

RESEARCH ARTICLE

The Effects of a Whole-Classroom Repeated Book Reading Intervention on the Language Development of Children in Head Start

Alina Mihai

Indiana University Kokomo

Gretchen Butera

Indiana University Bloomington

Language development is enhanced by children's opportunities to actively engage in meaningful language interactions with adults. This study employed a pretest-posttest quasi-experimental group design to examine the effectiveness of a repeated book reading approach and its impact on children's language development. Participants included the children in four Head Start classrooms from a rural Midwestern Head Start program whose teachers had been trained to use the repeated book reading approach. At the end of the intervention, children who had experienced the repeated book reading approach registered significant gains in their discourse ability scores compared to children in the control condition. Further, they experienced growth in their vocabulary compared to their scores at the beginning of the year. This study extends previous research findings and informs early childhood practice by providing a repeated book reading model which preschool teachers can use to promote essential language skills.

Keywords: literal and inferential language, vocabulary development, repeated book reading, Head Start.

In today's technological society, well-developed language and literacy skills are essential to ensure children's success with academics and beyond. More than ever before, American schools are concerned with providing instruction that leads to well-developed language and literacy skills and enables children to critically think, understand, and learn by providing them with the tools they need to continuously seek out and gain new knowledge. These skills facilitate children's active participation in the social world and empower them to contribute as citizens in their communities (Dickinson, Darrow, Ngo, & D'Souza, 2009).

Unfortunately, not all children easily develop language and literacy skills or consistently benefit from early literacy instruction despite the emphasis placed on their acquisition in the early

years of schooling. It is under such circumstances that one third of fourth graders in our nation currently read below a basic level, with nearly half of the children from low-income families constituting this population (National Center for Education Statistics, 2017). As they advance through their schooling experience, poor readers are at risk of lagging further and further behind in school achievement compared to more literate children (Hindman, Wasik, & Snell, 2016; Magnuson, Duncan, Lee, & Metzger, 2016; Whitehurst & Massetti, 2004). Too many of these children fail to complete high school each year (Fiester, 2010), thus limiting their future job opportunities, increasing the chances that they will experience poverty and unemployment (Hernandez, 2011; McGee & Richgels, 2003; Snyder, de Brey, & Dillow, 2019), and limiting their potential to provide their own children with an enriching early language and literacy environment at home.

Early Language and Literacy Development

In their development as readers, children begin to acquire critical precursory skills long before entering formal schooling (Duncan et al., 2007; Lonigan, Burgess, & Anthony, 2000; Piasta, 2016; Wasik & Newman, 2009). Researchers describe two different but related sets of early literacy skills (Dickinson, Golinkoff, & Hirsh-Pasek, 2010; Paris, 2005; Riordan, Reese, Rouse, & Schaughency, 2018; Whitehurst & Lonigan, 1998), both of which typically demonstrate significant growth during the preschool years. Code skills, such as alphabet knowledge, phonological awareness, and concepts about print, relate to preparation for formal reading instruction. Children with well-developed code-related skills are able to recognize letters, associate them with sounds, and eventually decode words (Dickinson et al., 2010; Snow & Matthews, 2016).

Children also develop meaning-focused skills, including oral language, vocabulary, background knowledge, and inferential language (Dickinson et al., 2010; Lennox, 2013). Meaning-focused skills influence reading motivation and comprehension and become increasingly important as children move beyond learning to read toward reading to learn (Chall & Jacobs, 2003; Lennox, 2013; Neuman, 2010; Snow & Matthews, 2016). Meaning-focused skills include literal and inferential language and it is important for children to develop both in the early years of life. Literal language requires children to label, describe, or respond to information that can be readily perceived (e.g., describing the illustrations in a book). In contrast, inferential language skills ask children to infer and reason about what they perceive (Blank, Rose, & Berlin, 1978; Zucker, Justice, Piasta, & Kaderavek, 2010; e.g., predicting what might happen in a book). Being able to integrate what they already know with new information and talk about text helps children construct meaning and supports the development of essential skills needed for later reading comprehension. Engaging with text by listening and discussing events that are removed from their immediate context allows children to make inferences and analyze information, which helps develop listening and reading comprehension (Filiatrault-Veilleux, Bouchard, Trudeau, & Desmarais, 2016; Hall, 2016; McKeown & Beck, 2003; Snow, 1991).

Research has demonstrated that the most essential preschool classroom dimension for later literacy achievement is teacher support for extended discourse, which engages children in rich conversations during book reading or in other classroom activities (Dickinson, McCabe, & Essex, 2006; Justice, Jiang, & Strasser, 2018). In particular, extended conversations promote conceptual knowledge and vocabulary growth as well as children's use of inferential language (Dickinson & Porche, 2011; Dickinson et al., 2009). Yet, many preschool teachers tend to dominate

conversations and fail to take advantage of opportunities to extend topics and encourage children to elaborate ideas (Cabell, Justice, McGinty, DeCoster, & Forston, 2015; Dickinson, 2003; Dickinson, Freiberg, & Barnes, 2011). Dickinson and Porche's (2011) longitudinal study examining the relationship between language experiences in preschool and children's later language and reading abilities found associations between preschool conversations and children's language and literacy outcomes in fourth grade.

Classic research studies (e.g., Hart & Risley, 1995; Heath, 1983) demonstrate that the language and literacy environments in the home play an important role in preparing children for schooling. For children from low-income families, home environments may be less likely to support the meaning-focused skills important in school (Hart & Risley, 1995). Under these circumstances, preschool classrooms must assume a critical role by providing a comprehensive curriculum that emphasizes the development of children's language skills in preparation for formal schooling (Lennox, 2013).

Head Start and Early Literacy

Head Start, the nation's flagship early intervention program has served preschool children and their families from low-income communities for over five decades. During this time, the program aimed to impact children's school readiness by providing comprehensive and culturally responsive services.

Head Start's history has included a number of threats to its viability when the results of various research studies questioned its efficacy (Zigler & Muenchow, 1992; Zigler & Styfco, 2004). In an effort to respond to the questions raised by these studies, The Head Start Impact Study (HSIS) was mandated by Congress in the 1998 Reauthorization and sought to determine the program's influence on key developmental child outcomes. A nationally representative sample of nearly 5,000 children was randomly assigned to either Head Start services or a control group without access to Head Start and subsequently followed from program entry through the end of children's third grade year of school (Puma et al., 2012). Related to children's language and literacy outcomes, findings from the first year of the study identified small to moderate effects on the pre-reading, pre-writing, and vocabulary skills of children in Head Start but no impact on children's oral comprehension and phonological awareness (Administration for Children and Families, 2005). Findings from subsequent years of the study demonstrated that, while Head Start had modest effects on children's language and literacy skills during the time the children were attending the program, the effects faded in elementary school. Only one significant impact remained at the end of third grade, a positive impact for the 4-year old cohort on a reading assessment and a negative impact for the 3-year old cohort on grade retention (Puma et al., 2012). It is important to note that the Head Start children's scores, although higher for the 4-year old cohort compared to the control group, remained lower than average for the population.

