A Comparison of Vocabulary Learning From Joint Reading of Narrative and Informational Books With Dual Language Learner Children

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By
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A dissertation submitted to the Graduate Faculty in Educational Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

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Abstract

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By

Deborah Bergman Deitcher

Advisor: Professor Helen L. Johnson

This study examined joint reading of narrative and informational texts in the home setting, between parents and their English-Hebrew dual language learning preschool children. Parent-child dyads were video-recorded while reading two sets of books; each set contained one narrative and one informational text on the same theme. Children’s target word learning of 48 target words (12 words per book) of varying difficulty levels was measured from pretest to posttest. Results showed that children learned target words at both the receptive and expressive levels, with scores nearly tripling from pretest to posttest at the expressive level. Child’s age, prior vocabulary knowledge, and target word difficulty level were significantly predictive of children’s receptive word learning. Age, number of years the child was in Israel, prior vocabulary knowledge, and target word difficulty level were significantly predictive of children’s expressive word learning. Contrary to expectation, book genre was not significantly predictive of word learning. However, parent book reading style differed by genre, with more overall talk, and nearly twice the number of the following elements occurring during readings of informational texts: references to vocabulary words, questions, text-to-text and text-to-reader references, restatements, and elaborations. Educational implications are discussed.
In Memoriam

A little over a year ago, my father-in-law, Yosie Deitcher, passed away eight weeks after being diagnosed with lung cancer. It was a terrible loss for my husband, his entire family, but also for me. Whenever my father-in-law saw me or spoke to me, he always asked how I was doing on my dissertation. He knew what was involved in a project of this type and was always happy to hear when I was making progress. I know he would have been happier than anyone to see the successful conclusion of this endeavor.

We miss you Dad.
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No project of this duration could be completed alone. There are many people without whose help I never would have been able to reach this day. I would like to thank Hashem for giving me the determination and patience to see this to the end. Major thanks go to my entire committee, but especially to Helen, Jay, and Dorit. Thank you for all your support, emails, phone calls, and encouragement at every point. You are all amazing mentors and advisors. To Ema, Abba, and Jed, thank you for your support. To my best friend Roneet, who listened to me every day of the past 8+ years – you are amazing! My children have definitely missed out by my being so preoccupied with this dissertation for the last few years. Special thanks to Naftali, Ezra, Hadassah, and Elisheva. You are amazing and I’m so happy you can be there with me at the end of this journey!

To my loving husband, Avi: Your unwavering support has been my constant through this frequently difficult process. You believed in me even when I didn’t believe in myself. I can honestly say that I would not be here without you. Thank you for helping me turn my dreams into reality!
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Chapter 1 - Introduction

A recent search on Google for “reading to children” yielded over two million results, including tips on reading to children, reading games to play with children, and videos of reading to children, among others. Reading to children is clearly a very common topic, most likely because it is taken for granted that reading to children will have positive benefits. Despite this assumption, much research has been conducted in the past few decades to verify if this is indeed the case. Overall, the research supports the conclusion that reading to young children can lead to positive outcomes such as improved language skills, familiarity with print, and increased motivation to read (e.g. Hargrave & Senechal, 2000; Korat, Shamir, & Heibal, 2013; Scarborough & Dobrich, 1994). A portion of this research has focused on storybook reading and its use in both the classroom and the home, particularly as an intervention to facilitate vocabulary learning. The current study extends this research and takes it in a new direction by exploring two aspects that have been sidelined to a large extent - how text genre influences vocabulary learning from book reading, and features of shared book reading within a population of dual language learners. Specifically, this study examines how parents read narrative and informational texts to their native English-speaking kindergarten children who are immersed in a Hebrew language environment, and explores the impact of the book genre on vocabulary learning by including multiple narrative and informational books.

This chapter is divided into four subsections. The first section briefly reviews the research on shared book reading, demonstrating the importance of book reading to young children. The second section summarizes the growing recognition of the importance of informational texts to school success and highlights the need for greater understanding of
how the reading of particular genres interacts with language and literacy outcomes. The third section discusses dual language learners (DLLs) and examines how this population may differ from monolinguals regarding vocabulary learning and joint book reading. The last section summarizes the current study.

**Importance of Book Reading to Young Children**

It has long been observed that children who read more have better vocabularies, better reading comprehension skills, and better overall school achievement than those children who read less. Research supports these observations (e.g. U.S. Dept. of Education, 1999). For example, studies show that children who grow up in homes that have a strong literacy environment tend to have higher scores on multiple language measures along with higher vocabulary scores (Hammer, Farkas, & Maczuga, 2010; Senechal, LeFevre, Hudson, & Lawson, 1996). Other studies have shown that children who are read to more frequently have better oral language skills, emergent literacy skills, and later literacy achievement (Hargrave & Senechal, 2000; Scarborough & Dobrich, 1994).

While past research showed the positive impact of book reading, it also revealed large gaps existing between children who have greater exposure to books and those who do not (Hart & Risley, 1995; Stanovich, 1986). These gaps tend to follow socio-economic lines, where children who come from poorer families tend to have less exposure to books both in and out of the home, and similarly poorer early language environments. This leads to poorer language skills, emergent literacy skills, and achievement (Hart & Risley, 1995; Stanovich, 1986). Thus, when children begin kindergarten and first grade, there are already significant differences between those who have had a richer home literacy
environment and those who have not (Stanovich, 1986; Weigel, Martin, & Bennett, 2006). In an attempt to bridge these gaps, joint book reading became a focus of research, in the hopes that this simple intervention would have a significant impact on improving children’s language and literacy outcomes. It was hoped that reading books to younger children would foster vocabulary growth and improve language skills, thereby leading to improved reading, reading comprehension, and other literacy skills once the children entered school.

Numerous intervention studies have demonstrated that, as was desired, reading books with children who cannot yet read independently has a positive impact on language and literacy skills. These studies have been conducted in both school and home settings (e.g. Aram, 2006; Moschovaki, Meadows, & Pellegrini, 2007; Ninio, 1983). They have explored whether children can learn new words from listening to stories, how teachers’ and parents’ reading styles impact learning, and what types of situations optimize learning from shared book reading (e.g. Dickinson & Smith, 1994; Elley, 1989; Robbins & Ehri, 1994). Supporting this research further are meta-analyses that have shown that shared book reading in the home has a moderate effect on young children’s developing language skills, including receptive language, expressive language, and vocabulary, as well as on emergent literacy skills and reading comprehension (Bus, van Izjendoorn, & Pellegrini, 1995; National Early Literacy Panel, 2008).

Results from this vast body of research demonstrate the importance of reading books with young children. This simple act can help children improve their language skills - particularly their vocabulary skills, their emergent literacy skills, and their overall school achievement in later years. As the National Early Literacy Panel (2008) concludes,
“shared-reading interventions provide early childhood educators and parents with a useful method for successfully stimulating the development of young children’s oral language skills” (p. 163). Helping children avoid the “gap” prior to entry into elementary school is a key factor in closing the existing achievement gaps, and helping students gain lifelong skills to enable further success (U.S. Dept. of Education, 1999).

**Non-Fiction and School Success**

When parents and preschool teachers read to their children, they nearly always read fiction books, particularly, narrative texts (Yopp & Yopp, 2006). Children are exposed to this genre from a very early age and learn its style, including characters, setting, and plot. However, the majority of texts that children will be exposed to over their many years in school are not these kinds of narrative texts. Quite the opposite; school texts tend to be informational texts, and children often are unfamiliar with these texts (Chall, 1983; Yopp, 2007). According to a seminal study by Duke (2000), first grade children interact with informational texts in whole-class settings for just 3.6 minutes per day. This lack of exposure leads to greater difficulty for children in comprehending these texts, increased frustration, and often a drop in school achievement, especially as they progress beyond the earliest grades (Duke & Kays, 1998; Marinak & Gambrell, 2008). Chall (1983; Chall & Jacobs, 2003) referred to this phenomenon as the “fourth grade slump,” because it is around this time that texts become “more varied, complex, and challenging linguistically and cognitively” (“Developmental Model of Reading,” para. 2). To contend with this, children’s reading fluency needs to increase, their vocabularies need to expand, and their critical thinking skills need to improve and gain breadth and depth (Chall & Jacobs). Children who may have been successful readers
previously, suddenly show a dip, a “slump” in scores, particularly in vocabulary and reading (Chall & Jacobs). The types of texts that Chall describes as becoming more common in the fourth grade tend to be more abstract, with more difficult and technical language. These features are typical of informational texts. If children were exposed to these texts from earlier on, it is possible that they would have an easier time as they progress through the grades, eliminating this slump.

More recently, with the increase in standardized tests and the presence of these tests at ever-earlier ages, informational texts have gained greater emphasis, particularly in the earlier grades. Research has shown that there is a large gap between the types of texts to which children are exposed in basal readers and the types of texts that they encounter on standardized tests (Flood & Lapp, as cited by Duke, Bennet-Armistead, & Roberts, 2003). In order for children to be prepared for this type of testing, they must be exposed even earlier to the types of texts that might appear on these tests. This is evident in the Common Core Standards, which have been accepted in 45 out of 50 states. One of the standards for Language Arts in the first grade reads: “With prompting and support, read informational texts appropriately complex for grade 1.” (National Governors Association Center for Best Practices [NGA Center] & Council of Chief State School Officers [CCSSO], 2010).

Beyond standardized testing and overall school achievement, there are numerous other reasons to be concerned with the lack of expository texts in the early years. One reason is the need to present content to younger children in various formats. A second reason is that in order to keep children interested in reading, the books need to be
interesting, and young children enjoy non-fiction texts (Duke & Kays, 1998; Pappas, 1993).

To date, there has been very little research conducted on informational texts in joint book sharing scenarios, despite the positive impact these interventions have been shown to have on language outcomes. Of the limited research that has been conducted, it appears that young children are able to interact with informational books, are interested in them, learn from them, and enjoy them (Duke & Kays, 1998; Pappas, 1993). While informational books have been included in a limited number of joint book reading studies (e.g. Pellegrini, Perlmutter, Galda, & Brody, 1990; Torr & Clugston, 1999), to the author’s knowledge, no study has compared the learning of vocabulary words between narrative and informational books. The proposed study sets out to do this in the home setting, examining multiple pairs of narrative and informational texts and measuring children’s learning of target words. Given the importance of informational texts in later school success, understanding how and what children can learn from these texts is a critical first step. Examining this phenomenon in a setting that has already been shown to be positive for children’s language development can facilitate this understanding.

**Dual Language Learners**

Although there has recently been more research on shared book reading in non-English languages, most of the research on shared book reading has been conducted with monolingual, English-speaking children. However, there are numerous other types of populations of young language speakers about whom less is known with regard to shared book reading. One such population is that of dual language learners. In a recent review, Genesee (2010) defined dual language learners as those who, are acquiring “two or more
languages during the preschool years – prior to age 5” (p.5). Genesee further distinguishes between those who are learning two languages simultaneously, as when two parents each speak a different language to a child, and those who learn the languages in succession, as when, “children are exposed to and speak only one language at home during the first one or two years of life and then attend daycare or preschool programs in which another language is used” (p.1). The population in the current study falls into this latter category. The participating children speak English as their first language and in the home, and are then moved into the Israeli preschool system, where they are exposed to Hebrew.

There is some debate as to the nomenclature of this population. While Genesee (2010) terms them dual language learners, others term them second language learners, and yet others consider them some form of bilinguals (Tabors & Snow, 2001). For the purposes of this research, this population will be referred to as dual language learners (DLLs), following the United States Office of Head Start’s indication that this term “encompasses other terms frequently used such as Limited English Proficient (LEP), bilingual, English language learners (ELL), English learners, and children who speak a language other than English (LOTE)” (US Dept. of Health & Human Services, 2008).

Whatever name one assigns to children who learn two languages successively, research has shown that language development usually progresses along the same lines in the second language (L2) as in the first language (L1) (Bialystok, 2001; Tabors & Snow, 2001). In their discussion on bilingual children [whom Tabors and Snow define in this particular review as those who have been exposed to two languages regardless of the level of proficiency in those languages] in the preschool years, Tabors and Snow (2001)
note the following regarding vocabulary development in this population:

1) variation in the amount of time devoted to each of a child’s languages will be reflected in sophistication of knowledge of that language; 2) it is almost inevitable that a bilingual child for whom no planning of the language environment has occurred will be exposed to less input in a given language than a monolingual child, and thus will have a smaller vocabulary in each language during the preschool years (emphasis added); 3) because vocabulary is an excellent predictor of reading skill, this limitation on a bilingual child’s vocabulary skills, along with all the other linguistic skills the child will need, may well have implications for literacy outcomes once the child enters elementary school (p. 170-171).

Based on this view, it would seem as if DLLs already have potential deficits in the area of vocabulary. The addition of shared book reading thus has the potential for significant gains during the early years for DLLs.

A different view suggests the need to take into account children’s total conceptual vocabulary across both languages (De Houwer, Bornstein, & Putnick, 2013; Snow & Kim, 2007). Based on this reasoning, DLLs may know as many referents as monolinguals, however their vocabulary is “distributed” across the languages (Oller, Pearson, & Cobo-Lewis, 2007). That is, some words may only be known in one language with other words known in a second language. Although some research has shown that bilingual children are able to catch up to their monolingual peers by the fifth grade in terms of vocabulary, eliminating previous disparities, at least in the earlier years, evidence suggests that, “average vocabulary size tends not to match monolingual norms in either language” (Snow & Kim, 2007, p. 134). In this viewpoint as well, shared book reading may lend itself to DLLs vocabulary growth.

Recent work by Hammer and colleagues indicates that aside from the amount of time devoted to each language, other factors can influence DLLs vocabulary levels, including exposure to the language, usage of the language, and parental characteristics.
(Hammer et al., 2012). In their study of Spanish-English bilinguals, Hammer et al. demonstrated that children had higher levels of English (L2) vocabulary if they were in the US longer, spoke to their fathers and teachers in English, and had parents who were in the US longer and were more highly educated (Hammer, et al., 2012). Many of these characteristics were taken into account and evaluated in the current study, including language use in the home and length of time residing in Israel.

Other research has shown that DLL children benefit from the same elements of literacy instruction needed by monolingual English speakers, but they have a particular need for increased oral fluency, especially for increased vocabulary knowledge (August & Shanahan, 2006; Goldenberg, 2008). As noted in an article geared towards teachers,

Students who are ELLs will require effective and ongoing instruction in vocabulary and comprehension to improve their oral language skills and to increase the likelihood that they will read with meaning and learn from text . . . One of the most available and valuable times is during storybook reading (Hickman, Pollard-Durodola, & Vaughn, 2004, p. 730).

