range 18.00 - 36.00%), compared to generalization (24%; range 5.00 - 38.00%) and baseline (15%; range 0.00 - 32.00%). Responses were coded as unintelligible when the response was muffled, what they said could not be heard, and/or the researchers could not interpret what the child had said. Unintelligible responses were

seen most often during generalization (22%; range 20.00 – 25.00%), compared to intervention (15%; range 5.00 - 31.00%) and baseline (13%; 3.00 – 33.00%). Although unintelligible responses increased from baseline to generalization, DR strategies increased children with DD's verbal responses to book readings overall, despite being unintelligible (see Table 3).

Table 2. Frequency of adult behaviors shown during book readings across conditions

	Complete	Recall	Open	Wh-	Distance	Yes/No	Phonics	Choice	Request	R	Total	Points	Models	Wait	Evaluate	Expand
Classroom 1																
Baseline	0.00	0.25	0.00	3.00	0.00	1.50	0.75	0.00	0.00	0.75	5.50	0.34	0.10	0.23	0.51	0.09
Intervention	2.00	1.40	0.20	13.80	0.40	0.20	0.20	0.00	0.00	5.20	18.20	0.77	0.07	0.53	0.49	0.24
Generalization	5.00	0.50	0.00	2.50	5.00	2.00	0.00	1.50	0.00	1.50	16.50	0.83	0.18	0.19	0.41	0.22
Classroom 2																
Baseline	0.00	0.00	0.33	0.00	0.00	1.67	0.00	0.00	0.00	0.00	2.00	0.44	0.11	0.17	0.11	0.44
Intervention	1.67	2.33	2.00	11.17	0.00	0.67	0.67	0.17	0.00	2.83	18.67	0.78	0.14	0.29	0.55	0.36
Generalization	2.75	0.50	0.75	6.25	0.00	1.50	0.50	0.50	0.00	1.25	12.75	0.62	0.24	0.06	0.68	0.32
Classroom 3																
Baseline	5.00	2.00	1.00	3.00	0.25	1.50	0.50	0.75	0.75	1.25	14.75	0.67	0.13	0.40	0.73	0.45
Intervention	3.33	1.50	2.17	6.33	0.17	0.33	0.33	0.33	0.00	2.00	14.50	0.81	0.15	0.24	0.62	0.38
Generalization	2.75	2.50	1.25	5.50	0.00	0.75	0.50	0.00	0.00	0.75	13.25	0.81	0.13	0.30	0.63	0.47
Classroom 4																
Baseline	0.50	1.50	0.33	2.33	0.00	4.17	0.00	1.00	0.17	0.50	10.00	0.50	0.01	0.21	0.50	0.40
Intervention	0.83	1.83	2.00	9.67	2.00	2.33	0.33	0.50	0.00	2.00	19.50	0.72	0.01	0.04	0.77	0.52
Generalization	1.50	3.50	1.50	6.00	0.50	3.50	0.25	0.50	1.25	1.75	18.50	0.51	0.02	0.13	0.71	0.39
Total School Avg.																
Baseline	1.38	0.94	0.42	2.08	0.06	2.21	0.31	0.44	0.23	0.63	8.06	0.49	0.09	0.25	0.46	0.34
Intervention	1.96	1.77	1.59	10.24	0.64	0.88	0.38	0.25	0.00	3.01	17.72	0.77	0.09	0.27	0.61	0.37
Generalization	3.00	1.75	0.88	5.06	1.38	1.94	0.31	0.63	0.31	1.31	15.25	0.69	0.14	0.17	0.61	0.35

Note. Complete = Completion, Open = Open-Ended, Wh- = Wh- questions, Distance = Distancing, Phonics = Phonics, Choice = Choice Making, Request = Requesting definitions, R = Repeated prompt (R in PEER), Total = Total amount of prompts asked, Points = Points to picture*, Models = Modeling* Wait = Wait time*, Evaluate = Evaluate*, Expand= Expand*. * notates if recorded in percentage

Table 3. Percentages of children’s types of responses to prompts during storybook readings across conditions