Overall, the HSIS conclusion was that the favorable impact of Head Start was insufficient to close the achievement gap between children in poverty and the rest of the population (Puma et al., 2012). These findings have been criticized by others, including Edward Zigler (2010) who pointed out that both groups in the study were ill-chosen and "badly contaminated" (p. 2). Zigler (2010) reminded us that over the years "scientists, policymakers and the public have developed unreasonable expectations" of Head Start (p. 3). Nevertheless the findings of the HSIS have served to emphasize the importance of quality for Head Start programs. One important finding from the

HSIS particularly relevant here is that the children in the Head Start sample scored below the 50th percentile in oral comprehension (Administration for Children and Families, 2010). The HSIS measures of oral comprehension assessed children's ability to "understand and make inferences from phrases and sentences spoken in English" (Administration for Children and Families, 2005, p. 4-5). Several authors have raised concerns that preschool classrooms may not be adequately supporting the development of inferential skills essential to children's ability to use language to think and understand (e.g., Lennox, 2013; Sembiente, Dynia, Kaderavek, & Justice, 2018; van Kleeck, 2008).

Book Reading and Language Development in Preschool Classrooms

Aside from book reading being a pleasant experience for both children and adults, children are introduced to advanced language structures, may participate in extended conversations, learn new vocabulary, build conceptual knowledge, and develop print awareness during book reading (Lennox, 2013; Montag, Jones, & Smith, 2015; Reese, 2013). By recalling events, children develop their memory and begin developing an awareness of what they can and cannot recall from previous readings of a book. These skills lay the foundation for the development of metacognitive abilities, essential for later academic achievement (Reese, 2013).

Several meta-analyses of research assessed the overall effect of book reading on children's language and literacy skills (e.g., Mol, Bus, de Jong, & Smeets, 2008; NELP, 2008; Sénéchal & Young, 2008; Wasik, Hindman, & Snell, 2016). Results indicated that shared reading has moderate effects on children's oral language development and print knowledge. One approach to book reading with positive effects on children's early literacy is repeated book reading (Morrow, 1988). Based on the premise that repetition is valuable, repeated book reading offers children multiple opportunities to review and understand concepts, as well as engage in extended talk about the story problem and characters (McGee & Schickedanz, 2007; Trivette, Simkus, Dunst, & Hamby, 2012). Trivette and colleagues (2012) demonstrated in a meta-analysis that repeated book reading has a positive influence on children's vocabulary and comprehension.

There is evidence that preschool teachers generally agree that reading aloud with young children results in benefits for children (Hindman & Wasik, 2008; Teale, 2003). Although they may differ in how they read and the types of books they select, most teachers choose to read books in their classrooms (Dickinson, 2001). However, simply reading books to young children or inviting them to talk about a book and acknowledging their responses is not sufficient to foster early literacy development (Gonzales et al, 2014; McGee & Schickedanz, 2007; McKeown & Beck, 2003). In fact, Zucker and colleagues' (2013) study of the relationship between shared reading and children's longitudinal outcomes revealed that, while the frequency of reading was related to children's receptive vocabulary growth in preschool, frequency of reading is not a significant predictor of children's language and literacy skills in kindergarten and first grade. Rather, it is the quality of language interactions during book reading that enhances children's development (Cabell, Zucker, DeCoster, Melo, Forston, & Hamre, 2019; Dickinson, & Porche, 2011; Lennox, 2013; Riordan et al., 2018; Tompkins, Bengochea, Nicol, & Justice, 2017; Zucker, Cabell, Justice, Pentimonti, & Kaderavek, 2013).

Researchers have pointed out that analytic talk about books helps children make predictions, inferences, and connections to personal experiences and prior knowledge (McGee & Schickedanz, 2007). In high-quality book readings, teachers model inferential thinking, ask open-

ended questions, allow children to reflect, and are responsive to their answers (McKeown & Beck, 2003). In other words, children's language skills are enhanced when teachers are intentional and purposeful in planning book reading activities that actively engage children. Repeated book reading extends the opportunity for high-quality teacher-child language interactions and provides opportunities to develop both literal and inferential language.

Using Book Reading to Support Literal and Inferential Language

The framework of levels of abstraction in preschoolers' discourse developed by Blank and her colleagues (1978) and adapted by other researchers provides an overview of how children can be supported in developing both literal and inferential language skills (see Table 1). Children's ability to make inferences is critical to reading comprehension and correlates with academic performance (Dickinson & Smith, 1994; Nation, 2005; Tompkins, Guo, & Justice, 2013; van Kleeck, 2008). Further, Reese (2013) argued that book reading discussions help children make interpretations and evaluate aspects of stories in ways that help them prepare for formal school settings. Book reading lends itself naturally to extended discourse and may be an ideal activity to support the development of inferential language skills.

TABLE 1
Levels of Abstraction in Preschoolers' Discourse

Level of Abstraction	Description	Examples
Level I: Matching Perception (literal language)	Label objects or characters Locate objects or characters Notice or direct attention to objects or characters Rote counting Imitation/ repetition of utterance	"What are these?" "Can you find Chester at his school?"
Level II: Selective Analysis of Perception (literal language)	Describe characteristics of objects or characters Describe story actions/ scenes Recall information previously mentioned Complete sentence	"What is he doing?" "What did Mrs. Raccoon do? Who remembers?"
Level III: Reorder/ Infer about Perception (inferential language)	Make inferences Summarize information Define Provide point of view Identify similarities and differences Make judgments Generalize about events Text-to-life connection and/ or comparisons	"Look at the tip of his nose, it's red. What do you think that might mean?" "Why do you think he looks sad?" "Why do you think he stayed home when he was sick?"
Level IV: Reasoning about Perception	Predict Problem solve Explain	"What are some of the things we find in a zoo?"

 (inferential
language)

 “So Amos, he has to ride bus
number five. What would happen
if we got on bus number four?”
T: “If you were gonna fly a kite,
where would you go?”

Note: Adapted from Blank et al. (1978), Price et al. (2012), van Kleeck et al. (1997), and Zucker et al. (2010).

Much of the research on the value of book reading has focused on vocabulary outcomes. However, a body of knowledge confirming the importance of supporting inferential language skills is emerging (e.g., Hindman, Wasik, & Erhart, 2012; Merz et al., 2015; van Kleeck et al., 1997; van Kleeck et al., 2006; Zucker et al., 2010). Earlier studies focused on parents’ reading behaviors, in particular mothers’ interactions with their children during book reading. In one such study, van Kleeck and colleagues (1997) examined the book reading interactions of 35 middle class parents and their preschool children and concluded that parental input at the four levels of abstraction was positively and significantly correlated with children’s language gains. Further, parents’ language input at both lower and higher levels of abstraction correlated with children’s abstract language development, suggesting that discussion during book reading provides opportunities to engage with both literal and inferential language.

In a subsequent study, van Kleeck, Woude, and Hammett (2006) extended their work by focusing on preschool children with language impairment in Head Start. Results indicated that children in the treatment group experienced greater growth in literal and inferential language skills than children in the control group. These findings are encouraging, but it should be noted that the study’s intervention was conducted by trained researchers working with children one-on-one, making it difficult to generalize findings to small group or whole classroom book reading.

Zucker and colleagues’ (2010) work examines preschool teachers’ use of literal and inferential questions and children’s responses during whole-class shared readings. Findings identified significant associations between the level of teachers’ questioning and children’s responses, with literal questions eliciting more literal responses and inferential questions eliciting inferential child responses. However, this study is descriptive and correlational. Hindman and colleagues (2012) examined the role of discussions during book reading on preschooler’s vocabulary learning. Specifically, the authors analyzed teachers’ use of literal and inferential language during book reading and how it was linked to children’s vocabulary development. Results indicated that children learned more words when teachers used more talk, both literal and inferential during book reading.