While this is a sound recommendation, this intervention should be methodically explored. The few studies that have been conducted on book reading with DLLs seem to show that DLLs can learn new vocabulary from listening to books, that rich explanation of words seems to facilitate greater learning, and that reading in L1 can facilitate learning of new vocabulary in L2 (Collins, 2010; Roberts, 2008).

As mentioned above, the participants in the current study are part of the dual language learning population. For these children, English is their first language and the language spoken in the home. At the same time, they are immersed in the Hebrew language in school from preschool onwards, as well as in their surroundings – peers, TV, books in school, etc. Despite this, many of the participants may not have reached
proficiency in Hebrew. Furthermore, in the Israeli school system, English is not introduced until the second or third grade of elementary school. Thus, when they reach the early elementary grades, many of these children are learning to read and write both languages at the same time. Examining book reading in this unique population of dual language learners can broaden the knowledge that we have about the impact of shared book reading on vocabulary learning. We can also gain greater insight into the nature of word learning among DLLs.

**Current Study**

The current study included a quantitative and qualitative examination of joint book reading between parents and their dual language learner children in the home setting. Parent-child dyads were video-recorded while engaging in joint book reading of both narrative and informational texts. Selected pairs of texts on the same topic were read and children’s target word learning were measured. Additionally, qualitative evaluation of parents’ reading was conducted to explore similarities and differences in parental reading of different genres. Of particular interest were elements such as the use of word explanations, reference to illustrations, and level of cognitive demand of questions. The following research questions guided this study:

1. Do children learn more vocabulary words from narrative or informational texts?
2. Are there differences between receptive and expressive levels of word learning between narrative and informational texts?
3. Are words learned more readily from certain books compared to other books?
4. Do parents have a different reading style when reading different book genres, including: the questions asked during reading, the references to illustrations, and the explanations of words?
Chapter 2 – Literature Review

Historical Overview- How Book Reading Became a Focus of Research

One of the most common exhortations parents and teachers hear nowadays is how important it is to read to their young children. How did this become common knowledge? Why is it accepted that reading to young children will have positive outcomes? The past few decades of research have yielded a significant amount of insight into this topic, particularly into the outcomes associated with book reading. Reading books to young children became a major focus due to research demonstrating the positive effects that were associated with it, including improved vocabulary learning by those children who are exposed to more books, greater growth in reading comprehension, and improved school performance (Lonigan, 1994; Scarborough & Dobrich, 1994).

Scarborough and Dobrich (1994) conducted a comprehensive review of studies from the 1960’s through the early 1990’s that examined book reading’s association with children’s emergent literacy skills (e.g., letter recognition, letter-sound associations, recognition of some printed words), oral language outcomes (e.g., phonological, morphology, syntactic abilities), and literacy achievement in later years. This review focuses on both the frequency of parental reading as well as the efficacy of parental reading. The authors report many correlational studies that demonstrate positive effects of book reading on children’s language and literacy outcomes. In addition, intervention studies that encourage increased book reading by parents or more effective book reading also reveal positive effects. However, the authors note that many of the studies suffer from design and methodology problems. Additionally, it is difficult to interpret the correlational studies; while these studies do demonstrate effects, it is difficult to
understand the direction of the effects. It may be that increased book reading has a positive impact on children’s language and literacy development, but it also could be that factors in certain children (such as ability) encourage greater reading, or both possibilities may be true.

Scarborough and Dobrich (1994) maintain that the association between reading to preschool children and the development of language and literacy skills has been demonstrated in a large number of different types of studies; at the same time, it is “probably not as strong and consistent as is generally supposed” (p. 285). In response, Lonigan (1994) argues that, “there appear to be several reasons to be more optimistic than Scarborough and Dobrich are concerning the potential causal role of shared reading in the development of children’s literacy skills” (p.304). Lonigan notes that the studies reviewed by Scarborough and Dobrich span a large variety of methods and populations, including both poorly designed studies and better designed studies. Thus to try and draw conclusions that weight all studies equally may well underestimate the true effect of exposure to print on children’s language and literacy development. Whether taking Lonigan’s viewpoint, or Scarborough and Dobrich’s more cautious conclusions, it is clear that there exists a positive association between book reading to young children and improved language and literacy skills.

Both Scarborough and Dobrich’s (1994) review and Lonigan’s (1994) response highlight that there is great variability in young children’s exposure to print. Other researchers have more deeply examined these differences and their impact on later reading skills and academic achievement (Hart & Risley, 1995; Stanovich, 1986). In an
eloquent depiction of the differences that exist between children and the resulting impact, Stanovich explains:

The effect of reading volume on vocabulary growth, combined with the large skill differences in reading volume, could mean that a “rich-get-richer” or cumulative advantage phenomenon is almost inextricably embedded within the developmental course of reading progress. The very children who are reading well and who have good vocabularies will read more, learn more word meanings, and hence read even better. Children with inadequate vocabularies – who read slowly and without enjoyment – read less, and as a result have slower development of vocabulary knowledge, which inhibits further growth in reading ability (p.381).

Stanovich aptly describes this rich get richer, poor get poorer phenomenon as a direct result of exposure to print. This phenomenon has been termed the Matthew effect and describes the vast differences that can exist between children as far as their exposure to print and subsequent reading ability and school achievement (Stanovich, 1986).

In groundbreaking work that more deeply explored differences in children’s early language environments, Hart and Risley (1995) recorded the spoken language between parents and children in the homes of professional, working class, and impoverished families. Results showed that professional parents speak to their children more often, using more words and more different words overall, and use richer, more varied language than the other parents. Children in impoverished homes, “received in each hour of their lives less than half the language experience of the working-class children,”(p.125) and even less than that compared to children of professionals. Results also reveal very strong correlations between children’s experiences and their vocabulary growth and vocabulary use. Thus, children whose parents were professionals and spoke the most and with the richest variety of language, demonstrated much greater vocabulary growth and vocabulary use by the age of three compared to those children living in poverty. Hart and
Risley also found that children’s accomplishments at age three predict measures of language skill at ages 9-10. Furthermore, they found that the parental actions they measured when the children were 1-2 years old were even better predictors of children’s vocabulary use scores at 9-10-years old than were children’s accomplishments at age three. These results demonstrate a very strong connection between the early language environment and later vocabulary use.

The above research highlights the “meaningful differences” (Hart & Risley, 1995) in children’s early language and literacy experiences, and how these early experiences can impact on later language and literacy development, which subsequently impacts on school achievement. Additionally, it reveals the strong impact book reading can have on language and literacy outcomes (Lonigan, 1994; Scarborough & Dobrich, 1994). Reading books to young children has gained consideration as a possible intervention to reduce some of these differences between children because it has been linked with various language and literacy measures – precisely those elements that may help bridge the gap between children and lead to greater school success later on. If children could have greater exposure to books from a younger age, then perhaps they could learn more words from a younger age, which would facilitate later reading development, reading comprehension, and overall school achievement (which is strongly correlated to vocabulary and reading comprehension). Consequently, much research has been devoted to exploring the feasibility of this approach.

The literature on joint book reading reviewed below has been broken down into two sections: earlier research, consisting of studies primarily from the 1980’s through the mid-1990’s and later research, consisting of studies primarily from the mid-1990’s
through 2010. This division highlights the different foci of the research. Whereas the earlier research focused on understanding whether book reading had the desired impact, the later research largely took for granted that book reading could be used to improve language and literacy outcomes, and instead focused on a finer understanding of who benefits the most from these interventions and how best to implement them.

**Effects of Book Reading on Language and Literacy Skills – Earlier Research (1980’s–Mid-1990’s)**

**Learning Words From Context**

A primary factor in determining if book reading could be used as an intervention was to assess if children could actually learn words from the context of a storybook. Research shows that children in school acquire thousands of words annually, only some of which can be attributed to direct instruction of words and their meanings (Nagy, Anderson, & Herman, 1987). The assumption, then, is that the remainder must be acquired from context, particularly through reading. An experiment conducted by Nagy et al. (1987) explored this assumption by examining incidental learning of word meanings from context during normal reading. In this study, 3rd, 5th, and 7th graders of varying abilities, read narrative and expository passages on their own and were subsequently tested on word meanings of target words from the texts. The results of the study demonstrate that indeed, incidental learning of word meanings can occur during normal reading (Nagy et al., 1987). The authors note that while the “absolute amount of learning from context” was small, with just a 5% chance of learning a word (p.261), over the course of a year with average amounts of reading, this can still amount to the accumulation of 800-1200 words (p.262). Clearly children can significantly increase their vocabulary levels through incidental exposure to words.
Having established that school children could learn words incidentally from context, it was next important to determine if children could learn from storybooks that were being read to them before they were able to read independently. Much of the earlier body of research is devoted to this larger question. This research used varying methodologies, took place both in school settings as well as in the home, and worked with children of varying ages. On the whole, the research seems to indicate that reading to younger children can influence their language and literacy skills, particularly vocabulary learning, yet this is not a simple, nor a guaranteed outcome (e.g. Bus, van Ijzendoorn, & Pellegrini, 1995; Dickinson & Smith, 1994; Elley, 1989; Robbins & Ehri, 1994; Senechal & Cornell, 1993; Whitehurst et al., 1988).

**Learning Words From Storybooks – Incidental Exposure vs. Interaction**

One of the predominant questions in the earlier research was whether pre-readers could learn new vocabulary through incidental exposure to storybooks, or whether some kind of interaction with the child was needed to facilitate learning. Two experimental studies showed that children can indeed learn through incidental exposure. Elley (1989) examined vocabulary acquisition from listening to stories in two different experiments. In the first experiment, 7-year-olds heard a story three times during the course of one week. Target words were pretested and posttested. In the second experiment, 8-year old children heard two different storybooks, each read three times. However, in this experiment, the children heard one of the books without any explanations of words, while the other book included teacher explanations of target words. In addition, a smaller control group was added.
Results from both experiments showed that the students made vocabulary gains of approximately 15% just by listening to the stories (p.182), i.e., by incidental exposure. Further, a delayed posttest at three months (experiment 2) showed that the vocabulary learning was fairly permanent (Elley, 1989). A similar study conducted with kindergarteners by Robbins and Ehri (1994) also demonstrated that story listening contributes to young children’s vocabulary growth. Gains made by the children in this experiment, who could not yet read independently, were more modest than in the studies by Elley (1989), but significant growth still took place.

The above two studies were conducted with young school children, with the stories being read either by a teacher or a researcher. In a seminal study by Whitehurst and colleagues (1988), parents read to their 2- and 3-year old children, asking more open-ended questions while they read, and encouraging children to answer verbally rather than by pointing. The authors called this style of interactive reading “dialogic reading.” Results showed that children in the experimental group scored significantly higher than control group children on standardized posttests of expressive language ability. Experimental group children also had significantly higher mean length utterances in their answers compared to control group children (Whitehurst et al., 1988). This study has been expanded upon and replicated with various populations and in multiple countries, with similar results (e.g. Whitehurst et al., 1994; Whitehurst, et al., 1999). These studies on dialogic reading support the claim that even young children can learn from listening to stories and reveal the positive influence of book reading on children’s language development. Furthermore, they demonstrate that involving children in more analytic talk
about a book by parents asking more open-ended questions, can further improve children’s language development over and above incidental exposure.

While Whitehurst et al. (1988) worked with very young children, Senechal and Cornell (1993) worked with somewhat older children. They included 4- and 5-year old children in their study and examined whether the children were able to learn new vocabulary words by listening to a single reading of a story. Immediate posttests were conducted, along with a one-week delayed posttest. Results showed that children of both ages were able to learn new words from the story context; however, 5-year-old children gained more words than 4-year-old children. Furthermore, children remembered many of the words at the one-week delayed posttest. Surprisingly, and in contrast to Whitehurst et al.’s (1988) results, Senechal and Cornell (1993) did not find that active participation in the book reading session led to greater word learning. Their results showed that reading the book verbatim was just as effective as reading the book combined with asking questions or recasting new vocabulary words.

The authors provide several possible explanations for why the addition of interactions did not boost vocabulary learning (Senechal & Cornell, 1993). One explanation is that if the context is sufficient to promote vocabulary learning, it may be that interactions do not add to this learning. A second explanation is that one reading of the book may not be enough to yield differences in vocabulary learning due to practice. A third possible explanation is that receptive vocabulary, which was measured by Senechal and Cornell, may not be as sensitive to differences in reading styles as the expressive language measured by Whitehurst et al. (1988). Fourth, it could be that there are differential effects depending on whether the parent or child initiates the interaction;
perhaps greater learning occurs when the child initiates. In Whitehurst et al.’s (1988) study, the aim of dialogic reading was to encourage the participation and initiation by children. Lastly, it may be that active participation may not directly influence vocabulary learning, but may lead to greater motivation to read in the child.

Although Senechal and Cornell’s (1993) study did not show an added advantage to interactions during reading, two later studies by Senechal (1997) and colleagues (1995) shed further light on the effects of interactive behaviors on language skill development, and demonstrate certain differences in the acquisition of vocabulary during storybook reading as well. Senechal, Thomas, and Monker (1995) conducted two experiments in which 4-year-old children were divided based on their level of general vocabulary knowledge and then exposed to varying storybook reading conditions. In the first experiment, children either listened to a story passively while two different books were each read twice, or labeled illustrations of the target words in response to questions by the examiner while listening to the readings. Results showed that children in the questioning condition performed significantly better on a vocabulary comprehension posttest than children who listened passively. It was also found that children who had higher vocabulary levels prior to the study produced more words on an expressive vocabulary test of target words than those with lower vocabulary levels. Lastly, children with the larger vocabularies also produced more words at a one-week delayed posttest, while those with lower vocabulary levels did not differ in their production of words between the immediate and delayed posttests.

In the second experiment in this study (Senechal et al., 1995), a pointing condition was added in which the children were asked questions that required them to locate and
point to the illustrations showing the novel words. As in the first experiment, results revealed a differential effect of vocabulary learning based on prior vocabulary levels, where children with higher vocabulary levels at the outset learned more words than children with lower vocabulary levels. Results also showed that more active involvement, whether by pointing to pictures or labeling them, yielded more vocabulary words learned than passively listening to the stories. There was no significant difference between the pointing and labeling conditions regarding comprehension of new words. However, children in the labeling condition were able to orally produce more words than those in the pointing condition. Thus, while comprehension seems to have been the same, it would appear that the children in the labeling condition actually learned more words, or at least learned them more deeply than children in the other conditions.