	Child Respond	Unintell	Gesture	Verbal	Simult.	On Topic	On Topic: Correct	On-Topic: Incorrect	Off Topic: Incorrect
Classroom 1									
Baseline	0.64	0.03	0.07	0.37	0.32	0.52	0.43	0.06	0.13
Intervention	0.72	0.13	0.03	0.69	0.28	0.89	0.60	0.29	0.09
Generalization	0.81	0.22	0.00	0.62	0.38	0.54	0.43	0.11	0.46
Classroom 2									
Baseline	0.33	0.33	0.33	0.33	0.00	0.33	0.00	0.00	0.00
Intervention	0.87	0.31	0.14	0.49	0.36	0.93	0.43	0.48	0.05
Generalization	0.98	0.25	0.02	0.69	0.29	0.89	0.71	0.12	0.09
Classroom 3									
Baseline	0.78	0.11	0.00	0.75	0.25	0.97	0.73	0.14	0.03
Intervention	0.87	0.11	0.03	0.66	0.31	0.90	0.75	0.13	0.06
Generalization	0.80	0.20	0.02	0.75	0.23	0.96	0.62	0.21	0.04
Classroom 4									
Baseline	0.72	0.07	0.00	0.98	0.02	0.96	0.66	0.18	0.04
Intervention	0.93	0.05	0.00	0.80	0.18	0.94	0.75	0.08	0.00
Generalization	0.86	0.20	0.03	0.91	0.05	0.94	0.71	0.15	0.03
Total School Avg.									
Baseline	0.62	0.13	0.10	0.61	0.15	0.70	0.45	0.10	0.05
Intervention	0.85	0.15	0.05	0.66	0.28	0.92	0.63	0.24	0.05
Generalization	0.86	0.22	0.02	0.74	0.24	0.83	0.62	0.15	0.15

Note. Child Respond= Does child respond? Unintell= unintelligible Simult. = simultaneous (gesture + verbal). All numbers are reported in percentage

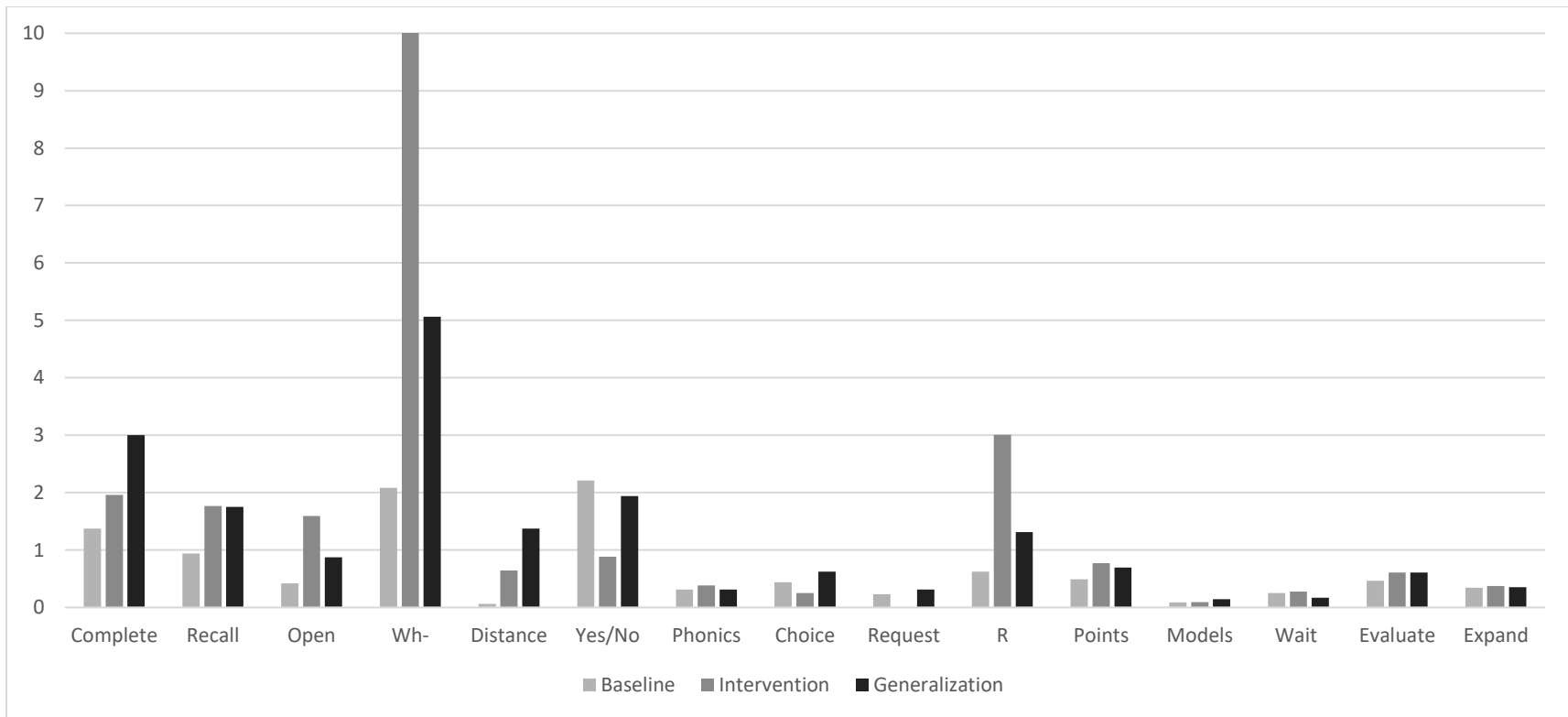


Figure 1. Total averages across conditions for adult behaviors during book readings