Dunst and colleagues’ (2012) meta-analysis examined the relationship between different types of inferential book reading strategies and children’s language and literacy development. Teaching strategies that were particularly effective included asking open-ended questions, providing or eliciting explanations about story events, relating events and characters in the story to children’s personal experiences, and asking children to make predictions about a story. The researchers concluded that adults’ use of inferential language had positive effects on young children’s language and literacy development.

Overall, there is considerable evidence that the development of literal and inferential language skills can be supported in adult-child interactions and book reading appears to be a particularly suitable context for this. It is important to note that much of the research has been conducted on book reading between one adult and one child. More research is needed in order to establish that book reading can be effectively used by early childhood teachers in common

preschool classroom activities, such as whole classroom book reading. The present study addresses these gaps in the research by implementing a year-long teacher-led repeated book reading intervention in two Head Start classrooms and gathering efficacy data. We addressed the following research question: What is the impact of a repeated book reading approach on children's literal and inferential language development? We investigated whether there were significant effects for children who participated in repeated book reading as opposed to those who engaged in book reading "as usual." Based on previous research, we hypothesized that engaging in the repeated book reading program would result in greater language growth for children in the intervention group.

METHOD

Research Design

To examine the effects of the intervention on children's outcomes, a pretest-posttest quasi-experimental group design was used. Group comparison studies seek to determine whether an intervention makes a difference in outcomes for participants (Creswell, 2008; Gersten et al., 2005; Odom et al., 2005). In the present study, the design permitted an examination of the effect of the repeated book reading intervention on the language skills of children who participated in the intervention compared to those who engaged in book reading "as usual."

Setting and Participants

This study was conducted in four classrooms in the Elm Park Head Start (EPHS) program, a rural program in a midwestern state. The name has been changed to protect anonymity of the program. Four EPHS teachers and the children in their classrooms volunteered to participate in the study. Two teachers and their students constituted the intervention group and two teachers and the students in their classrooms represented the control group. In total, 63 children from the four classrooms participated in the study, 32 in the experimental and 31 in the control group. The majority of children in each classroom participated in the study, including approximately 88% of the children in the intervention classrooms and 86% of children in the control classrooms. Child demographic information is presented in Table 2. By the end of the school year, 5 children in the experimental group and 8 children in the control group left the classrooms and the study. The transition of children in and out of the program or between centers or classrooms (full or part-time) was not uncommon in the program and in many cases depended upon parents' ability to continue to qualify for services.

Table 2

Child Demographic Information

Classroom and Condition	Children in Total	Children in the Study	Race			Age			Gender	
			Caucasian	Biracial	Hispanic	Range	<i>M</i>	<i>SD</i>	Male	Female
Experimental		32	59	2	2	39 - 61 months	53.71	5.44	19	13
Classroom 1	18	16	(93.6%)	(3.2%)	(3.2%)					
Classroom 2	18	16								
Control		31				39 - 63 months	54.22	5.48	11	20
Classroom 1	18	14								
Classroom 2	18	17								
Total		63	59 (93.6%)	2 (3.2%)	2 (3.2%)		53.96	5.42	30	33

All of the Head Start teachers in the study worked in the same Head Start program. The two teachers in the experimental group worked in the same building, while the two teachers in the control group were located at other Head Start centers in the program. All four teachers were Caucasian and English language speakers. None of the four teachers were novice. One teacher from each group had a bachelor's degree, while the other two had Associate's Degrees in Early Childhood Education. All classrooms met four days a week for 3.5 hours a day. An initial classroom observation using the Early Language and Literacy Classroom Observation tool (ELLCO; Smith, Brady, & Anastasopoulos, 2008) provided a measure of the early language and literacy environment in each of the four classrooms and provided an understanding of how book reading activities were conducted.

The ELLCO observations indicated that all four teachers made some efforts to engage children in conversations, but conversations were not extended and teachers seldom expanded on children's language initiations. On occasion, teachers were observed explaining an unfamiliar word to the children but in general, opportunities to build vocabulary were not emphasized in classroom activities or conversations. Each classroom included a library area and all teachers reported regularly reading books to children. However, teachers reported that they rarely read a book more than one time. Furthermore, teachers seldom engaged children in inferential language interactions. Discussion after the book was read was limited and appeared incidental. Teachers were observed asking the same question of each child without follow-up on children's responses.

General Procedures

Approval for research involving human participants from the university Institutional Review Board was obtained before the research began. Using a recruitment script, the program director contacted teachers to ask for volunteers interested in participating in the study. The program director provided the researcher with the names of teachers who were willing to participate. All the children in the classrooms taught by these teachers had the opportunity to participate in the study if the parent of the child signed the permission slip. For their participation in the study, each

of the four teachers received an honorarium of \$300 per semester and were given the books that were used in the study.

A repeated book reading intervention was implemented in the experimental classrooms over a 7-month period. Children were assessed pre- and post- using two early literacy measures: The Preschool Language Assessment Instrument 2 (PLAI 2; Blank, Rose, & Berlin, 2002), and The Peabody Picture Vocabulary Test-Fourth Edition (PPVT-IV; Dunn & Dunn, 2007). Classroom observations collecting fidelity of implementation data were conducted on a weekly basis in the intervention classrooms.

Description of the Intervention

Teacher training. The teachers were prepared to use the repeated book reading approach in a half-day of training designed to help teachers acquire the knowledge, skills, and dispositions (NAEYC, 2009) required to implement this approach. Subsequently, additional training in the classroom and weekly coaching provided teachers with further support implementing the intervention.

During the training, teachers were introduced to the repeated book reading approach and the benefits of this activity for children's language and literacy development were explained. Teachers discussed their book reading practices, the diversity of language and literacy experiences children bring to school and the key role preschool classrooms have in supporting children's early literacy development. Teachers were introduced to specific strategies for repeated book reading including ways to support vocabulary development and ask questions during reading.

In addition, during the training, teachers were taught to model analytical thinking and ask increasingly complex questions to help children make inferences across the book during (McGee & Schickedanz, 2007). The teachers were trained about how a good reader would approach the text and stop three or four times during reading to reveal their thoughts. Teachers were encouraged to use expressions such as "I am thinking that..." and then follow up with analytical questions for the children. McGee and Schickedanz (2007) found that this approach supports children's analytic thinking and use of inferential language. During the trainings teachers were provided with opportunities to practice the new strategies with each other and then by reading to the children in the following days.

Four additional training sessions between the researchers and teachers took place over the course of the project. The meetings provided an opportunity for the teachers to reflect on their practice and engage in problem solving about their use of the repeated book reading strategies. In these meetings, the teachers and the researcher also decided on the books to use in the following weeks. Based on the teachers' preference for specific curricular themes, both the researcher and the teachers suggested books that could be used and a decision was ultimately made by consensus. Intervention classrooms were provided with books every few weeks, after the team decided on specific titles to use. Teachers in the control group were provided with the same books on three visits throughout the year and were encouraged to read the books to the children. No further guidance was provided.

Repeated book reading intervention. The intervention was conducted over 28 weeks, from October until mid-May. The teachers were provided with 28 books and lesson plans with suggestion of questions, comments, and focus vocabulary words for each book. The books

included a variety of genres (e.g., fiction, rhyming books, and counting books). Vocabulary words from the books were selected based on their importance for understanding the story and their potential likelihood of being used in conversations within and outside of the classroom (e.g., giant, friendly, lonely, problem, shiver).