Senechal et al.’s (1995) above-described study demonstrates some differences in how storybook reading impacts receptive and expressive vocabulary learning, supporting this explanation for the differences in results between the Senechal and Cornell (1993) study and Whitehurst et al.’s (1988) study. Another study by Senechal (1997) further explores the impact of interacting during reading. In this study, 3- and 4-year old children were assigned to three experimental conditions: a single reading of the book, repeated reading of the book, and a questioning condition. In both the repeated reading and the questioning condition the book was read three times. Results showed a very strong effect of multiple readings on vocabulary learning compared to a single reading (effect size =1.06). Furthermore, answering questions led to greater gains than repeated readings, even though children heard the story the same number of times in the two conditions. Four-year-old children learned more words than 3-year olds, but age did not interact with
reading condition. Lastly, results showed that repeated readings had a similar impact on receptive and expressive vocabulary, but answering questions had a greater positive impact on expressive vocabulary than receptive vocabulary. It therefore seems that listening to stories primarily facilitates receptive vocabulary, but more talk by the child seems to improve expressive vocabulary.

A meta-analysis conducted at the end of this earlier research period reinforces the overall importance of storybook intervention’s effects on children’s language and literacy skills (Bus, van Ijzendoorn, & Pellegrini, 1995). In their meta-analysis of more than 30 studies examining parent-child book reading (due to inclusion criteria for the meta-analysis, most of the aforementioned studies were not included), Bus et al. (1995) found that overall, reading to children explained 8% of the variance in outcome variables, including: language measures, vocabulary, reading comprehension, and emergent literacy skills. This study was the first meta-analysis of joint book reading studies, and demonstrated more precise results than some of the narrative analyses that had been conducted previously, such as that of Scarborough and Dobrich (1994), mentioned above. The application of the meta-analysis statistical approach allows for a much more exact determination of the effect that book reading may have on developing language and literacy skills. Bus et al.’s results yielded a moderate to strong effect of book reading on language and literacy development ($d=.67$ for language skills, $d=.58$ for emergent literacy skills, and $d=.55$ on reading achievement), with a slightly higher effect on language skills than on pre-reading skills or reading achievement. These results clearly show the importance and influence of joint book reading on children’s language and literacy development.
Conclusions and Remaining Questions

A number of conclusions can be drawn from the above-reviewed studies. First, joint book reading can facilitate children’s language and literacy development, with a slightly stronger impact on language skills (Bus, van Izjendoorn, & Pellegrini, 1995). Second, incidental exposure to new words through book reading by children who are pre-readers and early readers can lead to the learning of new vocabulary words (Elley, 1989; Robbins & Ehri, 1994). Third, encouraging children to interact during the book reading can enhance receptive and expressive language development (Senechal, 1997; Senechal et al., 1995; Whitehurst et al. 1988). Fourth, certain types of interactions may be more helpful than others, with more analytic talk seeming to help more than other types of interactions (Dickinson & Smith, 1994; Senechal, 1997; Whitehurst et al., 1988).

At the same time that these conclusions can be drawn, many open questions remain and require further research. There are factors relating to storybook reading that have shown conflicting results up to this point and many others that are still not fully understood. Some of these factors are related to the child, while others are related to the book-reading context. Child-related variables that may moderate learning from storybook reading include: age, gender, socio-economic status (SES), and language ability (Karweit & Wasik, 1996). Early research has shown that children from as young as 2-years-old through elementary school age, can learn new words from listening to stories, but how age interacts with learning is still not fully understood. Similarly, SES seems to be an important factor, especially relating to children at risk of school failure, yet the early research often studied middle-class children. A child’s language ability and vocabulary knowledge seems to impact the amount learned from hearing stories (Senechal et al.,
1995), but results are conflicting as to how prior ability interacts; Matthew effects were only sometimes evident in this earlier body of research.

Aside from child-related variables, there are many context-related variables that may impact on learning from storybooks, including: teacher/parent reading style, interaction during reading, number of exposures to the book and to target words, text-related factors and word-related factors. Some of these context-related factors have already received attention in the early literature, particularly the impact of interaction during reading (e.g. Senechal & Cornell, 1993; Whitehurst et al., 1988). Another important question raised in the research is whether learning can take place by listening to stories only once, or whether repeated readings are necessary; conflicting results plagued the earlier body of research (Elley, 1989; Robbins & Ehri, 1994; Senechal & Cornell, 1993). While some of the studies noted differences in results for different books used (Elley, 1989; Robbins & Ehri, 1994), very little systematic research has been conducted into the effect of text-related factors such as length, genre, illustrations, and the like. Similarly, almost no attention has been paid to word-related factors of target words in these studies, such as length of the words and part of speech. Additional research may elucidate the effects some of these variables have on the impact of shared book reading on vocabulary learning.

Summary

The earlier body of literature on storybook reading, covering studies primarily from the 1980’s through the mid-1990’s, yielded important support for the notion that storybook reading can enhance young children’s language and literacy skills development. At the same time, it revealed how much more research was necessary to
isolate the specific impact of storybook reading. More recent research has done much to help in this endeavor, as described in the following section.

**Effects of Book Reading on Language and Literacy Skills – Recent Research (Mid-1990’s-2010)**

**Differences Between Earlier and Later Research**

The past two decades have yielded a treasure trove of research in the area of book reading and children’s language and literacy development. How does this more recent body of research differ from the earlier body of research? First, and perhaps foremost, is the sheer quantity of research that has been published. This allows for greater separation between certain areas – for example, between research conducted in the classroom and that conducted in the home. Second, there has been a much greater focus on the many moderating factors that can influence the effects of storybook reading. Many of these moderating factors arose from the earlier body of research, enabling researchers to now delve more deeply into understanding the specific effects of these factors. These include moderating factors at all levels – child-related factors such as age and gender, as well as those at the context-level and the book-level. Third, there has been a greater focus on the home literacy environment as a whole (e.g. Senechal et al., 1996; Weigel, Martin, & Bennett, 2006). Fourth, along with this greater focus on the home, has been an emphasis and continued focus on vocabulary and how it can be learned from storybook reading in the home (Senechal, Ouellette, & Rodney, 2006).

The fifth way that more recent research differs from earlier research is in the greater acceptance of the socio-cultural model for vocabulary learning from storybook reading. In the earlier research, various models had been proposed to explain the effects of storybook reading on vocabulary growth. In the more recent research, however, the
scales seem to have tipped in favor of a socio-cultural model (Dickinson & Smith, 1994; Nagy et al., 1987; Ninio, 1983; Reese & Cox, 1999; Senechal, 1997).

The last way in which the newer body of research differs from the earlier one is in a movement toward studying language populations other than monolingual, English-speakers, including monolingual speakers of other languages (e.g. Aram, 2006) and dual language learners (e.g. Collins, 2010; Roberts, 2008). Since these students make up a significant amount of the population in many countries, it is ever more important to understand how storybook reading influences language and literacy development in these students, both in their native languages and in English. It is not enough to extrapolate from the studies conducted with native English speakers, as the mechanisms and outcomes may differ for other populations.

The current study fits into this newer body of research along many lines. It continues with the study of vocabulary learning from storybook reading, but explores this from a different vantage point. Until now, little focus has been paid to the impact of genre on storybook reading, particularly in the home. The current study explores whether parents read books differently to their children based on the genre of the book. It also explores whether or not children learn vocabulary differently from the different genres. Lastly, because the children in the current study are immersed in an environment with another language, this study follows the newer trend of exploring dual language learners. In the current study, children speak English at home, yet are immersed in Hebrew-language surroundings, which may impact their vocabulary learning in both languages.

The following sections review the more recent body of literature, including studies from the mid-1990’s through 2010. The first section examines the various models
that were constructed to explain the effects of joint book reading on children’s language and literacy development. The subsequent sections examine various factors emerging from examining book reading in a classroom setting, and many of these same factors in the context of the home setting.

**Proposed Models**

Nagy and colleagues (1987) put forth a cognitive, schema-based model for vocabulary acquisition that can be used to explain word learning from context. The authors argue that, “the most important factor in learning from context is the degree to which the reader can integrate information in a passage into a coherent system consistent with his or her prior knowledge” (p. 264). If a new word fits into a child’s existing schema, that word will be more easily learned. If a word requires a new set of concepts, i.e. a new schema, it will require greater and more explicit contextual support to facilitate word learning. The authors cite results from their study demonstrating that, in fact, easier words were learned with only one exposure. The more difficult words were not learned as well because “new conceptual structures are not acquired quickly or easily” (p.266) and therefore the more difficult words were less likely to be learned.

While Nagy et al.’s (1987) cognitive theory focuses on schemata, Senechal (1997; Senechal, et al., 1995) proposed a cognitive model that focuses on cognitive processes, including encoding, storage, and retrieval, as the important factors in word learning. According to this model, children:

1) encode and maintain a phonological representation of the novel word;
2) extract clues from the semantic, syntactic, and pictorial contexts to constrain memory search for potential meanings. . .
3) select or construct a potentially appropriate meaning;
4) associate the inferred meaning with the phonological representation of the novel word;
5) integrate and store the new knowledge with the existing knowledge base (Senechal et al., 1995, p.218).
This model demonstrates how cognitive processes interact and can lead to word learning by children. Senechal (1997) hypothesized that particular processes may be enhanced by different types of book reading. For example, repeated exposures to a story may facilitate encoding, while answering questions and labeling (i.e. active responding by the child) may facilitate retrieval. Results from Senechal’s many studies (e.g. 1995, 1997), described in the section on earlier research, support these assumptions with children repeatedly exposed to a story demonstrating greater gains than children receiving only a single exposure. Similarly, asking questions was more beneficial to expressive vocabulary (which is considered retrieval) than to receptive vocabulary.

More recently, focus has turned to Executive Function (EF) as a more encompassing aspect of cognitive functioning. EF seems to serve as the overall construct, which allows for “the self-regulation of complex cognitive activities as well as overt goal-directed behavior” (Clark, Pritchard, & Woodward, 2010, p. 1177), and includes cognitive skills such as working memory, inhibitory control, and attentional set shifting. While EF has not yet been proposed in a coherent model for the learning of vocabulary, both Nagy et al.’s (1987) schema-based model, and Senechal’s (1995, 1997) memory-based model would fit within the broader framework of EF. Recent research has explored the relationship between EF and academic success, with strong associations being revealed (e.g. Blair & Razza, 2007; Clark, et al., 2010; McClelland, et al., 2007).

McClelland and colleagues (2007) explored the relationship between behavioral regulation that focused on certain EF skills and preschoolers’ literacy, vocabulary, and math skills. Rather than resorting to teacher or parent reports, the authors used a direct measure known as the Head-to-Toes Task. In this task, children are required to perform
the opposite action from that which is instructed. For example, if the instruction is to “touch your head,” the child must touch his toes, and the opposite. This task taps elements of EF including inhibitory control, attention, and working memory as the child must pay attention to the instructions, keep the rule in working memory, and inhibit their first inclination to follow the directions, and instead produce the opposing action. Results revealed a significant and positive relationship between variables, with behavioral regulation in preschool predicting emergent literacy, vocabulary, and math skills. In addition, improved behavioral regulation predicted improved academic skills over the pre-kindergarten year.

Clark and colleagues (2010) also found that preschool EF abilities predicted later mathematics achievement. In this study, 4-year-olds were assessed on a number of EF tasks that assessed planning, set-shifting and inhibitory control; teacher ratings were also collected. Results showed that EF abilities in preschool accounted for significant variability in math achievement at age six, even after controlling for general cognitive ability and reading achievement. Blair and Razza (2007) examined EF measures and their relationship to math and literacy ability in kindergarten. Working specifically with a low-SES population of preschoolers, the authors found EF functioning, and particularly inhibitory control, was related to math achievement, and emergent literacy skills such as letter knowledge and phonemic awareness. This was true even after taking into account general intelligence.

The focus on EF and its impact in the self-regulation and learning abilities of younger children is gaining prominence among researchers in recent years. School readiness research has shown that students with greater difficulty in tasks that tap skills
like inhibitory control have greater difficulty in kindergarten (Howse, Lange, Farran, & Boyles, 2003; McClelland, et al., 2007; NICHD, 2003). To continue to explore this element of preschoolers’ functioning, the current study has incorporated a task that taps EF skills. In between book readings, the current study used the “Simon Says” game, (similar to the Head-to-Toes task mentioned above) and associations between vocabulary learning and performance on the Simon Says game were evaluated. While it is still unclear how an EF model might specifically explain vocabulary learning from book reading, given that EF is more encompassing in terms of cognitive functioning, it seems worthwhile to explore this potential connection.

The above-discussed models are primarily cognitive models. The third model for understanding the impact of book reading is a socio-cognitive model, rooted in the Vygotskian tradition. This tradition emphasizes that extended discourse and social interactions support development (Dickinson & Smith, 1994). In this context, book reading can be seen as a social activity that leads to acquisition of the cognitive and linguistic operations used for comprehension. Based on this model, it can be hypothesized that interaction with more extended discourse and greater social interaction would lead to greater learning. A number of studies conducted in the first wave of research on book reading support this model (e.g. Ninio, 1983; Whitehurst et al., 1988).

In an early study, Ninio (1983) investigated different ways that mothers explain new words to their toddlers while reading picture books. She focused on repeated discussions of the same words within a single book reading session. Ninio was interested in whether mothers would consistently use the same teaching format for vocabulary words or whether they would modify their methods based on children’s responses. To
study this, she examined 20 dyads of mothers with their 17-22 month old children during a single book reading session of 15 minutes. Results revealed that mothers used a variety of methods to teach their children new words while reading, but would modify their methods based on children’s responses. Importantly, mothers used significantly more labeling statements than eliciting questions when children produced an incorrect label for a word spontaneously, when the child produced an incorrect or no label when elicited, or when the child did not imitate a labeling statement. This study superbly demonstrated that mothers seemed to be “in tune” to their children while reading, and were able to recognize whether or not the child was learning a new word.

This study by Ninio (1983) seems to support the beneficial role of social interactions and discourse in facilitating development that is represented by the socio-cognitive model. The studies on dialogic reading (Whitehurst et al., 1988), which showed that learning could improve with more specific types of interaction, also support the socio-cognitive model particularly well. Even the studies by Senechal (1995, 1997), though she proposes a different explanatory model, support the socio-cognitive model in that those children who were more involved in the reading process learned more.

It should be noted that all three models seem to provide reasonable explanations for how joint book reading affects language and literacy development, with slightly different foci or emphases. Nevertheless, the more recent body of research on joint book reading tends to focus on the socio-cognitive model as an explanation for the learning that occurs from storybook reading (e.g. Dickinson & Smith, 1994; Reese & Cox, 1999).
Recent Research from the Classroom

As mentioned above, the increase in numbers of studies in the area of storybook reading enables us to examine the research from the classroom and the home settings separately. This section will summarize recent research from the classroom, with a focus on those studies that bear more directly on the current study. Within the classroom setting, more recent studies have taken various approaches, although many of them are efficacy studies (e.g. Hargrave & Senechal, 2000; Justice, Meier, & Walpole, 2005). Most of the researchers seem to take for granted that storybook reading can enhance language skills, especially vocabulary. They conduct their research to better understand how this effect is moderated or limited, exploring child-centered variables such as prior vocabulary ability, and context-centered variables such as the number of exposures, use of direct explanation of words, and others.