Note. Complete = Completion, Open = Open-Ended, Wh- = Wh- questions, Distance = Distancing, Phonics = Phonics, Choice = Choice Making, Request = Requesting definitions, R = Repeated prompt (R in PEER), Points = Points to picture*, Models = Modeling* Wait = Wait time*, Evaluate = Evaluate*, Expand= Expand*. * notates if recorded in percentage

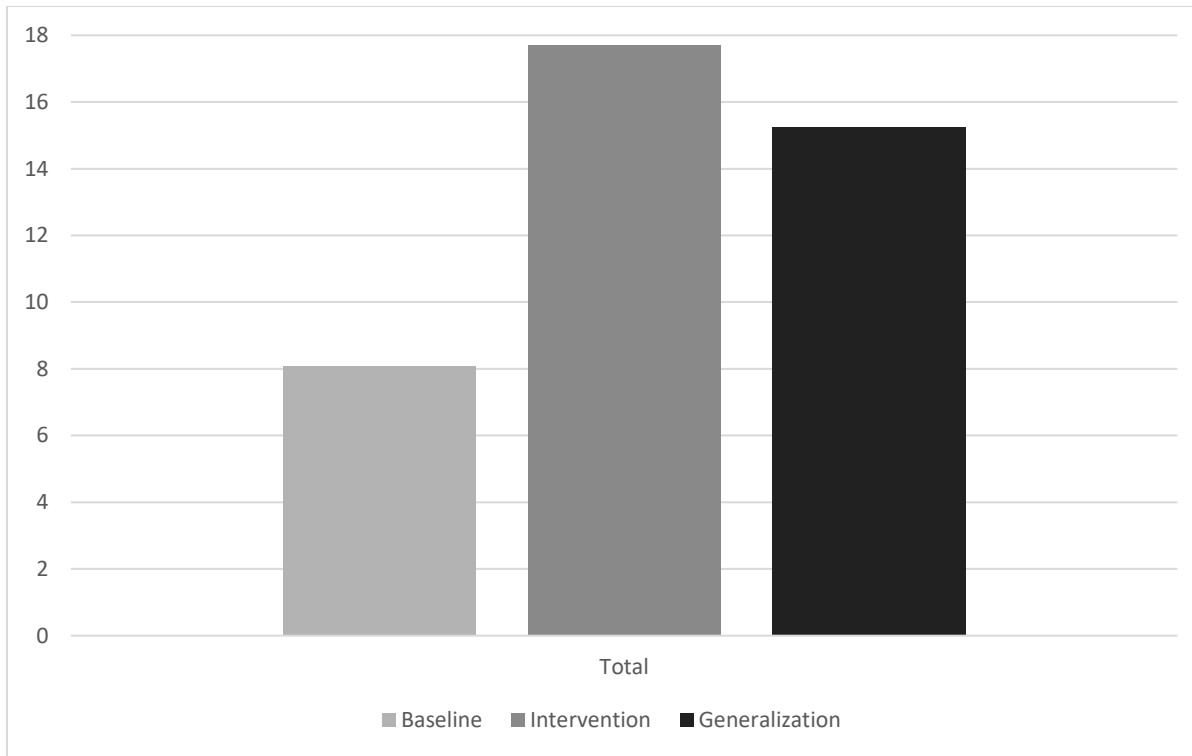


Figure 2. Combined total number of prompts asked during readings across conditions

Note. Total = Total amount of prompts asked.

CHAPTER FIVE: DISCUSSION

The purpose of the current study was to add to the literature related to how DR strategies within storybook reading can support the language and emergent literacy skills of children with DD. There is limited research regarding the effectiveness of implementing DR strategies with children with DD (Towson et al., 2017; Towson et al., 2019). The results of this study suggest that a singular training in DR strategies (i.e., PEER and CROWD) increases not only on paraprofessionals implementation of some DR strategies, but also positively impacts preschoolers with DD's verbal responses.