Each book was read three times a week. Different aspects of the story were emphasized in each reading. Repeated reading also provided the opportunity for extended comprehension and expansion of children's vocabulary and background knowledge related to the book's content (see Table 3). Adapting McGee and Schickedanz's (2007) framework for repeated book reading, a first reading was structured to introduce the main character(s), the central idea of the book, and new vocabulary. The teacher initially pointed to pictures, and used facial expression, body language, voice modulation, or simple definitions to explain a word's meaning. During the reading, the teacher made comments about the story and modeled inferential thinking. After the story, he/she asked follow-up questions to build comprehension and to model their own extended thinking. In a second reading, the children were prompted to recall the character(s) and the problem of the story and the teacher continued to ask more questions to extend children's understanding of the characters' feelings, thoughts, and motivations using increasingly abstract talk. Finally, the third reading of a book was an opportunity for children to reconstruct the story as the teacher read selected sections of the text. The teacher asked questions to prompt the children to make connections between the story and their personal lives and experiences. Vocabulary continued to be emphasized throughout the second and the third reading as teachers provided definitions and encouraged children to use new words in their responses to questions and discussions about the story.

What is unique about this repeated reading approach is that it teaches vocabulary systematically and promotes inference making by building on children's increasing understanding of the concepts and ideas introduced within the book. Given the new conceptual knowledge, vocabulary, and diversity of genres a book may present, multiple exposures to the same book maximize children's opportunities to learn as they meaningfully engage with the text. Concepts related to Universal Design for Learning are also important in the intervention in that early literacy activities are planned to provide multiple means of representation, expression, and engagement (Conn-Powers et al., 2006; Horn & Banerjee, 2009). With repeated reading, additional learning opportunities are created to address different learning styles and levels of ability, ensuring that children are engaged, motivated, and provided with a variety of formats for demonstrating their learning.

Throughout the study, teachers were observed implementing the repeated book reading strategies on a weekly basis. In the first three to four weeks, classroom visits followed a coaching cycle similar to a clinical supervision model (Krajewski, 1993; Showers & Joyce, 1996) which has been used successfully to coach teachers for emergent literacy instruction (e.g., Hsieh, et al., 2009; McCollum, Hemmeter, & Hsieh, 2011). Each classroom visit included: (a) collaborative planning before teaching-observation; (b) practice and observation; (c) discussion and feedback; and (d) collaborative planning for the next visit. In the collaborative planning sequence, the teacher and the researcher had a brief discussion to reaffirm the focus of the observation and review information from the previous visit. As the teacher read the book, the researcher used a fidelity of implementation measure. Immediate feedback was provided and data collected during the observation was used to guide discussions. Before concluding the visit, the teacher and researcher planned for the next observation and set goals for what the teacher could focus on next.

TABLE 3
Components of Repeated Book Reading

	First Reading	Second Reading	Third Reading
Before Reading	Make the problem explicit by introducing the main character and the main idea. Use the book covers and illustrations as needed. Explain key vocabulary [use multiple means of representation and engagement]	Remind children that they have read the book before and ask questions about the characters and the main problem [use multiple means of engagement and expression]	Invite the children to recall the title and identify the problem and the characters.
During Reading	Provide vocabulary support by pointing to illustrations, using gestures, or facial expressions as relevant, and giving simple definitions. Make analytical comments that reveal the main characters' thoughts and feelings and ask follow-up analytical questions based on these comments. [use multiple means of representation, expression, and engagement]	Provide vocabulary support by giving more verbal definitions. Continue to model analytic comments by asking more frequent questions to help children make additional inferences.	Integrate a guided reconstruction of the story. Read some of the text and have the children reconstruct parts of the story by showing illustrations and asking a few focused questions that elicit children's responses. (e.g., "What is happening here? What will happen next?"). Ask follow-up questions based on children's responses and encourage children to use new vocabulary words. [use multiple means of expression and engagement]
After Reading	Ask "why" questions to extend comprehension and use comments and follow-up questions to prompt answers (e.g., "I'm thinking...").	Ask "why" questions that may extend beyond the story and connect events in the story to children's lives.	Ask "why" questions that may extend beyond the story (e.g., "What would have happened if...?") [use multiple means of expression and engagement]

Note. Adapted from McGee and Schickedanz (2007)

Data Collection. Data sources included child assessments, a fidelity of implementation measure, the ELLCO, and a social validity survey.

Child assessments. Children's language outcomes were assessed pre- and post-intervention using two measures: The Preschool Language Assessment Instrument 2 (PLAI 2;

Blank et al., 2002), and The Peabody Picture Vocabulary Test-Fourth Edition (PPVT-IV; Dunn & Dunn, 2007). The assessments were conducted by the researcher and three doctoral students in special education, all of whom were experienced with child assessments.

PLAI-2 is a nationally standardized assessment tool for children's discourse skills. PLAI-2 measures children's performance on four levels of language abstraction: matching, analyzing, reordering, and reasoning about perception (see Table 1). The assessment reflects children's overall competence with both receptive and expressive language across the four levels of abstraction. PLAI-2 assesses both literal and inferential language and combines them in a language discourse ability score, which can range from 49 (i.e., very poor) to 160 (i.e., very superior). During the assessment, children might be asked for a non-verbal response (e.g., "Show me your shoes" – this item targets receptive language at the first level of abstraction, or "Point to all of the pictures that are not cups" – receptive language at the third level of abstraction) or a verbal response (e.g., "What is this called?" – expressive language at the first level of abstraction, or "Tell me what is happening to the glass in these pictures" – expressive language at the third level of abstraction). PLAI-2 is recommended for use in intervention programs to document language development and measure discourse abilities for research studies, as well as children's language as it relates to classrooms discourse and academic achievement. Coefficient alphas for the subtests and the discourse ability score range from .70 to .94. In the study, test-retest reliability for the Receptive and Expressive subtests and the discourse ability score exceeded .80. Test validity was investigated including content-description, criterion-prediction, and construct-identification validity with results demonstrating PLAI-2 is a valid measure of children's discourse skills. Administering this assessment took approximately 30 minutes for each child.

The PPVT-4 is a widely used, norm-referenced, assessment of child receptive language and is ideal for measuring vocabulary growth in response to instruction. The test asks children to point to one of four pictures that show a given word. Having a wide range of difficulty, the test can be used with children at various levels of language development. Standard scores can range from 20 (i.e., extremely low) to 160 (i.e., extremely high). PPVT-IV has a split half-reliability of .94 to .96 and Cronbach's alpha of .96 to .97 for ages 3 to 5. It took approximately 20 minutes to administer the PPVT-IV to each child.

Fidelity of implementation measure. The researcher completed a fidelity of implementation checklist for each classroom observation. The checklist included observable teacher behaviors that indicated the implementation of instructional strategies for repeated book reading activities. The checklist provided a space for taking notes regarding implementation of strategies for supporting vocabulary and extending children's comprehensions before, during, and after book reading. An estimated level of implementation was determined using a 3 point scale: low implementation, average implementation, and high implementation. Over the course of the study, both teachers obtained an overall fidelity of implementation score slightly above average (i.e., 2.09 and 2.5).

The Early Language and Literacy Classroom Observation. At the beginning of the year, the Early Language and Literacy Classroom Observation tool (Smith et al., 2008) was administered in both control and experimental classrooms to gain an understanding of the language and literacy environment in these settings. Additional visits were conducted in the control classrooms throughout the year to ascertain whether teachers were engaging children in book

reading activities. We noted that teachers displayed the provided books in the classroom and read them to children using their regular routines.

Social validity survey. At the end of the study, the two teachers were asked to complete a questionnaire about their perspectives on the intervention. The questionnaire included eight questions structured as a five-point Likert scale and seven open-ended questions. The questions assessed the teachers' views of the implementation and outcomes of the intervention.