Prior vocabulary ability. One variable that has been explored in many studies is the impact of prior vocabulary knowledge on the learning of new words from storybooks (Aram, 2006; Coyne, Simmons, Kame’enui, & Stoolmiller, 2004; Ewers & Brownson, 1999; Penno, Wilkinson & Moore, 2002). Unfortunately, despite numerous studies, the results on this issue are still somewhat conflicting. As noted above, Elley (1989) found that children with lower vocabulary skills at pretest gained more vocabulary words at posttest than those with higher initial vocabulary levels. Coyne et al. (2004) had similar results. In their study, the authors randomly assigned kindergarten children to one of three conditions: a storybook intervention that included explicit vocabulary instruction, a phonologic and alphabetic skills intervention, and a sounds and letters intervention module from a commercial reading program. Within the storybook condition, results
showed that for words that were explicitly taught, students who had lower initial vocabulary scores showed greater gains than those with higher initial vocabulary scores.

These results stand in contrast to two studies described in the earlier research - that of Robbins and Ehri (1994) and that of Senechal et al. (1995) - both of which found that children with higher initial vocabulary skills showed greater gains than those with lower initial vocabulary skills. In a study conducted with kindergartners, Ewers and Brownson (1999) also found that children who had higher vocabularies learned significantly more target words than children with lower vocabularies.

Penno, Wilkinson, & Moore (2002) used an experimental design in their attempt to resolve these conflicting results on Matthew effects. In their study, 5-6-year-old children who were all at the beginning stages of learning to read, were randomly assigned to groups. All children were read two different stories twice, one time with teacher explanation of target words and one time without. In addition, the stories were retold multiple times, sometimes with teacher explanation of words and sometimes without. Although all the children in the study showed gains in vocabulary knowledge, results showed that those of higher vocabulary ability at pretest demonstrated greater gains than those children with lower ability. The authors conclude that this storybook intervention was unable to overcome the Matthew effect (Penno et al., 2002).

Justice, Meier, and Walpole (2005) also examined the extent that word-learning outcomes vary based on children’s initial vocabulary knowledge. Their study explored the learning of novel vocabulary words with at-risk kindergartners. Children in the treatment group participated in 20 small-group reading sessions of 10 books, where during the reading, the adult reader elaborated on half of the words. Children were
pretested and posttested on all 60 target words (6 words per book). Results showed that “children with clinically depressed vocabulary skills” (p. 27) gained the most from the intervention. In this study, children with severely limited vocabulary, with scores more than one standard deviation below the mean (in contrast to the above studies, where vocabulary was not as depressed), were able to learn the greatest number of words. However, this was true only for words that were elaborated during the book reading session. In the Penno et al. (2002) study as well, differences between groups were only found for words that were explained during the reading, and not for words gained incidentally; however, in Penno et al.’s (2002) study, this was not enough for those with low vocabulary scores to overcome the Matthew effects.

One possible explanation for the many conflicting results may be due to ceiling effects, where the more able students had fewer opportunities to demonstrate gains (Penno et al, 2002). Elley (1989) notes this possibility in her research. Robbins and Ehri (1994) suggest a different explanation. These authors propose that children with higher abilities may be better able to use contextual clues to learn more vocabulary words, whereas those with more limited abilities focus more on the plot while listening to the story. Yet this explanation only explains why children with lower vocabularies learn fewer words; it does not shed light on why children with lower vocabulary abilities would make greater gains in certain studies. A different possible explanation is that there is some context-based element that leads to differential effects. Some of these context-based variables will be explored in later sections of this review.

Despite many attempts to unravel the effect of prior vocabulary ability on learning new vocabulary words from storybook reading, it still remains unclear. Given the
significance of this issue, it is important to continue to include pretest measures of vocabulary knowledge in further studies to shed yet more light on, and hopefully one day resolve this issue.

**Incidental exposure vs. direct explanation.** The studies by Penno et al. (2002) and Justice et al. (2005) bring to the fore the question of whether words can be learned through incidental exposure in the stories or whether direct explanation of the words must be added. Whereas some of the earlier research addressed the question of incidental exposure versus various types of interaction during reading, more recent research evaluates incidental exposure versus direct explanation of words. Studies by Elley (1989) and Robbins and Ehri (1994), mentioned above, demonstrated that incidental learning can take place. Similarly, a more recent study by Aram (2006) supports this conclusion as well. Aram (2006) explored a year-long storybook intervention with younger children – one cohort of 3-4-year-olds and one cohort of 4-5-year-olds. Although vocabulary increases made by children in the storybook condition were not statistically significant, they did approach significance and gains were higher compared to control group children (Aram, 2006). At the same time, other studies, including those by Penno et al. (2002) and Justice et al. (2005), have not shown learning through incidental exposure to words by listening to stories; rather, these studies show that direct instruction of the words is a necessary addition to the book reading (Biemiller & Boote, 2006; Coyne, McCoach, & Kapp, 2007; Coyne et al., 2004).

In the study by Coyne et al. (2004) described above, results showed no significant differences between the storybook and control conditions regarding vocabulary that had not been explicitly defined. However, when the words were explicitly taught, storybook
condition children gained significantly more words than control groups (Coyne et al., 2004). Thus, only when direct instruction of the vocabulary was included in the book reading did students demonstrate gains. A more recent study by Coyne, McCoach, and Kapp (2007) compared extended vocabulary instruction to both embedded instruction and incidental exposure to target words. Extended instruction included multiple exposures to the target words with explicit definitions, as well as other activities that enabled students to “interact with and discuss target words in rich and varied contexts beyond those offered in the story” (p. 78). Results showed that extended vocabulary instruction led to greater word learning on both expressive and receptive measures of vocabulary knowledge, as well as a transfer measure that evaluated target word knowledge in novel contexts (Coyne et al., 2007).

One notable difference between the two studies by Coyne and colleagues (2004; 2007), and those by Aram (2006), Elley (1989), and Robbins and Ehri (1994), is that Coyne worked with children who were at-risk of later difficulties in school, based on both demographic data and literacy assessments. These children may have been coming in with greater deficits, and thus needed more direct instruction to reach levels similar to children who are not at-risk. While plausible, recent work by Biemiller and Boote (2006) with children who are not at-risk poses difficulty for this interpretation. The authors conducted two classroom-based studies with not at-risk children in kindergarten, first, and second grades. Both studies showed that instruction in word meanings led to greater gains than no meaning instruction at all three grade levels. Moreover, the second study showed that gains increased along with more intensive word instruction. Intensive word instruction included more meanings taught, more readings of the stories, and more review
of the words and their meanings. Intensive instruction resulted in an increase from 22% of meanings learned in study one, to 41% of meanings gained in study two (Biemiller & Boote, p.54). Thus, whether or not children are at-risk for later difficulties in school does not seem to explain the disparity between incidental learning of words versus learning when direct instruction is added.

A different explanation that might account for the conflicting results noted above, is that word learning often occurs in steps (Nagy & Scott, 2000). Nagy and Scott (2000) refer to this as the “incrementality” of word knowledge. The authors note that:

The research is clear in showing that word learning can be incremental – that one’s knowledge of a word can grow on the basis of almost infinitesimally small steps. Less is known about the extent to which word learning is necessarily incremental—that is, what limits may exist on the amount or type of knowledge that a learner can gain about a word on the basis of any single encounter (p.271).

Thus, it may be that incidental exposure allows an initial learning of the word, while more elaborated instruction leads to a deeper knowledge of the word.

This explanation makes sense in the context of what is known about language development in young children. Cary and Bartlett (as cited in Clark, 2003) examined how children assign meaning to novel words. They found that children were able to very quickly infer the meaning of a new word, and remember it many weeks later, even after very few exposures. This ability became known as fast-mapping (Clark, 2003; Kay-Raining Bird, Chapman, & Schwartz, 2004).

Children show the ability to fast-map a meaning to a novel word as early as 13 to 16 months, usually by looking at an object and associating it with the a new word (Kay-Raining Bird, et al, 2004). Clark (2003) notes that, “this retentiveness for preliminary meanings is valuable for young children as they gradually work out what the full
(conventional) meanings are of the new terms they encounter” (p. 147). To learn the full meaning of a novel work, it likely takes multiple encounters, as suggested by Nagy and Scott (2000) in their discussion of the incrementality of word learning. Clark (2003) supports this assertion, arguing that children “need to be able to accumulate inferences from different occasions and look for consistency over time” (p.147).

The distinction between fast-mapping the meaning of a novel word as opposed to gaining a deeper meaning may be reflected in the differences found between incidental exposure to words in a storybook versus the addition of direct instruction. Incidental exposure may lead to fast-mapping, while direct instruction may lead to a deeper level of word learning. This is born out in the research, even in those studies that showed successful effects of incidental exposure. While Elley (1989) found significant vocabulary growth from incidental exposure, when explanations of target words were added, vocabulary gains jumped from 15% to a sizable 40% (p.182). In a review of experimental and nonexperimental studies on preschool storybook reading, Karweit and Wasik (1996) also concluded that explicit instruction in conjunction with storybook reading can enhance vocabulary growth. Biemiller and Boote (2006) further emphasized that the addition of direct instruction of vocabulary led to gains in word knowledge that were maintained at a delayed posttest four weeks later, and were transferable to a task that used the words in a new context. Using a word in a novel context is usually considered a more rigorous test of word knowledge (Nagy & Scott, 2000).

The earlier body of research led to the conclusion that incidental exposure can lead to word learning, but greater interaction leads to greater word learning. Similarly, more recent research from classrooms indicates that incidental exposure can lead to word
learning, but the addition of direct explanation of words leads to more words learned and a deeper knowledge of the words. The current study examines incidental word learning by children from a shared book reading in a natural home setting. This may enhance our understanding of differences in word learning from shared reading between classroom settings and home settings.

**Single exposure vs. multiple exposures.** Along with the addition of word meanings during reading, repeated exposure to target words is thought to improve vocabulary learned from storybook reading. This can occur via multiple exposures to the words in one reading, repeated exposure during multiple readings of the same story, or repeated exposure in multiple contexts (Elley, 1989; Robbins & Ehri, 1994; Senechal, 1997). Initial evidence to support this comes from the earlier body of research. In the two experiments conducted by Elley (1989), stories were repeated three times, thus exposing children to the words multiple times. Furthermore, Elley (1989) concludes that one of the features that best predicted whether a word would be learned was the frequency of the word in the text. Robbins and Ehri (1994) similarly found that words that were repeated four times within a story were more likely to be learned than words that were repeated only twice. Additional support for multiple exposures comes from the more recent research. Senechal (1997) compared a single-book reading condition to a multiple-book reading condition and found that children made greater gains in vocabulary after three readings than after a single reading. Thus, repeated exposure to words, whether in multiple readings or multiple times within the story, seems to increase the learning of those words.
Extending the idea of multiple exposures, Wasik and Bond (2001) explored whether exposure to target words in differing contexts enhances learning of the words. Through book reading, as well as story props and extension activities related to the stories, children had the opportunity to hear and use target words from a story multiple times and in multiple contexts. The authors found that children in the experimental group significantly outperformed a control group on both receptive and expressive vocabulary measures, despite the fact that the control group heard the same stories as the experimental group (Wasik & Bond, 2001). One difficulty with this study, however, is that there was no condition that separated multiple exposures from multiple contexts. This would help clarify the different contributions made by the different conditions.

Just as the question of whether or not vocabulary can be learned from incidental exposure has generated mixed findings, so too has the question of multiple exposures. Biemiller and Boote (2006) compared the number of repeated readings of the books across grades in their study. It was found that in grades one and two, the percentage of meanings learned was about the same, regardless of whether the story was read two or four times, while the children in kindergarten showed greater gains when the story was repeated four times compared to twice. It may be that there is a developmental difference relating to multiple exposures, with younger children requiring more exposures to the words to learn them. This might explain the differences with the Senechal (1997) study that worked with 3-4 year olds. However, it still would not clarify the conflicting findings between the Elley (1989) and the Biemiller and Boote (2006) studies, both of which were with first and second graders, nor with the Robbins and Ehri study (1994), which was with kindergarten children.
A different explanation is that these contrasting findings can be attributed to classroom-based or instructional features. Biemiller and Boote (2006) did report that there were considerable differences in teacher effectiveness of teaching vocabulary; however, no explanation of these differences was offered. One instructional factor that has previously been found to mediate the impact of book reading on vocabulary learning is that of teacher reading style during book reading (Dickinson & Smith, 1994). It is possible that differences relating to these styles led to the variations in the teachers’ effectiveness in teaching the words during book reading that were observed by Biemiller and Boote (2006).

The conflicting results on single versus multiple exposures indicated that further research is necessary, particularly to evaluate if this variable interacts with age, vocabulary level, and context features such as reading style. The current study addresses this issue by creating a situation ideal for fast-mapping of words, as they appear only once in each book. Evaluating both receptive and expressive learning of the target words should provide further evidence of the level of learning to be gained from a single exposure of a word. Furthermore, the evaluation of parent-child reading may shed light on how naturally occurring reading styles may impact on word learning.

**Teacher reading style during book reading.** Although little research has been conducted on parent reading styles, the possibility that teacher reading style might influence word learning has been examined in greater depth in recent studies. Teacher reading styles have been categorized in various studies along differing dimensions. Dickinson and Smith (1994) videotaped teachers reading to 4-year old children from low-income families. The authors then classified the teachers’ reading styles, naming the
styles co-constructive, didactic-interactional, or performance oriented. These styles vary based on the amount of analytic talk during the storybook reading, the timing of comments and discussion (before, during, or after reading), and the salience of classroom management during the book reading session. Co-constructive patterns of interaction were characterized by high amounts of analytic talk (which is seen as higher in cognitive demand) by both children and teachers during book reading, with less talk before and after. Didactic-interactional patterns were characterized by limited amounts of talk before, during, and after book reading, along with a greater concern for classroom management. Lastly, performance-oriented classrooms featured extensive introductions to books, along with follow-up discussions that focused on either reconstructing the story or linking the story to children’s life experiences (Dickinson & Smith, 1994).

Dickinson and Smith (1994) correlated these various interactive reading styles with outcome measures focusing on vocabulary and story comprehension. Results revealed that children in the performance-oriented classrooms had higher vocabulary scores than those in the didactic classrooms, as well as better comprehension of the story. It was suspected that the greater amount of analytic talk by the children relating to the story that occurred in the performance-oriented classrooms was largely responsible for these gains.