The first research question examined the frequency paraprofessionals implemented DR strategies (i.e., CROWD, PEER) to investigate which *prompts* paraprofessionals utilize the most when reading to children with DD following a singular training and in-book scripts. Having scripted books created a positive change in the types and number of prompts paraprofessionals asked during book readings. This finding corroborates with other studies in training parents and teachers to utilize book reading techniques with children (Arnold et al., 1994; Dale et al., 1996; Crowe, Norris, & Hoffman, 2000; Rezzonico et al., 2015; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994). It is important to understand how paraprofessionals increase their amount use of DR strategies following a singular training in order to inform future development of professional learning opportunities. Evidence has shown an increase of asking questions raises the quality of book readings as connections are made during the story to real life (Rezzonico et al., 2015). This study showed that paraprofessionals were more likely to ask prompts that facilitated language, specifically those that required children to respond. Compared to studies involving DR implemented by other adult participants (e.g., parents, teachers; Brannon & Dauksas, 2014; Colmar, 2014; Crowe et al., 2000; Rezzonico et al., 2015; Zibulsky, Casbar,

Blanchard, & Morgan, 2019), this study evaluates the impact paraprofessionals can have increasing the quality of book readings in the classroom. During intervention, paraprofessionals were able to increase the amount of total questions to approximately 18 (17.72) per book reading, showing gains in the number of *prompts* during book readings compared to a baseline of roughly eight questions per book reading. Data in generalization remained relatively stable with total *prompts* of approximately 15 per book reading. This displays how the singular training combined with scripted books was successful in increasing the amount of questions asked and shows that paraprofessionals accurately were able to generalize this aspect of DR to new books. Research has shown generalizing asking questions is difficult to implement (Colmar, 2014; Coogle et al., 2018; Zibulsky et al., 2019). After a singular training in DR strategies, results nearly doubled in the total amount of *prompts* asked (i.e., Completion, Recall, Open-Ended, Wh-, and Distancing, *repeat*), from baseline to generalization. Related specifically to DR *prompts*, two paraprofessionals during did not ask any Completion *prompts* during baseline; however, increased to 3 and 5 Completion questions in generalization. Recall *prompts* had the most carryover of the implementation of DR strategies when paraprofessionals were in the generalization phase, potentially suggesting paraprofessionals felt more comfortable with this type of *prompt* when creating their own scripts during book readings. Despite staying the same percentage (9%) for baseline and intervention, modeling increased across all classrooms in generalization, suggesting the effectiveness a singular DR training had on paraprofessionals in implementing this specific strategy.

Regarding non-DR *prompts*, the question asked least frequently by paraprofessionals was Requesting Definitions across all phases. Requesting definitions was not used at all during intervention, showing the possibility of this *prompt* being perceived as ineffective or not age

appropriate as other *prompts* utilized to target a response from children with DD. The overall amount of Yes/No questions decreased in frequency from baseline (2.21) to intervention (0.88) suggesting that when provided with a singular training in DR, paraprofessionals increased their use of asking questions that will facilitate language and prompt the child to respond with more than “yes” or “no”. However, Yes/No questions during generalization significantly increased when paraprofessionals were not provided with scripted books, suggesting they may decrease the amount of Yes/No questions with the assistance of scripted books, but not when asked to do so independently. Thus, the results from this research study suggest the need for additional DR trainings to ease the transition between intervention (scripted books) and generalization techniques. A singular training in DR may not be enough to increase integration of the new behavior (Towson et al., 2019; Zibulsky et al., 2019). Therefore, the need for more DR trainings for paraprofessionals to implement during book readings may be needed to enhance the opportunities paraprofessionals provide to children to respond (Towson et al., 2019). It may also be helpful to provide a reinforcement of DR training, strategies, or fading of supports during the generalization condition by supplying a scripted DR book to refresh the paraprofessional. It may also be necessary for paraprofessionals to show more success in the ability to implement DR after training and promote children to respond prior to moving to generalization of the strategies.