RESULTS

The research question examined whether the repeated book reading intervention had a statistically significant positive effect on the treatment group's language skills as measured by receptive vocabulary and literal and inferential language (i.e., discourse ability) scores. Lenth's (2006) power and sample size computer software was used to determine the sample size that would be sufficient for the intervention to have adequate power. Studies using similar outcome measures with reported means and standard deviations for their control and intervention groups were examined and van Kleeck and colleagues' (2006) reported outcomes for PLAI-2, and Wasik and colleagues' (2006) data for PPVT were used. Calculations indicated that a sample of 28 children in each condition was needed to be able to reject the null hypothesis for both outcome measures with probability of 0.8, Type I error probability of 0.05, and an estimated effect size of 0.5.

Pre- and posttest scores on the PPVT-IV and PLAI were used to examine the effect of the intervention on children's early literacy development by measuring receptive vocabulary development and discourse ability. The means and standard deviations for all children's pretest and posttest scores on the two early literacy measures are presented in Table 4.

Table 4
Means and Standard Deviations for Pretest and Posttest Measures

Measure and group	Pretest		Posttest		Growth		Effect Size
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
PPVT-IV							
Experimental	89.85	20.44	96.44	16.49	6.59	14.21	0.38
Control	94.22	13.85	95.61	13.97	1.39	11.94	
PLAI							
Experimental	88.33	20.02	95.38	21.81	6.46	11.5	0.74
Control	99.61	19.25	94.65	13.35	-4.96	16.93	

Note: PPVT-IV = Peabody Picture Vocabulary Test – IV; PLAI = Preschool Language Assessment Instrument.

Two repeated measures ANOVA were used to determine if there was a statistically significant effect of time on the intervention group. Specifically, we used children's pre- and post-

test scores for discourse ability and receptive vocabulary as within-subject variables and group assignment (i.e., intervention or control) as between-subject variables.

Discourse Ability Skills

Levene's Test of Equality of Variances indicated that variances were similar between the two groups prior to the intervention ($F = .067, p = .797$). Results revealed a statistically significant interaction between time and treatment, $F(2, 46) = 7.776, p = .008$. Children in the intervention classroom experienced significant growth in the discourse ability scores at posttest compared to children in the control group and there was a large effect size ($d = 0.74$). The discourse ability scores of children in the intervention classrooms increased post intervention by 6.46 (SD = 11.5) points on average, while those of children in the control group decreased by 4.96 (SD = 16.93) points on average (See Table 4). It is important to note that the discourse ability score was obtained through a conversion of scaled scores which account for the child's age (Blank et al., 2002). Hence, slightly higher posttest raw scores (1.82 points on average) indicate that the decrease in posttest discourse ability scores for children in the control group is a result of not making sufficient progress throughout the 7 months in which the children in the experimental classroom received the intervention, as opposed to a decline in skills.

Follow-up paired samples t -tests were conducted to further examine the changes experienced by children in each group. The analyses indicated that children in the intervention classrooms registered significant growth in the discourse ability scores from pre- to posttest, $t(25) = 11.106, p = .008$. In contrast, children in the control classrooms did not make significant gains at posttest, $t(22) = -1.403, p = .174$.

Receptive Vocabulary

Levene's Test of Equality of Variances indicated that variances for the two groups were not significantly different prior to the intervention ($F = 1.442, p = .236$). The interaction between time and treatment was not statistically significant, $F(2, 48) = 1.922, p = .172$. Using Cohen's (1977) convention, there was a small to moderate effect size ($d = 0.38$) indicating a difference between these two groups, with the experimental group outperforming the control group by .38 of a standard deviation. By examining the children's means standard scores for receptive vocabulary development it is evident that children in the experimental group increased their scores by 6.59 (SD = 14.21) points on average, while scores for children in the control group remained relatively constant with an increase of 1.39 points on average (SD = 11.94; see Table 4).

Paired samples t -tests were conducted to further examine the change in children's growth rate from pre- to post-intervention in each of the two conditions. Results revealed no statistically significant change between pre- and posttest scores for children in the control classrooms, $t(22) = .559, p = .582$. In contrast, children in the intervention classrooms experienced a statistically significant positive change from pre- to posttest, $t(26) = 2.410, p = .023$. These results provide additional evidence that the repeated book reading intervention had a positive effect on the vocabulary development of children in the experimental classrooms despite the statistically non-significant independent samples t -test.

Overall, results indicated that children in intervention classrooms made significantly larger gains in their discourse ability score at posttest compared to children in the control classrooms. While children in the experimental group experienced growth in their receptive vocabulary scores as well, the difference in growth rate compared to children in the control classroom did not reach statistical significance. Given the observed small to moderate effect size, the non-significant difference may likely be explained by considering the influence of the sample size on the p value.

DISCUSSION

While children's trajectories of language learning vary, preschool classrooms have the vital role of providing all children with support for development of a broad range of early literacy skills. To become good readers, children need to acquire a variety of early literacy skills, including skills related to decoding text and skills that will support reading comprehension. Yet, despite the increased emphasis in early literacy in preschool, classroom studies reveal that teachers tend to emphasize code-related skills in their teaching and focus less on engaging children in rich conversations that enhance vocabulary, conceptual knowledge, and children's use of abstract language (Dickinson & Porche, 2011; Dickinson et al., 2009; Hindman & Wasik, 2008). Since teacher support for extended classroom discourse is essential for later achievement in literacy, continued efforts to enhance the quality of classroom discourse and teachers' interactions with children are essential (Dickinson et al., 2006). This is particularly relevant in classrooms serving children at-risk for reading difficulties, whose home environments may include few opportunities to engage in extended conversations (Hart & Risley, 1995; Heath, 1983).

The purpose of this study was to examine the effectiveness of a repeated book reading intervention and its impact on children's language skills. Children's language skills were assessed by a measure of discourse ability (i.e., PLAI-2), which encompasses both literal and inferential language, and a measure of receptive vocabulary (i.e., PPVT). Two Head Start teachers and the children in their classroom participated in the intervention by reading a book three times each week following the repeated book reading approach, while two teachers and their classrooms constituted a control condition in which books were read without a specific set of instructional strategies. A pretest-posttest quasi-experimental group design was used to investigate the effect of the repeated book reading intervention by assessing the language outcomes of children who participated in repeated book reading compared to those who did not.

In the study, children in the two intervention classrooms registered significantly larger gains in their discourse ability scores at posttest compared to children in the control condition. Further, they experienced greater growth in their receptive vocabulary compared to their scores at the beginning of the year in comparison to children in the control classrooms. Given the observed small to moderate effect size, the non-significant difference in the PPVT scores may likely be explained by considering the influence of the sample size on the p value. Following Cohen's advice (1992) regarding sample size, the power analysis for this study indicated that a sample of 28 children in each group would be needed to reject the null hypothesis for both outcome measures with a probability of 0.8, Type I error probability of 0.05, and an estimated effect size of 0.5. Considering the result of the power analysis, 32 children were initially enrolled in the experimental group and 31 in the control group, to ensure the sample size would be sufficient if a few children from each condition would leave their classrooms. While the initial sample size was deemed adequate, throughout the year, more children than initially anticipated moved, leaving the

experimental group with an enrollment of 27 children and the control group with 23 children. It is possible that with a larger sample size, the analyses would have shown a significant difference in the scores of children in the experimental compared to the control group for both receptive vocabulary and discourse ability scores.