Along similar lines, Reese and Cox (1999) posited that reading styles vary primarily on two dimensions: “the demand level and the placement of the commentary during reading” (p.21). Demand refers to the level of cognitive demand placed on the listener by the reader. Questions that primarily ask “what” are considered lower demand than questions that ask “why,” or ask for an evaluation of some sort. These latter two
types are considered more demanding, require more engagement by the listener, and may in turn lead to greater understanding of the story (Reese & Cox, 1999). The placement of commentary relates to whether comments are confined mainly to before and after reading, or whether the text reading is interrupted to insert comments. Using these two main dimensions, Reese and Cox (1999) named three reading styles based on literature examining book reading between adults and children in natural settings: describer, comprehender, and performance-oriented. The describer style is lower cognitive demand, with frequent interrupting of text; comprehender style is higher cognitive demand and interrupting; and performance-oriented is higher cognitive demand and non-interrupting (as in Dickinson and Smith, 1994).

Reese and Cox (1999) randomly assigned 4-year-olds to one of the three reading styles over a six week period and both pretested and posttested the children on measures of receptive vocabulary, print skills (including print knowledge, letter recognition and concepts of print), and story comprehension. Results showed that while children in the comprehender style did not significantly differ from the other two styles, those in the describer condition showed significantly greater vocabulary gains than did children in the performance-oriented condition. However, the effect on vocabulary was mediated by initial vocabulary skills, with children who had higher vocabulary skills initially showing greater improvement in the performance-oriented style than the describer condition. Children in the describer style showed the greatest overall gains in print skills, but those with higher initial skills made greater gains than those with lower initial skills (Reese & Cox, 1999). This study shows clear evidence for both the impact of reading style on literacy skills, as well as the fact that reading style can interact with prior skill levels.
Expanding upon the prior research on teacher styles, Brabham and Lynch-Brown (2002) implemented an experimentally designed study examining the influence of reading styles on vocabulary acquisition and reading comprehension of first and third graders. In this study, pre-service teachers were trained and guided by scripts for one of three read-aloud styles: just reading, performance reading, and interactional reading. Teachers using performance styles encouraged discussion before and after reading, but not during, while those using interactional reading styles simultaneously read and discussed the stories (like Reese and Cox’s comprehender style, although the true level of cognitive demand is unclear). Those who “just read” did not encourage discussion or questions at any point. Unlike Dickinson and Smith (1994), results demonstrated that interactional styles resulted in the greatest gains of vocabulary learning, followed by performance styles, and lastly just reading (Brabham & Lynch-Brown, 2002).

It is unclear why the results relating to interactional styles and performance styles differed in the two studies. This may be due to differing methods used in the studies. Whereas Brabham and Lynch-Brown (2002) scripted the material for pre-service teachers, Dickinson and Smith (1994) observed teachers in their natural classrooms and then correlated the styles with language measures. It is possible that there is greater variability within style when examining naturally occurring situations, compared to ones that are scripted. Brabham and Lynch-Brown’s (2002) results also differ from those of Reese and Cox (1999); this might be a function of the level of cognitive demand, which was made clear in the latter study, but is less clear from the description in the former. While the various studies discussed in this section (Brabham Lynch-Brown, 2002; Dickinson & Smith, 1994; Reese & Cox, 1999) show different outcomes, all found that
reading style does impact on a variety of literacy measures including vocabulary, highlighting the importance of this variable in book-reading interventions.

**Interaction during book reading.** A factor that relates to teacher reading style is the level of interaction between teachers and students during reading. Results from the earlier body of research seemed to indicate that greater levels of interaction between the reader and the listener lead to greater levels of learning. More recent studies have explored this variable more directly in the classroom setting to evaluate its impact on learning from storybook reading (Ewers & Brownson, 1999; Justice, 2002; Senechal et al., 1995; Walsh & Blewitt, 2006; Wasik & Bond, 2001).

The aforementioned experiments conducted by Senechal and colleagues (1995) showed that both pointing and labeling words in response to questions seemed to equally enhance comprehension vocabulary. Labeling words seemed to confer a slight advantage in production vocabulary over the other conditions. Results from Wasik and Bond’s (2001) study also support the notion of more active involvement by children leading to improved learning. In the experimental condition, extension activities were added to book reading, including: introducing target words to children prior to reading the story accompanied by physical props that relate to the words, asking open-ended questions during the actual reading, activities after the storybook reading such as arts and crafts, science, or cooking activities. Teachers in control classrooms read the same books the same number of times, but did not implement the various extension activities. Results showed that children in the experimental group significantly outperformed the control group on both receptive and expressive vocabulary measures of the target words, as well as on a general vocabulary measure.
These results seem to strongly illustrate how encouraging children to interact during story reading can improve their learning outcomes. However, some caution is necessary in this interpretation because while the two groups in Wasik and Bond’s (2001) study heard the story the same number of times, they were not actually exposed to the words the same number of times. Consequently, the number of exposures to the words and the “multiple contexts” in which they were exposed are conflated. This makes it difficult to know what caused the difference in the learning outcomes – the fact that the experimental group had a chance to interact and learn the words in multiple contexts, or the fact that the extension activities permitted many more exposures to the words.

Walsh and Blewitt (2006) examined a different aspect of interaction by exploring the impact of questioning style during reading on vocabulary learning. The authors randomly assigned 3-year-old preschoolers to one of three conditions: vocabulary eliciting questions, non-eliciting questions, or no questions. In the vocabulary eliciting questions condition, children had to produce the target word in answer to the question, whereas in the non-eliciting questions condition, the target words were in the question but did not have to be produced by the children in the answers. The “no question” condition served as a control, and in this group, no questions were asked during the story reading. Walsh and Blewitt (2006) found somewhat unexpected results. Results showed that both questioning conditions led to greater gains of novel vocabulary. Surprisingly though, the vocabulary eliciting questions condition did not lead to greater gains than the non-eliciting question condition.

In explaining their results, Walsh and Blewitt (2006) propose that having some level of interaction between children and adults is more important than the type of
interaction. However, whereas the eliciting condition in Walsh and Blewitt’s (2006) study did not yield better production of vocabulary, the labeling condition in the second Senechal et al. (1995) experiment seemed to confer a slight advantage in production vocabulary. How can these diverging results be understood? The age of the children in the various studies discussed above may be an important factor in understanding the outcomes of the different studies. Walsh and Blewitt (2006) worked with 3-year-olds, while Senechal et al. (1995) worked with 4-year-olds. It is possible that age and the level of interaction interact in some way, leading to different results.

A more recent study by Blewitt, Rump, Shealy, and Cook (2009) explored the issue of questioning in much greater depth. In the first experiment, both low and high cognitive demand questions were asked during the shared book reading of three books. The placement of the questions varied as well, such that they were either interrupting the book reading or confined to before and after the book reading. Sixty 3-year-old children were randomly assigned to one of five conditions: control, low demand-interrupting, low demand-noninterrupting, high demand-interrupting, and high demand-noninterrupting (p.297). During the readings, comments not related to target words were made, as were questions related to target words that were appropriate for the condition (i.e. high or low demand, etc.). Results of posttests showed that while children in the control condition were able to learn new target words (i.e. through incidental exposure), children learned many more words when exposed to questions. However, none of the other variables – level of demand or placement of questions - moderated these learning effects.

In a second experiment, the authors examined how questions of varying demand levels impact on vocabulary learning (Blewitt et al., 2009). In this experiment, 3-year-old
children were randomly assigned to three different questioning conditions: low demand only, high demand only, and a “scaffolding-like condition that began with low demand questions and later introduced high demand questions” (p. 298). A definitions posttest was added in this experiment, asking children what they knew about the target words in an attempt to evaluate children’s deeper knowledge of the words. Like the results in the first experiment, children in all conditions learned target words, with no significant differences found on comprehension scores or definitions scores between the low and high demand conditions. However, children in the scaffolding-like condition had significantly higher definitions scores than the other two conditions.

In explaining these results, the authors hypothesize that both low and high demand questions facilitate an initial learning of a word – matching the word to its referent, like the fast-mapping described above. Scaffolding of questions, that is, moving from low cognitive demand to higher cognitive demand, seems to facilitate the acquisition of a deeper understanding of a word’s meaning (Blewitt et al., 2009). This is in line with Nagy and Scott’s (2000) previously described “incrementality” of word learning. As noted by Blewitt et al. (2009), a limitation to both these experiments is that the questions repeated the target words, making it very difficult to separate the effect of questions from the repeated exposure of target words. Future research needs to examine the effects of these two variables separately before firmer conclusions can be drawn.

Despite conflicting results, variables such as explanation of words, multiple exposures to words, and the style in which the book is read seem to facilitate and increase the learning of new words from shared reading in the classroom setting. Along with the actual reading of the book, the type of text as well as text-level properties have been
shown to impact the quality and quantity of vocabulary learned during shared book reading.

**Genre & Type of Text.** Studies have shown that the particular book used in a storybook reading intervention results in different outcomes (e.g. Elley, 1989; Nagy et al. 1987; Robbins & Ehri, 1994). Elley (1989) noted that in her second study, results differed dramatically for the two stories used, with vocabulary growth from one story reaching almost 40%, while the other story led to gains of only 17% (p.182). During the experiment, teachers found that for one of the two stories used, children were noticeably uninvolved with the story; this is the story that resulted in lower vocabulary growth. Elley (1989) suggests that to maintain children’s interest in the stories at a level that would enable vocabulary growth, the story must contain elements such as “novelty, humor, conflict, suspense, incongruity, vividness, and the like” (p.185). Using similar reasoning, Robbins and Ehri (1994) suggest that using stories with more attractive characters, humor, and a high action plot could have led to greater vocabulary growth than that observed in their experiments. These recommendations were taken into account in the book selections in the current study.

The above studies noted different elements in fiction books that may influence word learning. In a recent study, Moschovaki, Meadows, and Pellegrini (2007) examined how different genres impacted teachers’ affective presentation and children’s affective engagement during the reading. In the study, kindergarten teachers read four different books—two fiction, and two information books, one of which was a narrative text (i.e. information presented in a narrative format) and the other of which was expository. The authors coded teacher’s affective presentations into three main categories: intonation,
dramatization, and personal involvement (Moschovaki et al., 2007). Intonation includes the voice features during reading, such as pausing for emphasis, slower reading, raising or lowering voice to gain attention or stress words, and the like. This category also includes text dialogue or text rhyme. Dramatization includes “re-enactment of the dialogues by voice alterations and re-enactment of scenes” (p.410). Personal involvement includes content and voice intonation that reflect how the teacher is feeling – pleasure, excitement, empathy, or other emotion. Moschovaki et al. (2007) found that teachers used a higher proportion of intonation utterances, dramatizations, and personal involvement for the fiction books than for the nonfiction books. Furthermore, one of the fiction books had a higher proportion of these elements than the other fiction book, while no difference was found between the two information books.

In a finding that bears directly on the current study, Moschovaki et al. (2007) found that different book types were related to different reading styles. Information books were read largely in an interactive style, where each page was shown, read, and discussed. In contrast, fiction books led to a more performance-oriented style, where the book was read in its entirety, followed by showing of pictures, and ending with discussion. Children’s affective reactions, such as language play, reenactment of scenes, and personal engagement correlated to that of the teachers, with much higher rates of involvement in the fiction books than the information books (Moschovaki et al., 2007). As Moschovaki and colleagues (2007) conclude, “there is considerable variation in the presentation style of teachers, according to book genre and the content of the text” (p. 414).
The above studies reveal the importance of text genre, as well as content aspects of the book such as plot, characters, and use of humor. Furthermore, it is clear that there are interactions between teachers’ reading styles and these text elements. This is a significant consideration when designing storybook interventions. The choice of text is extremely important in engaging both the teacher and the children, which can then impact the desired outcome of children learning vocabulary from the text. The current study aims to explore this issue in greater depth by using multiple fiction and nonfiction books. This will enable stronger conclusions to be drawn relating to the impact of genre on book reading and vocabulary learning.

**Text-level properties.** Beyond the genre and content of text, other text and word level properties have been explored. Nagy et al. (1987) examined particular aspects of both text properties and word properties that influenced children’s learning vocabulary from context during independent reading. They found that the two variables with the strongest effects were the proportion of words in a passage that were of highest conceptual difficulty, and the average length of target words in syllables (Nagy et al., 1987). This suggests that to facilitate student learning of more difficult words from context, the contextual support for the word needs to be sufficient. Robbins and Ehri (1994) agree with this assertion, adding that children’s book authors don’t always give thought to the textual support for more difficult words and should, perhaps, be alerted to this aspect of writing. Given the potential importance of text-level properties, these should be considered in future examinations of storybook reading and vocabulary growth.
Summary. The rather extensive body of recent research dealing with shared book reading in the classroom setting (studies where the experimenter read the books, as opposed to the teacher, were still geared towards efficacy in the classroom setting) has often yielded conflicting results regarding the many variables that can mediate the effects of shared book reading. Nonetheless, certain conclusions can be drawn. The use of multiple exposures as well as more direct instruction of words seems to facilitate deeper understanding of target words, if not necessarily the learning of more words. Whether or not shared book reading can overcome Matthew effects is still undetermined. However, as a reasonably simple and inexpensive intervention to improve children’s vocabulary, shared reading should be encouraged even if unable to overcome Matthew effects. Lastly, the importance of teacher reading style and elements of the text itself such as genre, cannot be overstated, particularly since these factors seem to interact.

Although somewhat less extensive than research from the classroom, research exploring shared book reading in the home has also increased more recently. The next section explores this research, again with a focus on those studies that are most relevant to the current study.

Recent Research From the Home

Importance of the home language and literacy environment. While it used to be thought that children learned to read in school, there is now a much greater understanding of the importance of the home literacy environment. Perhaps the most telling demonstration of this importance was revealed by Hart and Risley (1995). As previously mentioned, Hart and Risley recorded the spoken language between parents and children in the homes of professional, working class, and impoverished families.
Their results revealed dramatic differences in the vocabulary growth between the different types of families, with children from professional homes far outpacing those from impoverished homes by the time the children were 3-years-old (Hart & Risley, 1995). Similarly, differences in children’s exposure to books have repeatedly been found between children of differing SES (e.g. Coyne et al., 2004; Stanovich, 1986). Coyne and colleagues (2004) note that some children enter school with “thousands of hours of exposure to books and a wealth of rich oral language experiences” (p.146). In contrast, other children enter school with minimal exposure to books and have much more limited language and literacy knowledge (Coyne et al., 2004).