Related to the other DR strategies, during intervention, *evaluate* was following 61% of all prompts presented, increasing from 46% at baseline and stabilizing at 61% for generalization. This suggests that implementation of DR strategies, specifically *evaluate*, increased following a singular training and maintained even when paraprofessionals were given books to create *prompts* of their own to ask children during book readings. Although the use of *evaluate* increased, it was not implemented consistently during. While *evaluate* showed some increase

across all classrooms with DR intervention, *expand* did not show an impactful change across conditions. Paraprofessionals were observed to *expand* at approximately the same frequency as they had prior to a singular DR training. This is important as this information suggests the need to educate paraprofessionals on the importance of focusing on *expanding* a child's response during book readings. Paraprofessionals may not have increased in their *evaluations* or *expansions* nearly as much as they did compared to *prompting*, because they did not feel comfortable, fully understood what each strategy of PEER was particularly targeting, or needed to be provided with more examples of instances of *evaluate*, *expand*, and *repeat*. Furthermore, it is important to increase implementation of *evaluate* because it allows the child to know if they are right or wrong and *expand* if the paraprofessional adds additional language to the child's response, which will expose children to more language during readings (Wong et al., 2012). *Repeat* increased in frequency from baseline to intervention and baseline to generalization, respectively. Although a decrease in *repeat* occurred from intervention to generalization, it is important to note paraprofessionals doubled in the number of *repeat prompts* asked from baseline to generalization, thus, showing the effectiveness of paraprofessionals implementing DR strategies during book readings. This was specifically demonstrated by the paraprofessional for classroom three with multiple children, as she was observed to *repeat* the *prompt* to ensure each child had an opportunity to respond.

We can infer from these results that one training of paraprofessionals in DR strategies combined with scripted books may be enough to effect change on the *prompts*, yet additional trainings may be necessary for *evaluate*, *expand*, and *repeat* in order to accurately ensure proper usage of PEER across conditions. Although examples of each category within PEER were given and located on the front inside cover of the books during the intervention phase,

paraprofessionals may need additional reinforcement to refer to these in order to utilize the strategies while reading to children. Additional trainings, or emphasis on *evaluate*, *expand*, and *repeat* during the initial training, should be implemented when teaching paraprofessionals these strategies within DR (Colmar, 2014; Crowe, Norris, & Hoffman, 2004; Towson et al., 2019; Zibulsky et al., 2019). Aside from this, having additional mock interaction of the use of PEER with the paraprofessional and person conducting the training may be beneficial to allow the paraprofessional to receive constructive criticism to ensure they are using PEER appropriately.

Overall, the results from this study suggest the need for more supports for paraprofessionals to successfully implement all DR strategies with fidelity, which is consistent with prior literature from other populations (Towson et al., 2017; Towson et al., 2019). Results also revealed paraprofessionals implemented roughly the same percentage for certain types of non-DR prompts as they had without training, particularly in Choice Making and Requesting Definitions. It is interesting to note that Phonics prompts remained at the same frequency after being trained in DR. This should be noted because for this study, the paraprofessionals were not educated in these prompts specifically, suggesting that paraprofessionals continued to utilize the techniques they used prior to being exposed to and implementing DR strategies. During the generalization condition, there was an overall increase in frequency in the prompts asked from baseline, with the exception of the non-specific DR prompt, Yes/No.

Wait time surprisingly decreased during intervention and generalization across all classrooms. The longest “wait time” recorded during analysis was 15 seconds, suggesting that children need ample wait time, which is particularly important as following this wait time a child answered the question correctly. Wait time was present for 25.08% of *prompts* presented in baseline, increased to 27.37% during intervention, and decreased for generalization to 16.99%.

During generalization, it could be that wait time was not as necessary once paraprofessionals improved the types of questions asked. The importance of allowing a child the opportunity to respond in order to expand upon their language comprehension (e.g., oral language) and exposure to language during book readings, has been validated as an effective strategy by prior researchers (Justice et al., 2016; Rahn et al., 2016; Rezzonico et al., 2015; Towson et al., 2016; Valdez-Menchaca & Whitehurst, 1992). For classrooms with multiple children, wait time was not equally observed as paraprofessionals would start a second *prompt* if one child answered and not finish the first *prompt*. It should be noted for classrooms with multiple children, paraprofessionals would unintentionally interrupt the child who needed additional time mid-sentence or thought. Certain child responses may have been overlooked since the author coded the response of the child who answered the *prompt* first and paraprofessional was more likely to respond to the first child who answered. Researchers have concluded the importance of allowing children the opportunity to process language by allowing for wait time to be established for each child to have an opportunity to respond (Brannon & Dauksas, 2014; Fleury et al., 2013). However, some paraprofessionals never adequately allowed wait time, regularly seen by asking a separate *prompt* where wait time was not established. This does not allow the child an opportunity to take the time they need to process or respond (Crain-Thoreson & Dale, 1999; Dale et al., 1996; Hirn et al., 2017, Towson et al., 2016; Messer & Dockrell, 2006).