Overall, these findings provide evidence that children can be effectively supported in learning vocabulary and inferential language skills when teachers learn to effectively use repeated book reading in a whole classroom setting. Key components of the intervention included the strategies teachers used to engage children in extended conversations about the story by asking them to recall (i.e., literal language) or make inferences and hypotheses based on the book (e.g., inferential language).

This study contributes to the body of research examining the value of book reading for supporting literal and inferential language development. Several aspects of the study are noteworthy. First, the intervention was implemented by teachers rather than trained researchers (e.g., van Kleeck et al., 2006), and provides a beginning understanding of how teachers can be supported to intentionally target the development of inferential language skills in their classrooms. This is important considering that interventions implemented by classroom teachers may result in more sustainable outcomes and impact on children's development than interventions delivered by trained researchers.

Second, the intervention was implemented in the context of whole classroom book reading, which is a commonly used activity in most preschool classrooms. Third, most studies specifically focused on examining how teachers support inferential language skills have been descriptive in nature (e.g., Tompkins, Zucker, Justice, & Binici, 2012; Zucker et al., 2010). The present intervention study provides evidence that teachers can be supported in their efforts to intentionally embed skill development in preschool classroom activities and presents a model for guiding these efforts. Fourth, to examine children's growth in using literal and inferential language skills, the present research used a measurement tool specifically designed to assess them (i.e., Blank et al., 2002).

Fifth, this intervention provides much needed evidence that book reading can effectively be used as a vehicle to improve language skills in addition to vocabulary development. As revealed by the NELP (2008) report, more research is needed to demonstrate the positive effects of activities such as book reading on a variety of oral language skills, since much research to date has focused on vocabulary outcomes. Lastly, results from this study support findings from the research literature indicating that children's language development is best supported when children are provided with ample opportunities for rich language interactions with adults (Lennox, 2013; McKeown & Beck, 2003; Wasik & Neuman, 2009).

Implications for Research and Practice

The findings of this study have important implications for practice, particularly for supporting language development in preschool classrooms serving children at-risk for reading difficulties. Research indicates that children from low-income families are more likely to experience difficulties with reading by the time they reach fourth grade (National Center for Education Statistics, 2011), including difficulties with comprehension (Administration for Children and Families, 2010). Since preschool age children have the ability to develop skills that support later reading comprehension, such as inferential language skills, preschool classrooms should ensure

that children are provided with opportunities to develop these critical skills. The present study provides evidence that preschool classrooms can successfully provide such opportunities to develop children's language and informs early childhood practices as to how these skills can be supported. Further, this research provides evidence for a model of supported book reading that can be applied in early childhood classrooms to promote preschoolers' language development.

In the present study, whole classroom book reading was used given the limited support within the classrooms for using small groups with only one teacher and one teacher assistant. Teachers reading books in small groups may often struggle to address management concerns while reading. Therefore, the advantages of reading to the whole group are apparent. It is important to consider how teachers can be supported to read books in a variety of instructional structures, including small groups and with individual children. This would be particularly relevant for attending to the individual needs of children with disabilities.

Even as children's trajectories of language learning vary, preschool classrooms have the vital role of providing all children with experiences to support the development of a broad range of early language and literacy skills. Since teacher support for extended classroom discourse is a particularly robust predictor of later achievement in literacy, continued efforts to enhance the quality of classroom discourse and teachers' language interactions with children are essential. Repeated book reading is one important instructional tool towards this end.

Limitations

The intervention was implemented in two preschool classrooms, with a homogeneous sample of participants (i.e., rural and Caucasian), which limits generalization and the conclusions that can be drawn from the findings. Further, a convenience sample of teachers who volunteered to implement the intervention in their classroom was used due to accessibility and in complying with the recommendation of the EPHS administration. Therefore, replication of this study with larger randomized samples is needed before findings from this research can be generalized to other preschool classrooms.

It is important to note, however, that the researchers took measures to ensure that participants in the two conditions were comparable, which is an essential quality indicator in quasi-experimental research (Gersten et al., 2005). This was ensured by considering teacher's professional experience, level of education, the classroom environment each teacher provided for supporting language development, as well as the characteristics of the children in their classrooms (e.g., presence of disability).

The researcher's weekly presence in the experimental classrooms helped support the teachers in their implementation of the intervention and contributed to a more in-depth understanding of how the intervention influenced other aspects of the classroom. Yet, it is likely that being observed regularly and the desire to please the researcher may have influenced the teachers to consistently use repeated book reading in their classrooms and apply the strategies associated with the intervention. An additional limitation is that most fidelity of implementation data was collected by one of the researchers. However, other individuals also observed book reading activities and shared their impressions. Further, the teachers were encouraged to share their thoughts and debrief with the researcher after each observation. We believe that these procedures may have reduced experimenter bias.

Lastly, a common limitation in classroom-based research is for analyses to be conducted at the student level rather than the classroom level. It is argued that Type 1 error is increased when analyses are based on individual student scores given that students are nested in classrooms assigned to a control or experimental condition. Further, when the student is used as the unit of analysis classroom effects are not taken into consideration. In the present study, using the classroom as a unit of analysis would have resulted in a small sample size ($n = 2$ classrooms in each condition), which would have limited the possibility to conduct statistical analyses. Larger scale studies with a higher number of classrooms in each condition that allow the use of statistical analyses at the classroom level are needed to replicate the validity of the findings from this study.

Directions for Further Research

Findings from this study demonstrate that preschool teachers can be supported to use practices that enhance children's vocabulary and discourse ability skills. Two major directions for future studies derive from these results. First, larger scale randomized studies using the repeated book reading intervention are needed to replicate the findings from this research and allow for generalization of findings to other preschool classrooms. Extending coding to include children's language might provide a better understanding of how teachers' literal and inferential language is related to children's responses. Second, research is needed to determine what type of professional development opportunities would be most effective to train teachers to use the repeated book reading framework employed in this study.

An avenue to extend the findings from this study would be to analyze the extratextual talk that takes place before, during, and after reading and in an attempt to understand how it fosters literal and inferential language skills. In a previous study, Zucker and colleagues (2013) found that extratextual talk before, during, and after reading was associated with children's expressive vocabulary, preschool letter knowledge, and receptive vocabulary in kindergarten. In another study, teachers' talk before, during, and after shared reading had differential effects on receptive and expressive vocabulary. Teachers' talk about vocabulary after reading benefited children's expressive vocabulary, while the placement of teacher talk did not impact children's receptive vocabulary. Untangling how talk before, during, and after reading supports literal and inferential language skills would provide an understanding of how activities can be best structured to support language development.

Future research might also investigate how the repeated book reading approach could be used with small groups or with individual children. While this would likely present added benefits, future studies might explore the feasibility of using various instructional groupings within the constraints of the preschool classroom (e.g., only one lead teacher and a teacher assistant). Lastly, while the results from this study are encouraging, particularly considering the growth children in the intervention classrooms experienced in their discourse ability score, it would be important to understand how this experience will influence their future reading ability. As similar studies continue to be implemented to enhance preschoolers' inferential language skills, longitudinal studies should follow-up to investigate the impact on children's later reading achievement, an important goal of preschool language interventions.