Other research has further demonstrated the effect of the home literacy environment on language and literacy skills (Senechal et al., 1996; Senechal, LeFevre, Thomas, & Daley, 1998; Weigel, Martin, & Bennett, 2006). In two different experiments, Senechal and colleagues (1996) showed that the amount that parents and children knew about children’s books contributed significant variance to children’s receptive and expressive vocabulary scores, after controlling for variables such as SES, intelligence, and others. Senechal et al. (1998) further showed that storybook exposure was related to oral language skills including receptive vocabulary, listening comprehension, and phoneme awareness.

More recent work by Senechal has extended her model of the contributions of home literacy (Senechal, 2006; Senechal, Pagan, Lever, & Ouellette, 2008). A longitudinal study conducted with French speaking children examined the relationship between early literacy experiences and kindergarten literacy skills, first grade word reading and spelling skills, and fourth grade reading comprehension, fluency, spelling
and reading for pleasure (Senechal, 2006). Senechal (2006) also found that storybook exposure predicted kindergarten vocabulary and the frequency with which children reported reading for pleasure in fourth grade. A somewhat later study further showed that the frequency of shared book reading positively impacted children’s expressive vocabulary, morphological comprehension, and indirectly positively related to syntax comprehension (Senechal et al, 2008).

It should be noted that in many of Senechal’s studies (e.g. 2008), knowledge of books was measured by a recognition task, wherein parents (and sometimes children) picked titles and authors of books from among a list that included foils. As such, book knowledge is considered only a proxy for quantity of reading in these studies, under the assumption that greater knowledge of books and their authors reflects increased amounts of reading between parents and children. While this is certainly a drawback to these studies, these recognition measures are thought to be an improvement over self-report measures, which are susceptible to inflated scores due to social desirability (Powell, Okagaki, & Bojczyk, 2004). In addition, these measures do seem to reflect differences in the home literacy environment, and may reveal a “culture of literacy” (I. Levin, personal communication, February 8, 2011). That is, parents who score better on these measures are certainly more aware of and familiar with books, which likely impacts on the literacy environment in the home as a whole. Overall then, despite certain methodological drawbacks, these studies do seem to demonstrate differences between home literacy environments and various language and literacy outcome measures.

The relationship between joint book reading, an important element in the home literacy environment, and outcome measures has also been examined in a meta-analysis,
as described in the section on earlier research. Bus, van Ijzendoorn, and Pellegrini (1995) explored the relationship between parent-preschooler book reading and a variety of outcome measures in a quantitative meta-analysis. Since this was the first quantitative meta-analysis conducted on joint book reading, and as it focused on parent-child book reading, it is worth reiterating the results in this section. The meta-analysis yielded a moderate to strong effect of book reading on language and literacy development ($d=0.67$ for language skills, $d=0.58$ for emergent literacy skills, and $d=0.55$ on reading achievement), with a slightly higher effect on language skills than on pre-reading skills or reading achievement (p.7). More recently, as part of the National Early Literacy Panel (NELP, 2008), a meta-analysis was conducted examining 19 studies of interventions that focused on shared reading, including those conducted by parents, teachers, or a combination of parents and teacher. When parents (as opposed to teachers, or a combination) were the only ones reading, there was a moderate effect on oral language outcomes, including vocabulary, grammar, and listening comprehension (ES =0.57).

It seems quite clear from the myriad research discussed in this section, that the language and literacy environment of the home has a unique impact on children’s developing language and literacy skills, especially on vocabulary learning. Whereas the recent research emerging from classroom-based studies focused on aspects such as the number of exposures, the addition of direct explanation, and similar variables that apply more specifically to a school-setting, the primary variable examined in more recent home-based studies is that of parent-child interaction during reading, also considered parent’s reading style. A more in-depth examination provides greater insight into how this factor impacts on children’s vocabulary development from shared book reading.
**Parental interaction/reading style – Dialogic Reading.** Fielding-Barnsley and Purdie (2002) explored the impact of a shared book reading intervention on children who were from families with a known history of reading disabilities, and therefore who were themselves at-risk of reading disabilities. The authors based the intervention on Whitehurst’s (1988) dialogic reading (DR) style. Families watched a video showing DR techniques and read written information about it. Parents read the selected books on their own and then read each book five times to their child. Control families read the same books the same number of times, but received no information on DR. Results showed that children in the experimental group made statistically significant gains in concepts of print, and gains in expressive vocabulary that were not statistically significant. The authors note possible reasons for a lack of significant gains in oral language skill were the small sample size (17 families in each group), the short time frame for the intervention (eight weeks), and fidelity being evaluated only by parental survey (Fielding-Barnsley & Purdie, 2002).

Huebner and Meltzoff (2005) also used dialogic reading in their study, but they explored various methods of instructing parents in DR. The study tested three different methods of DR instruction with an educationally diverse sample of parents and their 2-3-year-old children. The three methods were: in-person instruction with videotape explanation and examples presented to small groups of parents; self-instruction by videotape with telephone coaching; and, self-instruction by videotape alone. The authors examined the behaviors that parents were asked to increase as well as those behaviors parents were asked to decrease. They then created a ratio – the DR ratio – of the former divided by the latter. They also examined the mean length of the child’s five longest
utterances, as well as the child’s verbosity, measured by summing the one-word and multiple word phrases used by the child. Results showed that all groups improved in their DR ratio – that is, they reduced the undesirable behaviors and increased the desirable ones. Although the in-person instruction group had slightly higher results, especially among those of lower-education, the differences did not reach significance. There was also a significant increase in the number of children’s utterances, and an increase in the length of the five longest utterances.

These studies (Fielding-Barnsley & Purdie, 2002; Huebner and Meltzoff, 2005) demonstrate that without guidance, parents do not necessarily interact with their children while reading books in a way that is advantageous. Instructing parents in some of these DR techniques can be simple and low-cost, as seen by the success in the self-instruction group in Huebner and Meltzoff’s (2005) study. McKeown and Beck (2006) explain why interaction during reading is so important. According to the authors, book language is decontextualized – that is, there is a need to understand and build ideas just from listening to this language. Furthermore, “because facility with decontextualized language underlies literacy competence, getting children involved in talking about the ideas in stories they hear promotes literacy growth” (p.284).

Results from a recent meta-analysis further demonstrate the importance of the dialogic technique (Mol, Bus, de Jong, & Smeets, 2008). Sixteen experimental studies were evaluated to determine if DR added to the general effect of parent-child reading. All the included studies had an experimental group that received training in DR techniques and a control group that did not. Results showed an overall significant effect for DR, over and above the effect of shared parent-child reading. DR was more effective with 2-3-
year-old children than with 4-5-year-old children, and with mid-SES children than with those at-risk. The DR technique accounted for 4% of the variance in vocabulary growth and there was a moderate effect on expressive vocabulary (\(d=0.59\)). Along with the many studies that evaluated dialogic book reading (only some of which are described in this review), this meta-analysis indicates that the behaviors suggested in this technique help increase the level of interaction between parent and child during reading; these interactions are further associated with positive language and literacy outcomes. Other research has examined other ways that parental style of reading can be influential; these studies are described in the next section.

**Parental interaction/reading style – non-dialogic reading.** Ard and Beverly (2004) examined interactions during book reading, but not specifically those of dialogic reading. In their study, parent-child dyads were divided into four groups: repeated joint book reading with comments; repeated joint book reading with questions; repeated joint book reading with questions and comments; repeated joint book reading only (control). In this experimental study, the authors embedded words that follow the illustrations of a wordless storybook. Results showed that all groups learned new words from the readings, but those groups with parents making comments and/or asking questions learned more words than the reading-only group. Contrary to the authors’ hypothesis that questions would lead to greater expressive language learning than comments, results revealed that the different strategy groups were equally effective.

An important finding in this study was that the questions plus comments group was not significantly better in terms of learning, despite the fact that this condition contained the greatest number of exposures to the novel words (Ard & Beverly, 2004).
Children’s scores on receptive language measures were higher than expressive measures, and those words that were spoken aloud by the participants during book reading sessions were more likely to be correctly named at posttest. Based on this study, it appears that in addition to dialogic reading, which focuses more on open-ended questions and encouraging the child to become the storyteller, even simple comments by parents during the reading session can increase the learning of new words during reading.

Deckner, Adamson, and Bakeman (2006) also explored the impact of different kinds of maternal comments and questions on language development. Whereas Ard and Bevely (2004) worked with 3-5-year-old children, Deckner et al. (2006) worked with children who were only 27-months-old. In the study, mother-child dyads were observed during shared reading; the child’s interest level was scored, as was the mother’s use of “metalingual utterances,” including requests for labels, prompts to produce language, and recasts of child’s language use (p. 35). Children’s receptive and expressive language was measured at 18, 30, and 42 months, and letter knowledge and print concepts were also measured at 42 months. Supporting the other studies reviewed here, results showed that home literacy practices significantly predicted children’s receptive and expressive language skills over a 15-month period, even after controlling for initial differences. In addition, children’s interest level was strongly associated with mothers’ metalingual utterances, such that the more utterances used by the mother, the greater the child’s interest level. While this might seem intuitive, very few studies have directly explored this correlation. These results thus bear significantly on the importance of interaction during reading, not just because of language or literacy development, but because it helps
the child remain more interested in the story, a factor that in and of itself may lead to greater learning (Elley, 1989; Robbins & Ehri, 1994; Wasik & Bond, 2001).

All the above studies, both dialogic and non-dialogic, relate to varying types of interactions between parents and preschool children during reading. Results seem to show that interactions can help increase learning from shared reading sessions, with results varying depending on the type of interaction, parents’ reading style, and age of the child. Project EASE (Early Access to Success in Education) is an intervention project focused on both the frequency and quality of interaction during storybook reading between parents and kindergarten children from low-SES families (selected from Title 1 schools) (Jordan, Snow, & Porche, 2000). During this year-long intervention, parents received coaching and materials to implement 15 scripted, at-home reading activities. These activities were designed to “foster receptive and expressive language abilities and provide opportunities for the occurrence of rare vocabulary items” (Jordan et al., 2000, p. 529). Parents and children also participated in activities in the school setting that related to the major units. These major units focused on vocabulary, letters and sounds, storybooks, narrative retelling, and a non-fiction text unit (http://gseweb.harvard.edu/~pild/activities.htm, retrieved 24 October, 2010). This is one of the few intervention studies that specifically included non-narrative texts, although there was no analysis that separated out the effects of narrative vs. non-narrative texts.

Results from the project showed that children in the experimental group made significantly greater gains than children in the control group on measures of vocabulary, story comprehension, story sequence, ending sound awareness, and certain concepts of print (Jordan et al., 2000). Additionally, those with lower language scores at pretest
demonstrated the greatest gains at posttest, and these gains increased at a steeper rate for those in the experimental group than for those in the control group.

**Summary.** Just as differences between studies were evident in the earlier body of research and the recent research in the classroom setting, so too do differences exist between studies in the recent research in the home setting. These include differences in methodology, age of participation, SES of participants, and the like, and consequently, in the results. Despite all these differences, as with classroom-based studies, the research supports the value of shared reading between parents and children. The home-based studies seem to more clearly support the premise that greater levels of interaction – whether by questions, comments, or discussion – can lead to improved levels of learning.

While the majority of studies, both classroom-based and home-based, have used storybooks in the research, a few studies have examined non-fiction books as well (e.g. Fielding-Barnsley & Purdie, 2002; Jordan et al., 2000). The current study will explore differences in reading and interaction style between parent and child during the reading of both fiction and non-fiction, as well as examine levels of learning of target vocabulary words from each genre. The following section reviews the research on non-fiction texts, primarily as it relates to shared book reading.

**Research on Non-Fiction Texts**

**Features of Non-Fiction Texts**

Nonfiction books are often divided into various subcategories, including biographies, nonfiction narratives, how-to-books, and informational books (Yopp, 2007). Each of these subcategories has particular characteristics that distinguish it from the
others. According to Yopp (2007), informational texts are texts that convey information about the natural and social world and that contain the following characteristics:

- Opening and closing statements about the topic
- Repetition of the topical theme
- Expository text structures such as problem/solution, description, sequence, compare/contrast, and cause/effect, rather than story structure, which consists of a setting, characters, and plot
- Various access formats such as an index, glossary, and headings
- Timeless verbs (rather than past tense verbs so often used in narrative) and generic nouns (referring to a class of things rather than individuals)
- Graphic elements such as photographs and diagrams, often with labels and captions (p.47)

In addition to these features, Gill (2009) describes particular features of non-fiction picture books, which she defines as those that are no longer than 48 pages and where the “pictures and the text are equally important in conveying information” (p.261). These picture books tend to be aimed at younger children more than traditional information books. According to Gill (2009), the primary features in these non-fiction picture books are “an emphasis on the visual, including illustrations and design layouts; an emphasis on accuracy; and engaging writing styles, including formats that invite interaction” (p.261). Based on these various features, it is clear that informational texts differ from the traditional narrative texts that are usually read to young children. What advantages, if any, do these books confer? Why is it important for children to be exposed to these types of books?

**The Importance of Informational Texts**

Many researchers and educators have discussed the difficulties confronting children who encounter expository texts as they progress through their years in school (e.g. Chall, 1983; Duke & Kays, 1998; Marinak & Gambrell, 2008; Moss, 2008).

Although children are exposed to narrative texts from a much younger age, expository
texts are the ones that take on increased importance as children progress through grade school, particularly from the fourth grade and on (Chall, 1983). In her description of the stages children go through in learning to read, Chall (1983) described a move from “learning to read” to “reading to learn” in the fourth grade. At this point, expository texts become more frequent and more important, yet children are often unprepared to handle these types of texts.

It has been suggested that exposing children to informational texts when they are younger may facilitate their later encounters, easing reading comprehension and writing relating to expository texts (Duke & Kays, 1998; Marinak & Gambrell, 2008). At the same time, however, there is a belief that children are unable to understand and relate to informational texts when they are younger (Marinak & Gambrell, 2008).

**Young Children and Non-Fiction**

An oft-cited study by Pappas (1993) seems to indicate that young children can, in fact interact and understand non-fiction texts. The study describes children’s repeated pretend readings of both information and narrative books (two of each kind). Results revealed that children were able to distinguish the characterizations in the stories from the classifications in the information books. Furthermore, they were able to acquire the different types of vocabulary used in the books. Beyond the technical aspects of the book readings, a majority of children preferred the information books over the narrative books. Despite the preponderance of narrative-focused readings, Pappas (1993) demonstrated children’s capabilities with, and preference for information books.

In a similar study, Duke and Kays (1998) examined kindergartners’ understandings of expository texts before and after a three-month exposure to them. In
their study, children were asked to “pretend-read” a narrative and informational book in which the actual text had been covered, in both September and December. During the intervening months, the children were read both narrative and expository books 3-4 times per week. Results showed that in their December pretend readings, more children included more features characteristic of informational books, including: more timeless verb constructions, more nouns with generic referents compared to nouns with specific referents, greater use of compare/contrast structures, and greater use of classificatory structures. Furthermore, these elements were not present in the children’s pretend readings of the narrative text, demonstrating that the children gained an understanding and awareness of the unique “language” of informational texts.