Prior researchers report DR can positively impact the verbal language skills of the children engaged in readings (Arnold et al., 1994; Lonigan & Whitehurst, 1998; Lonigan et al., 1999; Valdez-Menchaca & Whitehurst, 1992; Whitehurst, Arnold et al., 1994; Whitehurst et al., 1988). The researchers in this study specifically investigated how paraprofessionals' use of DR strategies impacted preschoolers with DD's verbal responses. The nature of this research allows

us to begin to draw conclusions for the types of questions children with DD respond to the most and least frequently. Child responses to *prompts* in general increased from baseline (61.57%) to intervention (84.69%), and during generalization (85.94%), suggesting DR trainings indirectly produced more responses, which was maintained during the generalization phase without DR scripts used by paraprofessionals. Interestingly, gestured answers decreased across phases, indicating evidence that DR strategies might increase children's verbal responses. Simultaneous responses (gesture and verbal) responses were also seen to increase during the intervention phases, showing additional support for DR strategies positively impacting children's responses. While not specifically analyzed as a part of this study, children were anecdotally observed to be more engaged in the book readings (e.g., pointing their finger along the words of the book mimicking the paraprofessional reading the story to them; initiating independently). It is important to note the children's unintelligible responses also increased across phases, therefore suggesting during book readings with DR, children were more likely to respond overall.

Not only did children's responses generally increase, the frequency of on-topic responses increased from baseline (70%) to intervention (92%), with a slight drop in generalization (83%), suggesting implementation of DR strategies had a positive impact on children's on-topic responses. Particularly, on-topic, correct responses occurred more frequently with the implementation of DR strategies, suggesting a positive effect of DR on preschoolers with DD's verbal responses (Brannon & Dauksas, 2014; Fleury et al., 2014).

Incorrect on-topic responses were observed 10% during baseline and increased to 24% with intervention, whereas off-topic incorrect responses were 5%, for both baseline and intervention, respectively. The amount of incorrect responses (both on- and off-topic) were 15% in intervention and generalization. This suggest the implementation of DR strategies not only

positively impacts and increases children responses, but children were more likely to respond on-topic and correct to prompts asked. These results suggest that with more exposure to book readings, overall, particularly in DR, children's responses continued to be more on topic and correct. However, responses that were both off-topic and incorrect increased for half the classroom's child participants, despite the DR implementation. However, although incorrect, this suggests that by paraprofessionals implementing DR strategies while reading to children, the children are more likely to respond, regardless of correctness (Blewitt & Langan, 2016; Fleury et al., 2014; Fleury & Schwartz, 2016). This suggests that while DR increased children's overall responses, more scaffolding may be necessary to get correct responses (Bond & Wasik, 2009; Dale et al., 1996; Fleury et al., 2014; Hargrave & Sénéchal, 2000; Hirn et al., 2017; Justice et al., 2005; Lonigan & Whitehurst, 1998; Towson et al., 2016). Future studies in DR should continue to focus on implementation of DR with children with DD as they may need more assistance to achieve the same targeted outcome and responses compared to their peers.

Limitations and Future Directions

While the results of this study are encouraging and the participants made gains, several limitations are noted. The author of this study coded a specific section of time of the video recorded book readings; therefore, only a sample of the videos and questions the paraprofessionals asked were analyzed. For longer videos, the time coded for this analysis may not have captured the entire book reading or peak of when the participants implemented the DR strategies or when the children responded the most. Since video lengths varied, it is possible the number of *prompts* used more frequently were seen after coding occurred. To capture how paraprofessionals and children respond to DR strategies more effectively, future studies should focus particularly on dividing the beginning, middle, and end of the book reading sessions to

determine if a child is more likely to respond to questions during a certain time of story development.

As future studies are designed, it would be beneficial to record the videos sitting behind the children to see their point of view. Videos that were recorded facing the paraprofessional hindered the view of the researcher to clearly define if a child responded. Particularly, an increase could be seen in the ability of determining if a child responds via “gesture”, which can be further defined and classified as on- or off-topic, respectively. Additionally, the video would be in direct view of the researcher to determine if the paraprofessional points to the pictures, instead of having to record it as “N/A.” Furthermore, it may be beneficial for future studies to have the RA who records the book sessions to summarize what occurred that day in case there was anything worth noting if coding the videos or analyzing the data at another time. This was a limitation as viewing the videos varied since the video cameras were not stationary, consistent with the angle used to record, or did not capture book readings fully to determine clearly who responded to a *prompt*. Furthermore, questions that were not fully intelligible were not coded, creating a limitation as not every prompt was analyzed. Therefore, “N/A” was used if RAs could not see or hear the videos appropriately. If using video analysis, future studies should provide a quiet, distraction-free environment for ample book reading sessions and opportunities for clear intelligibility of responses.