REFERENCES

- Administration for Children and Families (2005). *Head Start Impact Study: First year findings*. Washington, DC. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/first_yr_finds.pdf
- Administration for Children and Families (2010). *Head Start Impact Study: Final report*. Washington, DC. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/hs_impact_study_final.pdf
- Berk, L. E., & Winsler, A. (1995). *Scaffolding children's learning: Vygotsky and early childhood education*. National Association for the Education of Young Children: Washington, DC.
- Blank, M., Rose, S. A., & Berlin, L. J. (1978a). *The language of learning: The preschool years*. New York, NY: Grune & Stratton.
- Blank, M., Rose, S. A., & Berlin, L. J. (2002). *Preschool Language Assessment Instrument examiner's manual* (2nd ed.). Austin, TX: PRO-ED, Inc.
- Cabell, S. Q., Justice, L. M., McGinty, A. S., DeCoster, J., & Forston, L. D. (2015). Teacher-child conversations in preschool classrooms: Contributions to children's vocabulary development. *Early Childhood Research Quarterly, 30*, 80-92.
- Cabell, S. Q., Zucker, T. A., DeCoster, J., Melo, C., Forston, L., & Hamre, B. (2019). Prekindergarten Interactive Book Reading Quality and Children's Language and Literacy Development: Classroom Organization as a Moderator. *Early Education and Development, 30*(1), 1-18.
- Chall, J. S., & Jacobs, V. A. (2003). The classic study on poor children's fourth-grade slump. *American educator, 27*(1), 14-15.
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155-159.
- Conn-Powers, M., Cross, A., Traub, E., & Hutter-Pishgahi, L. (2006). The universal design of early education: Moving forward for all children. *Beyond the Journal: Young Children on the Web*, 1-9.
- Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Danis, A., Bernard, J. M., & Leproux, C. (2000). Shared picture-book reading: A sequential analysis of adult-child verbal interactions. *British Journal of Developmental Psychology, 18*(3), 369-388.
- Dickinson, D. K. (2001). Book reading in preschool classrooms: Is recommended practice common? In D. K. Dickinson & P. O. Tabors (Eds.), *Beginning literacy with language: Young children learning at home and in school* (pp. 175-203). Baltimore, MD: Brookes Publishing Company.
- Dickinson, D.K. (2003). Why we must improve teacher-child conversations in preschools and the promise of professional development. In L. Girolametto & E. Weitzman (Eds.), *Enhancing caregiver language facilitation in childcare settings* (pp. 4-1 - 4-8). Toronto, Canada: The Hanen Institute.
- Dickinson, D. K., Darrow, C., Ngo, S. M., & D'Souza, L. A. (2009). Changing classroom conversations: Narrowing the gap between potential and reality. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education: Research to practice* (pp. 328-351). New York, NY: Guilford Press.
- Dickinson, D. K., Freiberg, J. B., & Barnes, E. M. (2011). Why are so few interventions really effective? A call for fine-grained research methodology. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 3, pp. 337-357). New York, NY: The Guilford Press.
- Dickinson, D. K., Golinkoff, R. M., & Hirsh-Pasek, K. (2010). Speaking out for language: Why language is central to reading development. *Educational Researcher, 39*(4), 305-310.
- Dickinson, D. K., McCabe, A., & Essex, M. J. (2006). A window to opportunity we must open to all: The case for preschool with high-quality support for language and literacy. In D. K. Dickinson & S. B. Neuman (Eds.), *Handbook of early literacy research* (Vol. 2, pp. 11-28). New York, NY: The Guilford Press.
- Dickinson, D. K., & Porche, M. V. (2011). Relation between language experiences in preschool classrooms and children's kindergarten and fourth grade language and reading abilities. *Child Development, 82*(3), 870-886.
- Dickinson, D. K., & Smith, M. W. (1994). Long-term effects of preschool teachers' book readings on low-income children's vocabulary and story comprehension. *Reading Research Quarterly, 29*(2), 105-122.
- Dunn, L. M., & Dunn, L. M. (1997). *Peabody Picture Vocabulary Test* (3rd ed.). Circle Pines, MN: AGS.
- Duncan, G. J., Dowesett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., ... Japel, C. (2007). School readiness and later achievement. *Developmental Psychology, 43*(6), 1428-1446.
- Fiester, L. (2010). *Early warning! Why reading by the end of third grade matters*. A KIDS COUNT Special Report. Baltimore, MD: Annie E. Casey Foundation. Retrieved from

- http://www.aecf.org/~media/Pubs/Initiatives/KIDS%20COUNT/123/2010KCSpecReport/AEC_report_color_highres.pdf
- Filiatrault-Veilleux, P., Bouchard, C., Trudeau, N., & Desmarais, C. (2016). Comprehension of inferences in a narrative in 3-to 6-year-old children. *Journal of Speech, Language, and Hearing Research, 59*(5), 1099-1110.
- Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children, 71*(2), 149-164.
- Gonzalez, J. E., Pollard-Durodola, S., Simmons, D. C., Taylor, A. B., Davis, M. J., Fogarty, M., & Simmons, L. (2014). Enhancing preschool children's vocabulary: Effects of teacher talk before, during and after shared reading. *Early Childhood Research Quarterly, 29*(2), 214-226.
- Hall, C. S. (2016). Inference instruction for struggling readers: A synthesis of intervention research. *Educational Psychology Review, 28*(1), 1-22.
- Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday lives of young American children*. Baltimore, MD: Paul H. Brooks Publishing Co.
- Heath, S. B. (1983). *Ways with words: Language, life, and work in communities and classrooms*. Cambridge: Cambridge University Press.
- Hernandez, D. J. (2011). How third-grade reading skills and poverty influence high school graduation. *Annie E. Casey Foundation*.
- Hindman, A. H., Wasik, B. A., & Snell, E. K. (2016). Closing the 30 million word gap: Next steps in designing research to inform practice. *Child Development Perspectives, 10*(2), 134-139.
- Hindman, A. H., & Wasik, B. A. (2008). Head Start teachers' beliefs about language and literacy instruction. *Early Childhood Research Quarterly, 23*(4), 479-492.
- Hindman, A. H., Wasik, B. A., & Erhart, A. C. (2012). Shared book reading and Head Start preschoolers' vocabulary learning: The role of book-related discussion and curricular connections. *Early Education & Development, 23*(4), 451-474.
- Horn, E., & Banerjee, R. (2009). Understanding curriculum modifications and embedded learning opportunities in the context of supporting all children's success. *Language, Speech, and Hearing Services in Schools, 40*(4), 406-415.
- Hsieh, W. Y., Hemmeter, M. L., McCollum, J. A., & Ostrosky, M. M. (2009). Using coaching to increase preschool teachers' use of emergent literacy teaching strategies. *Early Childhood Research Quarterly, 24*(3), 229-247.
- Justice, L. M., Jiang, H., & Strasser, K. (2018). Linguistic environment of preschool classrooms: What dimensions support children's language growth?. *Early Childhood Research Quarterly, 42*, 79-92.
- Krajewski, R. J. (1993). The observation cycle: A methodology for coaching and problem solving. In R. H. Anderson & K. H. Snyder (Eds.), *Clinical supervision, coaching for higher performance* (pp. 99-112). Lancaster, PA: Technomic.
- Lennox, S. (2013). Interactive read-alouds - An avenue for enhancing children's language for thinking and understanding: A review of recent research. *Early Childhood Education Journal, 1*-9.
- Lenth, R. V. (2006-9). Java Applets for Power and Sample Size [Computer software]. Retrieved May 9, 2013, from <http://www.stat.uiowa.edu/~rlenth/Power>.
- Lonigan, C. J., Burgess, S. R., & Anthony, J. A. (2000). Development of emergent literacy and early reading skills in preschool children: Evidence from a latent-variable longitudinal study. *Developmental Psychology, 36*(5), 596-613.
- Magnuson, K., Duncan, G. J., Lee, K. T., & Metzger, M. W. (2016). Early school adjustment and educational attainment. *American educational research journal, 53*(4), 1198-1228.
- McCollum, J. A., Hemmeter, M. L., & Hsieh, W. Y. (2013). Coaching teachers for emergent literacy instruction using performance-based feedback. *Topics in Early Childhood Special Education, 33*(1), 28-37.
- McGee, L. M., & Richgels, D. J. (2003). *Designing early literacy programs: Strategies for at-risk preschool and kindergarten children*. New York, NY: The Guilford Press.
- McGee, L. M., & Schickedanz, J. A. (2007). Repeated interactive read-alouds in preschool and kindergarten. *The Reading Teacher, 60*(8), 742-751.
- McKeown, M. G., & Beck, I. L. (2003). Taking advantage of read-alouds to help children make sense of decontextualized language. In A. van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On reading books to children: Parents and teachers* (pp. 159-176). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