In addition to the changes in the children’s own readings, the children also spent more time interacting with the informational books in the classroom of their own volition (Duke & Kays, 1998). They looked at the books in the class library, listened to them at the listening center, discussed them between each other and in class, wrote about the book’ contents in their journals without being prompted, and requested that these books be read during read-alouds.

A study by Mohr (2003) revealed very strong preferences by first graders for informational texts. Mohr (2003) presented first grade students with nine picture books from a variety of genres, and asked them which book they would want to keep. Book orders were then placed, and the children received a copy of their chosen book one week later. Mohr (2003) found that of 190 first-grade students, 159 of them (84%) chose an informational text as the book they most wanted to keep (p. 169). Furthermore, among a
group of children who had the books read to them and only then selected a book, 90% of those students selected a non-fiction text.

Contrary to the belief that young children are unable to understand or relate to informational texts, the above studies demonstrate that children enjoy informational books, are able to interact with these books appropriately and learn from them, and often prefer them to storybooks. As Mohr (2003) states in her study, “These first graders did not seek out a good storybook; they wanted an informational text and were not intimidated by it” (p. 172).

**Gender Preferences for Non-Fiction**

While the above studies related to both boys and girls, there is a general perception that boys prefer reading informational books and girls prefer reading stories (Chapman, Filipenko, McTavish, & Shapiro, 2007; Doiron, 2003). However, the limited research exploring this perception has revealed mixed results. Some studies seem to show boys preferring to read non-fiction over fiction texts (Mohr, 2003), while others do not (Chapman et al., 2007, Doiron, 2003). In the above-described study by Mohr (2003), while all the children preferred non-fiction to fiction books, there were statistically significant gender differences in these preferences. Of the boys in the study, 96% selected a non-fiction book, while 69% of the girls selected non-fiction.

A study by Doiron (2003) also supports gendered book preferences. In a study conducted over three years in three elementary school libraries, Doiron (2003) examined all the books checked out by children in grades 1-6 for independent reading. Results showed that boys took more than two-thirds of all the information books that were checked out, while girls took less than one-third.
In contrast to the above two studies, Chapman and colleagues (2007) did not find that boys preferred informational books compared to girls. Rather, they found that the features that determined book choice among the first grade children in their study were those related to a particular book, as opposed to the genre. These features included: the visual aspect of the book, the topic, humor, whether the book won an award, the tactile quality of the book, connections to children’s own lives, and other random aspects relating to what was in the book. At the same time, when asked to choose books for other children, gender preferences were somewhat more evident, but still not falling along the fiction-nonfiction divide. For instance, children noted that, “boys aren’t scared of spiders and girls are” or, “girls like to plant things” (Chapman et al., 2007, p. 545). The children in these studies did not necessarily relate to how a topic was presented – i.e. in narrative format or informational format. They were much more focused on their own interest in the topic on various levels and whether the book was visually appealing.

It is unclear why these studies show conflicting results. However, the study by Chapman et al. (2007) alerts us to the importance of the visual aspect of books when comparing narrative and informational books. This element was taken into account in the current study, and all the books used have vivid illustrations, no differences in tactile quality, and no differences in format (i.e. all books are paperback).

**Non-Fiction in the Classroom**

Despite the apparent readiness of young kindergarten children to appreciate and learn from informational texts, research has shown a dearth of these books in actual preschool and early elementary school classrooms (Duke, 2000; Moss, 2008; Yopp, & Yopp, 2006). Duke (2000) observed 20 first grade classrooms in 10 school districts,
where half of the classrooms were high-SES and the other half were low-SES. Each classroom was observed for four full days during the course of the year. In addition, all displayed print, books, and activities relating to print were noted and coded. In this study, a wider definition of informational books was used and included books that are purely informational, narrative-informational books that are written in a more narrative style but whose major purpose is to convey information, and information-poetic.

Despite a broader classification, results revealed just how much these classrooms are devoid of informational texts. Duke (2000) found that no more than 10% of any classroom’s displayed text was informational, with low-SES classrooms having even less than high-SES. Informational texts were rarely part of classroom libraries, with a mean of only 9.8% of books falling into this category. Furthermore, there was a large range in the number of library books on a class-by-class basis, with some classes having many more than others. For this variable as well, low-SES classrooms had even fewer books than the high-SES. The only positive result was that when they were present, informational books tended to be displayed prominently in classroom libraries. Other results were similarly discouraging. Over the course of nearly 80 days of observations, students spent on average, just 3.6 minutes a day in whole-class written language activities dealing with informational texts (Duke, 2000). When it came to small-group activities other than reading groups, not even one occasion involved informational texts during all the days of observation, across all 20 classes.

Yopp and Yopp (2006) found similarly scarce informational resources in the classroom. In their study, over 1,000 teachers of children from ages 3-4-years old through grade 3 reported on books they had read to the class one day prior to attending a
professional development session. Of these books, narrative texts represented 77% of identifiable books in the classrooms, while only 8% were informational, 1% were mixed texts and 14% were other (primarily poetry) (Yopp & Yopp, 2006). Contrary to the notion that narrative books would be more prominent in the younger classrooms, the authors found no significant differences among grade level in terms of numbers or percentages of books. Additionally, there was no significant difference in genres among teachers based on the number of books they read.

These findings were replicated and extended more recently (Pentimonti, Zucker, Justice, & Kaderavek, 2010). In this study, the authors examined more than a thousand book titles read aloud in over 80 classrooms across two states. Like the aforementioned study by Yopp and Yopp (2006), this research found that over 80% of coded texts were of the narrative genre; only 4% were expository. According to the authors, “we estimate that informational read-alouds only occurred for approximately 55 seconds per day for each teacher” over the course of the 30 week study (Pentimonti et al, 2010, p.661). This is in line with the findings by Duke (2000), though it reflects even less time spent on expository texts. It is possible that informational texts were being used by these teachers in ways other than during read-alouds, but this was not explored by the authors.

Moss (2008) compared the text genres represented in two basal readers adopted in California and compared them to the National Assessment for Educational Progress in Reading (NAEP) guidelines of 2009. While the two reading programs showed more nonfiction texts than in the recent past, the selections still did not meet the NAEP guidelines. Moss (2008) reports that the guidelines recommend 50% informational texts at the fourth grade level, 55% at the eighth grade level, and 70% at the twelfth grade
level. Results of Moss’s comparison showed that at the fourth grade level, non-fiction selections in the basal programs ranged from 46% to 53%, at the fifth grade level from 40-59%, and at the sixth grade level from 40-69%. Although these percentages come close to NAEP recommendations, they don’t take into account the different types of non-fiction texts. Moss revealed that expository texts in the two programs actually decreased from fourth through sixth grades. Thus, they are certainly not meeting the recommendations for informational texts. More directly relevant to the current study are the relatively low levels of expository texts contained in these basal programs in the earlier grades. Both programs had many fewer of these selections in the earlier grades, especially in the first grade, where only 23% of selections were expository in one program and only 13% in the other. This seems to reflect the belief noted by numerous researchers that young children should be exposed to narrative text styles while nonfiction texts are too difficult (Duke, 2000; Marinak & Gambrell, 2008).

Marinak and Gambrell (2008) ask, “If research indicates that engaging with informational text enhances comprehension, one must ask why such instruction is not more common in elementary classroom” (p.75). Although there is no single answer, the authors cite a study conducted by Donovan in 2001 (as cited by Marinak and Gambrell, 2008) that found that teachers prefer working with fiction because they are less familiar with informational texts. These teachers were not sure how to teach the text structures of informational texts nor were they certain how to help children understand these types of texts.

Based on the above studies, it appears that the lack of informational texts in classrooms, from preschool all the way through elementary school, is due to multiple
factors. First, schools often do not have a large number or variety of informational texts. Second, even when these texts are available, teachers often do not have the knowledge, comfort level, and resources to appropriately teach these texts. Last, the prevalent belief that children are not interested in these texts and that they are too difficult still seems to be quite pervasive, despite some research to the contrary (Duke & Kays, 1998). It should be noted that almost no studies asked the teachers about other ways in which they might make use of informational texts, their views on them, or their accessibility. Nonetheless, it seems reasonably clear that until recently, there was a dearth of interaction between the children and informational texts in the classroom.

With the advent of the Common Core across most of the United States and its focus on informational texts at all grade levels from 1st grade and up (NGA Center & CCSSO, 2010), there is a likelihood that there will be more informational texts accessible to teachers and children, in the classrooms, and across curricula. The changes that may emerge from this will need to be examined over the coming years.

**Non-Fiction in the Home**

As in the classroom setting, it seems that there is a lack of non-fiction texts for young children in the home setting, although there is much less research in this area. In a second study by Yopp and Yopp (2006), the authors examined the monthly logs of books read aloud in the home of 20 kindergarteners’ families (from one class). The authors reported that informational books were rarely read in the home, with only 7% of books read being informational. In sharp contrast, 77% of the texts read were narrative. The remaining books fell into other categories such as mixed-genre. Few other studies of book reading in the home have used genre as a variable of study; in fact, “more serious
than the use of only one genre is the general lack of attention given to genre; it is typically mentioned with little rationale for choice, or not mentioned at all” (Pellegrini et al., 1990, p. 450). A select number of studies that have examined the use of non-fiction during shared reading in the home setting will be described below.

**Shared Non-Fiction Book Reading in the Home**

Pellegrini and colleagues (1990) examined mothers and their Head Start children reading both narrative and expository genres presented in both a familiar, as well as a traditional, but less familiar, format (Pellegrini et al., 1990; Pellegrini, Galda, Perlmutter, & Jones, 1994). Results from one study showed that mothers used significantly more teaching strategies during the expository texts than the narrative texts. Children also participated more during the expository text readings than the narrative readings (Pellegrini et al., 1990).

In a second study that builds on the previous one, the authors examined only expository texts in both traditional and familiar formats (Pellegrini, 1994). Here too, the results showed differences. Mothers used higher demand strategies and more metalinguistic verbs (such as “tell me”; “say” that again; please “read”) in the familiar expository context. In addition, children were able to make connections between the texts and their own lives more often with the familiar context. Furthermore, the use of these connections was predictive of children’s word identification from the texts and overall vocabulary levels. Maternal expansions were used across formats in the expository texts, and were predictive of children’s general vocabulary level. The authors hypothesized that by expanding on children’s utterances, mothers encourage greater discussion by the child, and “when children verbalize around labeling texts, they also identify the labels later”
(p.19). In other words, greater discussion during the joint reading was related to greater word learning by the children in this study. This goes along with Whitehurst’s (1988) discoveries of how dialogic reading encourages greater verbalization and discussion surrounding a book, and hence greater learning from the reading session.

While genre differences did emerge from the work by Pellegrini and her colleagues (1990; 1994), the expository texts used in these studies were texts that contained lists of pictures and words. As a result of this, “there was minimal underlying text structure,” and consequently, “mothers may have had to use more teaching strategies in this genre to ensure children’s participation” (Pellegrini et al., 1990, p.449). In contrast, the current study proposes the use of information books whose features have been described above. While these books contain information, they have a more cohesive structure compared to lists of labels. As such, they serve as a different, and perhaps more appropriate, counterpoint to the traditional narrative text.

In the past decade, despite an explosion in research on shared book reading, only two studies were found that included information books as an *a priori* focus (Price, van Kleeck, and Huberty, 2009; Torr & Clugston, 1999). A third study by Potter & Haynes (cited by Price et al., 2009) that included information books could not be located and accessed; however, based on Price et al. (2009), the sample in this study was 2-year-old children, much younger than those in the current study. Torr and Clugston (1999) used information books in comparison with narrative texts in a joint-reading situation between mothers and children, as well as teachers and children. Like Pellegrini et al.’s findings (1990, 1994), Torr and Clugston (1999) found that mothers made more utterances surrounding the information book than the narrative book. Adults asked more yes/no
questions during the expository text and more WH questions (who, what, when, where, why, how) during the narrative text. However, the types of WH questions varied, with more explanatory questions (why and how) during the expository text than specification questions (who, what, when). Thus, even though more WH questions overall were asked during the narrative, those questions that are higher in cognitive demand and which lead to greater levels of discussion were asked more during the information text than the narrative.

The current study differs from Torr and Clugston’s (1999) in a number of important ways. Firstly, the latter worked with 4-year-old children, while participants in the current study ranged from 4-years-old through nearly 6-years-old. It is possible that differences between ages may emerge from this study. Secondly, while the latter study used only one book of each genre, the current study used multiple books from each genre to strengthen the conclusions that can be drawn. Thirdly, Torr and Clugston (1999) examined 12 dyads, only six of which were parent-child. In contrast, the current study examined 45 mother-child dyads. Lastly, Torr and Clugston’s (1999) focus was on the types of reasoning interactions during the readings. The current study is primarily interested in whether and how children’s vocabulary learning varies with the genre of the book. One element in the current study that is similar to that of Torr and Clugston’s (1999) is the use of both narrative and information books that have a similar topic or focus.

In contrast to both Torr and Clugston (1999) and the current study, Price et al. (2009) used narrative and informational books that were representative of their genre, rather than books with similar topics. In their study, Price et al. (2009) examined talk
between parents and their 3-4-year-old children during joint book reading of four books, two storybooks and two information books. Sixty-two parent-child dyads participated in this study, all of whom were from middle to upper-middle SES. An extensive analysis by the authors on the extra-textual talk of both parents and children surrounding the reading of the books revealed numerous genre-based differences. Parents spent significantly more time reading the expository texts, yet on average only read 89% of the complete text. Parents also made a significantly greater number of extra-textual utterances while reading expository texts compared to narratives. In addition to a greater numbers of utterances, there was a significantly greater variety of utterance type during expository text reading, and significantly longer utterances by parents as well. Much of the examined talk used lower levels of cognitive demand between parents and children. However, when higher-level cognitive demand utterances were used, they were used more during the expository book reading than during the storybooks.

In a finding relevant to the current study, Price et al. (2009) found that parents used greater vocabulary diversity in their utterances relating to the expository texts than those relating to the narrative texts. At the same time, more talk at lower levels of cognitive demand, especially labeling, was found around the expository books. The authors propose that this is to help encourage children’s participation by making them feel more comfortable. The authors also note that using more of these types of utterances may have benefits for children’s vocabulary growth given that associations have been found between labeling routines and the facilitation of vocabulary growth. Based on the fact that there was more lower cognitive demand talk during the expository book readings, the authors recommend that “educators could consider expository book sharing
as a means to increase vocabulary exposure” (Price et al, 2009, p.190). The current study examined this suggestion in a home-based context, using multiple books from each genre, and measuring children’s vocabulary learning.