Some *prompts* were not as concrete or explicit as standard CROWD questions. For example, it could be argued a question falls under more than one CROWD question. “What did the dinosaur eat everyday?” was counted as a Recall question, although one could argue it is a Wh- question. For this study, the author addressed the aforementioned situations according to the coding rules. Furthermore, analyzing the child’s initiations (unprompted responses asked by

paraprofessionals) independently of responding to paraprofessional's *prompts* is recommended, as children may have initiated or influenced a *prompt* asked by a paraprofessional across conditions.

This study is limited in participants used as the population assessed was taken from a previous single case design study resulting in a smaller sample size. This study does not specifically investigate children and paraprofessionals in different locations (e.g., rural) or children with other types of DD. This study's results may not generalize to all children with DD, different environments, or different training approaches for implementing paraprofessionals to utilize DR strategies. More trainings of the paraprofessionals might facilitate more effective learning of language for children with DD. As this study was a secondary analysis, the small sample size was unavoidable.

Additionally, future studies should evaluate the impact of the amount of wait time given for each individual child to see if this is effective in what paraprofessionals can do to enhance children's language skills. While it is apparent the children increased their responses to *prompts* (e.g., "Does the child respond?") throughout phases, the data does not report which specific *prompt* facilitated more responses. Future research should investigate if specific DR strategies are more impactful than others, such as specific types of questions prompting more responses. Additionally, this study did not investigate qualitative factors, such as the mean length utterance (MLU) of the children's responses. The quality of responses beyond on topic or correct were not investigated for the purpose of this study. Longitudinal studies might be a necessary approach to identify how DR implementation positively corresponds to increased language use within specific DD populations. This could also be helpful in determining if paraprofessionals implement DR strategies, and to what extent after training, does it continue to occur.

Clinical Implications. Allowing children to be increasingly exposed to vocabulary words will help with their understanding of those words. When working with preschool children, especially with developmental disabilities, it is important for parents, teachers, and clinicians to provide an opportunity for the children to respond. When given a vocabulary word or picture, implementing a *prompt* for the child to respond may be necessary for helping the child produce the appropriate response, thus allowing them to demonstrate their knowledge and expand on the topic presented. Speech-language pathology clinicians and educators can implement DR with their clients to promote literacy, language and vocabulary learning, which can also be taught in the classroom. Teachers and other specialists can include DR in their daily activities to promote language learning. Parents can implement DR in the home setting by reading books with their children.

Conclusion

Overall, the results of this study provide evidence DR strategies (i.e., CROWD, PEER) positively increased the frequency of paraprofessionals prompts and children's responses during book readings. Additional trainings in DR for paraprofessionals are necessary to ensure proper carryover of DR strategies and to allow for children's responses to be *evaluated* and *expanded* on appropriately. Therefore, implementation of DR strategies may be a positive approach to improving children with DD's exposure to language and increase their verbal responses.

**APPENDIX A: PRESCHOOL CHILDREN'S RESPONSES DURING DR
CODING SHEET**

Date: _____

Reader Observed: _____

School/Classroom: _____

Video/Session #: _____

Time Spent Reading: _____

Person Completing Original Coding: _____

Person Completing IOA: _____

Book Title (circle one): Pigs a Plenty Summery Saturday Wolf's Chicken Stew
 Dinosaur Backyard Frog to Library Spike in the City

Condition (Circle One): Baseline Intervention Generalization

Components Observed	Circle Response (Y = Yes, N = No)
<p>Type of Question <input type="checkbox"/> Completion <input type="checkbox"/> Recall <input type="checkbox"/> Open-Ended <input type="checkbox"/> Wh-? <input type="checkbox"/> Distancing <input type="checkbox"/> Yes/No <input type="checkbox"/> Phonics <input type="checkbox"/> Choice Making <input type="checkbox"/> Requesting definitions <input type="checkbox"/> Repeat Question</p> <p>Points to Picture Model Wait time Does child respond? A B C D E F G H Which child and what type of response? <input type="checkbox"/> Unintelligible</p>	<p>Time Stamp: _____</p> <p>Y N n/a Y N n/a Y N n/a Y N n/a gesture or verbal Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a</p>
<p>Type of Question <input type="checkbox"/> Completion <input type="checkbox"/> Recall <input type="checkbox"/> Open-Ended <input type="checkbox"/> Wh-? <input type="checkbox"/> Distancing <input type="checkbox"/> Yes/No <input type="checkbox"/> Phonics <input type="checkbox"/> Choice Making <input type="checkbox"/> Requesting definitions <input type="checkbox"/> Repeat Question</p> <p>Points to Picture Model Wait time Does child respond? A B C D E F G H Which child and what type of response? <input type="checkbox"/> Unintelligible</p>	<p>Time Stamp: _____</p> <p>Y N n/a Y N n/a Y N n/a Y N n/a gesture or verbal Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a</p>