- Merz, E. C., Zucker, T. A., Landry, S. H., Williams, J. M., Assel, M., Taylor, H. B., ... & Eisenberg, N. (2015). Parenting predictors of cognitive skills and emotion knowledge in socioeconomically disadvantaged preschoolers. *Journal of Experimental Child Psychology*, 132, 14-31.
- Mol, S. E., Bus, A. G., de Jong, M. T., & Smeets, D. J. (2008). Added value of dialogic parent-child book readings: A meta-analysis. *Early Education and Development*, 19(1), 7-26.
- Montag, J. L., Jones, M. N., & Smith, L. B. (2015). The words children hear: Picture books and the statistics for language learning. *Psychological Science*, 26(9), 1489-1496.
- Morrow, L. M. (1988). Young children's responses to one-to-one story readings in school settings. *Reading Research Quarterly*, 23(1), 89-107.
- Nation, K. (2005). Connections between language and reading in children with poor reading comprehension. In H. W. Catts & A. G. Kamhi (Eds.), *The connections between language and reading disabilities*, (pp. 41-54). Mahwah, NJ: Lawrence Erlbaum Associates, Inc., Publishers.
- National Center for Education Statistics (2017). *National assessment of educational progress: Reading assessment*. Institute of Education Sciences, U.S. Department of Education. Washington, D.C.
- National Early Literacy Panel (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: National Institute for Literacy.
- Neuman, S. B. (2010). Lessons from my mother: Reflections on the National Early Literacy Panel report. *Educational Researcher*, 39(4), 301-304.
- Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. H., Thompson, B., & Harris, K. R. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional Children*, 71(2), 137-148.
- Paris, S. (2005). Reinterpreting the development of reading skills. *Reading Research Quarterly*, 40(2), 184-202.
- Piasta, S. B. (2016). Current understandings of what works to support the development of emergent literacy in early childhood classrooms. *Child development perspectives*, 10(4), 234-239.
- Reese, E. (2013). *Tell me a story: Sharing stories to enrich your child's world*. New York, NY: Oxford University Press.
- Riordan, J., Reese, E., Rouse, S., & Schaughency, E. (2018). Promoting code-focused talk: The rhyme and reason for why book style matters. *Early Childhood Research Quarterly*, 45, 69-80.
- Sembiante, S. F., Dynia, J. M., Kaderavek, J. N., & Justice, L. M. (2018). Teachers' literal and inferential talk in early childhood and special education classrooms. *Early Education and Development*, 29(1), 14-30.
- Sénéchal, M., & Young, L. (2008). The effect of family literacy interventions on children's acquisition of reading from kindergarten to grade 3: A meta-analytic review. *Review of Educational Research*, 78(4), 880-907.
- Showers, B., & Joyce, B. (1996). The evolution of peer coaching. *Educational Leadership*, 53(6), 12-17.
- Smith, M. W., Brady, J. P., & Anastasopoulos, L. (2008). *User's guide to the Early Language and Literacy Classroom Observation Tool: Pre-K*. Baltimore, MD: Paul H. Brookes Publishing Company.
- Snow, C. E. (1991). The theoretical basis for relationships between language and literacy in development. *Journal of Research in Childhood Education*, 6(1), 5-10
- Snow, C. E., & Matthews, T. J. (2016). Reading and language in the early grades. *The Future of Children*, 26(2), 57-74.
- Snyder, T.D., de Brey, C., and Dillow, S.A. (2019). *Digest of Education Statistics 2017* (NCES 2018-070). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
- Teale, W. H. (2003). Reading aloud to young children as a classroom instructional activity: Insights from research and practice. In A. van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On reading books to children: Parents and teachers* (pp. 114-139). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Tompkins, V., Bengochea, A., Nicol, S., & Justice, L. M. (2017). Maternal inferential input and children's language skills. *Reading Research Quarterly*, 52(4), 397-416.
- Tompkins, V., Guo, Y., & Justice, L. M. (2013). Inference generation, story comprehension, and language skills in the preschool years. *Reading and Writing*, 26(3), 403-429.
- Tompkins, V., Zucker, T. A., Justice, L. M., & Binici, S. (2012). Inferential talk during teacher-child interactions in small-group play. *Early Childhood Research Quarterly*.
- Trivette, C. M., Simkus, A., Dunst, C. J., & Hamby, D. W. (2012). Repeated book reading and preschoolers' early literacy development. *CELL Reviews*, 5(5).
- van Kleeck, A. (2008). Providing preschool foundations for later reading comprehension: The importance of and ideas for targeting inferencing in storybook-sharing interventions. *Psychology in the Schools*, 45(7), 627-643.

- van Kleeck, A., Gillam, R. B., Hamilton, L., & McGrath, C. (1997). The relationship between middle-class parents' book-sharing discussion and their preschoolers' abstract language development. *Journal of Speech, Language and Hearing Research, 40*(6), 1261-1271.
- van Kleeck, A., Woude, V. J., & Hammett, L. (2006). Fostering literal and inferential language skills in Head Start preschoolers with language impairment using scripted book-sharing discussions. *American Journal of Speech-Language Pathology, 15*(1), 85.
- Wasik, B. A., Bond, M. A., & Hindman, A. (2006). The effects of a language and literacy intervention on Head Start children and teachers. *Journal of Educational Psychology, 98*(1), 63.
- Wasik, B. A., Hindman, A. H., & Snell, E. K. (2016). Book reading and vocabulary development: A systematic review. *Early Childhood Research Quarterly, 37*, 39-57.
- Wasik, B. H., & Newman, B. A. (2009). Teaching and learning to read. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education: Research to practice* (pp. 303-327). New York, NY: The Guilford Press.
- Whitehurst, G. J. and Lonigan, C. J. (1998). *Child development and emergent literacy. Child Development, 69*(3), 848-872.
- Whitehurst, G. J., & Massetti, G. M. (2004). How well does Head Start prepare children to learn to read? In E. Zigler & S. J. Styfco (Eds.), *The Head Start debates* (pp. 251-262). Baltimore, MD: Brookes Publishing Company.
- Zucker, T. A., Justice, L. M., Piasta, S. B., & Kaderavek, J. N. (2010). Preschool teachers' literal and inferential questions and children's responses during whole-class shared reading. *Early Childhood Research Quarterly, 25*(1), 65-83.
- Zucker, T. A., Cabell, S. Q., Justice, L. M., Pentimonti, J. M., & Kaderavek, J. N. (2013). The role of frequent, interactive prekindergarten shared reading in the longitudinal development of language and literacy skills. *Developmental Psychology, 49*(8), 1425-1439.