<p>Type of Question <input type="checkbox"/> Completion <input type="checkbox"/> Recall <input type="checkbox"/> Open-Ended <input type="checkbox"/> Wh-? <input type="checkbox"/> Distancing <input type="checkbox"/> Yes/No <input type="checkbox"/> Phonics <input type="checkbox"/> Choice Making <input type="checkbox"/> Requesting definitions <input type="checkbox"/> Repeat Question</p> <p>Points to Picture Model Wait time Does child respond? A B C D E F G H Which child and what type of response? <input type="checkbox"/> Unintelligible</p> <p>If response: On topic Correct Incorrect If response: Off topic Incorrect Evaluates Expands</p>	<p>Time Stamp:</p> <hr/> <p>Y N n/a Y N n/a Y N n/a Y N n/a gesture or verbal Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a</p>
<p>Type of Question <input type="checkbox"/> Completion <input type="checkbox"/> Recall <input type="checkbox"/> Open-Ended <input type="checkbox"/> Wh-? <input type="checkbox"/> Distancing <input type="checkbox"/> Yes/No <input type="checkbox"/> Phonics <input type="checkbox"/> Choice Making <input type="checkbox"/> Requesting definitions <input type="checkbox"/> Repeat Question</p> <p>Points to Picture Model Wait time Does child respond? A B C D E F G H Which child and what type of response? <input type="checkbox"/> Unintelligible</p> <p>If response: On topic Correct Incorrect If response: Off topic Incorrect Evaluates Expands</p>	<p>Time Stamp:</p> <hr/> <p>Y N n/a Y N n/a Y N n/a Y N n/a gesture or verbal Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a</p>
<p>Type of Question <input type="checkbox"/> Completion <input type="checkbox"/> Recall <input type="checkbox"/> Open-Ended <input type="checkbox"/> Wh-? <input type="checkbox"/> Distancing <input type="checkbox"/> Yes/No <input type="checkbox"/> Phonics <input type="checkbox"/> Choice Making <input type="checkbox"/> Requesting definitions <input type="checkbox"/> Repeat Question</p> <p>Points to Picture Model Wait time Does child respond? A B C D E F G H Which child and what type of response? <input type="checkbox"/> Unintelligible</p> <p>If response: On topic Correct Incorrect If response: Off topic Incorrect Evaluates Expands</p>	<p>Time Stamp:</p> <hr/> <p>Y N n/a Y N n/a Y N n/a Y N n/a gesture or verbal Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a Y N n/a</p>

APPENDIX B: INSTITUTIONAL REVIEW BOARD APPROVAL



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: **UCF Institutional Review Board #1
FWA00000351, IRB00001138**

To: **Jacqueline Anne Towson**

Date: **September 01, 2016**

Dear Researcher:

On 09/01/2016 the IRB approved the following minor modifications to human participant research until 05/17/2017 inclusive:

Type of Review: IRB Addendum and Modification Request Form
Expedited Review

Modification Type: Addition of Tiffany Block, Tiphonie Higgins, Melissa Caldwell,
Josey Arroyo, & Sivan Tow as research assistants.

Project Title: Reading Beyond the Book: Training Paraprofessionals to
Implement Dialogic Reading for Preschool Children with
Significant Language Impairments

Investigator: Jacqueline Anne Towson, PhD

IRB Number: SBE-15-11810

Funding Agency: Research and Commercialization

Grant Title: **Reading Beyond the Book: Implementing Dialogic Reading to
Improve Language and Emergent Literacy Skills for
Preschool Children with Significant Language Impairments
(ID: 1060512)**

Research ID: 1060512

The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30 days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

If continuing review approval is not granted before the expiration date of 05/17/2017, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

All data, including signed consent forms if applicable, must be retained and secured per protocol for a minimum of five years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants

should be maintained and secured per protocol. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

A handwritten signature in cursive script that reads "Kamille Chaparro". The signature is written in black ink and includes a horizontal line extending to the right from the end of the name.

Signature applied by Kamille Chaparro on 09/01/2016 03:34:54 PM EDT

IRB Coordinator

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