Summary

It appears that in the home context, like in schools, there is less focus on nonfiction texts in comparison to storybooks. When nonfiction texts are used, parents seem to engage in more talk overall, and more varied talk surrounding the books. In addition, preschool-aged children seem to be capable of dealing with nonfiction books, including information books, and often even seem to prefer them. Hopefully, the greater attention devoted of late to information books will succeed in leading to greater inclusion of these books in both homes and classrooms.

Dual Language Learners

A majority of the research on shared book reading has been conducted with monolingual, usually English-speaking children. Yet there are large populations who are learning a second language concurrently with English or successively to English. Similarly, there are large populations of children who are learning English as a second language. How do these populations differ from monolingual English speakers in their language and literacy development?

DLLs and Language and Literacy Development

There are many terms used in the literature for children who are learning a second language. Some literature refers to these children as second language learners, others consider them to be bilinguals regardless of their level of proficiency, and other terms can be found as well. In this discussion, the term dual language learners (DLL) will be used
(however, the terms used by authors of studies discussed herein will be maintained). This is in keeping with the U.S. Dept. of Health and Human Services (2008), which explains:

children who are Dual Language Learners acquire two or more languages simultaneously, as well as learn a second language while continuing to develop their first language. The term “dual language learners” encompasses other terms frequently used, such as Limited English Proficient (LEP), bilingual, English language learners (ELL), English learners, and children who speak a language other than English (LOTE) (p. 6).

There is a good deal of discussion in the literature on whether the development of a second language occurs along a similar path as the development of language in monolinguals (e.g. Bialystok, 2001; Genesee, 2010; Gersten & Geva, 2003). Genesee (2010) notes that bilingual children follow the same language development milestones as do monolingual children, including: babbling, first words, word spurt, word combinations, and grammar learning. Bialystok (2001) explains that bilingual children learn both syntax and phonology of a second language like the first language. Likewise, Gersten and Geva (2003) discuss how second language learners develop prereading skills, such as phonological awareness, similarly to how native speakers of English develop these skills.

Tabors and Snow (2001) have proposed a model of development specifically for children like those in the current study, who are sequentially exposed to a second language. The authors found that children exposed to a second language outside of the home setting (e.g. preschool classroom) pass through a sequence of stages. In the first stage, children continue to speak their home language both in and out of their home. It takes some time before the children become aware that another language is being spoken. In the second stage, children become aware that another language is being spoken, but being unable to communicate in that language, they resort to nonverbal communication
such as pointing, crying, and the like. According to Tabors (as cited in Tabors & Snow, 2001), during this period the children are gathering information on the new language, developing receptive understanding of the language, and rehearsing for use of the new language (p. 167). In the third stage, children move beyond nonverbal communication and begin to use telegraphic and formulaic language. Telegraphic language includes “naming people and objects, using the alphabet, and counting. Formulaic language use involves employing catch phrases for getting into and out of social situations” (p. 167). In the fourth stage, children start to combine the various elements to create their own form of the language to describe their day-to-day activities. During this stage, children may not use whole phrases, making it seem as if their language ability has decreased, and make more mistakes while figuring out how the language works.

While there do seem to be differences in second language development based on the time of introduction to the second language, the overall trajectory of second language learning seems to be along the same lines as that of first language learning. Literacy learning between monolinguals and DLLs also seems to be quite similar. The National Literacy Panel on Language-Minority Children and Youth received the charge to “identify, assess, and synthesize the research on the education of language-minority children and youth with regard to literacy attainment and to produce a comprehensive report on this literature” (August & Shanahan, 2006, p.2). The Panel’s report revealed a number of findings regarding how children who are learning English as their second language learn, and how to best instruct these students (August & Shanahan, 2006).

First, like native English speakers, DLLs benefit from learning the basic elements for reading: phonemic awareness, phonics, fluency, vocabulary, and text comprehension.
Second, instruction in these elements is not sufficient for these students to learn to read and write proficiently in English. They need oral proficiency as well, including vocabulary knowledge, listening comprehension, syntactic skills, and metalinguistic aspects of language. Third, literacy development can be facilitated by instruction in the students’ primary language (August & Shanahan, 2006). While other points were noted by the authors, the above are the most relevant to the current study.

Based on these findings, it appears that DLLs need instructional modifications to facilitate their oral language proficiency, particularly in the area of vocabulary. Other research on DLL vocabulary development seems to support the need for increased vocabulary learning in this population (Bialystok, 2001, 2007; Genesee, 2010). Genesee (2010) points out that bilingual children often have smaller vocabularies in each language compared to monolingual children. In a study examining the underlying processes involved in reading fluency with second graders, Geva and Zadeh (2006) reported that children who were learning English as a second language significantly differed in their expressive vocabulary from their monolingual peers. The DLLs scored nearly two years below the monolingual group on the expressive vocabulary measure (Geva & Zadeh, 2006). In a recent study, Bialystok, Luk, Peets, and Yang (2010) compared the vocabulary of bilinguals to those of two sets of monolingual children, one speaking English and one speaking French. Results showed that there were significant differences between the groups’ levels of receptive vocabulary. As Goldenberg (2008) highlights, “Vocabulary development is, of course, important for all students, but it is particularly critical for ELLs” (p. 23), and “it is critical that teachers work to develop ELL’s oral English, particularly vocabulary. . . from the time they start school” (p.22).
From the extant literature, it is evident that joint book reading is one method to facilitate vocabulary learning among monolingual children. Recently, some studies have examined the impact of joint storybook reading on DLL preschool children, helping us gain some insight into the impact of this intervention on this under-researched population.

**Shared Book Reading and DLLs**

Ulanoff and Pucci (1999) compared the impact of two different methodologies on English vocabulary learning from read-alouds with DLL children. The first methodology is concurrent translation, “defined as the use of two languages interchangeably or concurrently during lessons, with care taken to avoid the use of direct translation from one language to the other” (p. 322). The other methodology is preview-review, which uses the two languages separately. In the preview-review method, the content is summarized to “build background knowledge in the primary language” (p. 322). The lesson is then taught in the target language and after the lesson, “a review is done in language dominant groups, expanding and reinforcing that which was taught during the lesson” (p. 322). The methodologies thus differ on how much of each language is used, and whether or not the languages are separated during instruction.

In the study, third grade DLLs were randomly assigned to one of three groups: concurrent translation, preview-review, or control (Ulanoff and Pucci, 1999). Results showed that the use of the concurrent translation led to the least gain in vocabulary among the three groups (12%), even less than the control group (19%). In contrast, the preview-review method led to a significant gain of 57%. Clearly, this method was advantageous. Ulanoff and Pucci (1999) note that despite only hearing the story once,
“the preview-review technique provided enough context to activate the schemata and assist the children to acquire the target vocabulary” (p.328). Furthermore, a one week delayed posttest found that gains were maintained. This study seems to support the need for additional explanation for vocabulary learning to take place from shared book-reading with this population, as well as the advantages of using children’s first language to facilitate learning in the second language (August & Shanahan, 2006). While this study was conducted with third graders, it is important to examine what happens with younger DLLs who are not yet readers, the population of the current study.

Roberts (2008) examined the impact of reading in the primary or secondary language on English vocabulary learning. In this study, participants were 33 preschool children whose primary languages were either Hmong or Spanish and were from low SES families. Children, blocked by language group, were randomly assigned to receive books either in their primary language or in English for the first six sessions. For the second six sessions, the book language was reversed. In addition to the book reading at home, each week two English-language classroom sessions were conducted on the same book that had been read at home the previous week. To enable book reading at home, 12 classic children’s storybooks were developed in Hmong and Spanish. Weekly vocabulary tests were administered, testing six words from the book that had been read at-home the previous week, the book that had been read in class, and the book that would be read at home the following week. This was to permit an examination of the effects of the home reading component versus the classroom instruction.

Results of the study revealed that preschoolers’ who received storybooks in their primary languages identified significantly more of the storybook words in English than
did children who received storybooks in English for home reading (Roberts, 2008). After combined home reading and classroom lessons, a significant number of words were learned \( (d=1.40 \text{ for books 1-6, } d=1.93 \text{ for books 1-7}) \). Overall vocabulary showed much less growth than the instructed words \( (d=0.37 \text{ for PPVT-III time 1 to time 2; } d=0.41 \text{ from time 2 to time 3}) \). This reinforces the idea that direct instruction facilitates word learning, particularly for DLL children. Reading in the primary language led to a positive effect, and switching languages - from the primary language for home reading to English in the class - did not negatively impact on children’s learning. Children of both primary languages, Spanish and Hmong, showed similar abilities to learn new vocabulary. However, PPVT-III and English oral proficiency scores showed that Spanish-speaking children’s facility with the English language was growing at a faster rate than Hmong-speaking children. Additionally, no Matthew effects were demonstrated. That is, children of varying initial vocabulary knowledge were able to learn new vocabulary to the same degree (Roberts, 2008).

Working with Portuguese-speaking DLLs, Collins (2010) also explored preschoolers’ English vocabulary acquisition from storybook reading. In this study, Collins (2010) specifically examined the effect of rich explanations on children’s target vocabulary learning. Eighty 4-5-year-olds participated in the study. Children were matched on their English receptive language scores and then one member per pair was randomly assigned to the experimental group and the other to the control group. A third small, no-story condition served as a control. The following strategies were included as part of the rich explanation inserted by the researchers during the storybook reading: pointing to illustrations of the target word, providing a general definition, providing a
synonym, making a gesture of the word, and using the word in a context different from that of the book. All the above strategies were used for each of the target words, with the exception of gestures, which were only used where relevant.

The study included the use of six fiction books as well as two information books presented in narrative style (usually referred to as mixed-genre) (Collins, 2010). While results showed that children can learn new words across the genres, there was no breakdown of words learned by genre reported by the author. Children in the study were able to learn words incidentally from multiple story readings, but learned significantly more words when rich explanations were added.

**Summary**

The research on joint book reading and DLLs is clearly limited. However, it seems as if this intervention can be as useful for DLLs as it is with monolingual English speakers. Reading in the child’s primary language seems to facilitate vocabulary growth in English, simplifying the possibility and usefulness of this as a home-based intervention. In addition, while incidental learning can occur with DLLs, direct explanation of words is likely to enhance vocabulary learning. The dual language participants in the current study are trying to learn to speak, read, and write in English while immersed in the Hebrew language at school. Hopefully, this study will shed further light on how storybook reading can influence vocabulary learning with this group of young students, and on the larger difficulties facing DLLs.

**Study Rationale**

Based on the review of all the above literature, we can conclude that joint book reading is one method to help young children learn new words -- in the classroom, in the
home, with multiple types of books, and for children who are dual language learners. At the same time, there remain many questions surrounding joint book reading that require additional research. The current study examined the use of narrative and informational books in a joint reading, home-based scenario, working with children who are dual language learners of English and Hebrew, and explored the potential for vocabulary learning from differing book genres.

To examine the effects of vocabulary learning from the two genres, four pairs of books, each containing one narrative and one information book on the same topic or focus, were selected to be read to participating children by a parent. The use of multiple pairs of books facilitates stronger conclusions to be drawn and minimizes book-specific effects that have been noted in previous studies (Elley, 1989; Robbins & Ehri, 1994).

In addition to the effects of vocabulary learning, videotaping and coding all the reading sessions enabled parents’ reading style to be examined. Of particular interest were the following elements: the cognitive demand level of questioning, explanation of words, and focus on concepts of print. Of additional interest was whether or not a particular style of reading emerges based on book genre; that is, do parents tend to read fiction books one way and non-fiction books another way. A pilot study conducted with kindergarten teachers showed that general reading style was consistent across genres, but elements such as cognitive demand and references to illustrations varied by genre (Bergman Deitcher & Johnson, 2012, June). The current study examined these elements with parents reading the books, as opposed to teachers. The following research questions and corresponding hypotheses guide the current study:
1. Do children learn more vocabulary words from narrative or informational texts?

Regarding vocabulary learning, two opposing hypotheses are possible. Since no study has examined this question in this fashion, both hypotheses are equally tenable and only results will lead to confirmation of one of them.

a. The first hypothesis is that more words will be learned from narrative books, because children are much more familiar with this style of writing, know what to anticipate, and can more easily use the context to facilitate their understanding of unknown words.

b. The alternative hypothesis is that more words will be learned from informational books. Since children are less familiar with this style, and since the words themselves are likely to be more technical, parents may focus more on these unknown words, thereby facilitating children’s learning.

2. Are there differences between receptive and expressive levels of word learning between narrative and informational texts? In prior studies, incidental exposure to words during book reading has led to learning of some of the words at the receptive language level, and less so at the expressive language level (Elley 1989; Robbins & Ehri, 1994). It is hypothesized that since children will experience only incidental exposure to words from hearing them read one time in the book in the current study, that they will succeed more on receptive measures of word learning compared to expressive.

3. Are words learned more readily from certain books over other books? Previous studies have shown that books with certain features tend to lead to greater word
learning than books without those features (Elley, 1989; Robbins & Ehri, 1994). Since attempts were made for all the books selected for the current study to contain features such as interesting and supportive illustrations, humor, well-conceived plot (for the narrative texts), etc., it is hypothesized that words will be learned at similar rates across all the selected books.

4. *Do parents read different genres of books differently?* It is hypothesized that parents will read narrative and informational books differently. The anticipated differences are detailed as follows:

a. *Do parents ask more cognitively demanding questions for narrative or informational texts?* Research from Dialogic Reading studies has shown that parents tend to ask more labeling questions, and fewer open-ended or higher demand questions (Mol et al., 2008; Whitehurst et al., 1988). It is thus expected that parents will ask more low-cognitive demand questions overall. At the same time, based on results from a pilot project (Bergman Deitcher & Johnson, 2012, June), it is expected that if parents ask high-cognitive demand questions, these questions will be more likely to occur during the informational text readings, in keeping with the more demanding text.

b. *Do parents refer to illustrations more for narrative or informational texts?* A pilot study (Bergman Deitcher & Johnson, 2012, June) conducted with teachers revealed that teachers referred to illustrations much more often while reading informational books than narrative books. It is likely that teachers relied more heavily on illustrations to explain concepts to the
children. Gill (2009) explains that in newer picture non-fiction books, both the text and illustrations are important in conveying information. It is therefore expected that in this study as well, parents will refer to illustrations more often when reading informational books than narrative books.

c. *Do parents refer to unfamiliar words differently for narrative or informational texts?* A pilot study (Bergman Deitcher & Johnson, 2012, June) showed that teachers commented on new vocabulary about equally during narrative and informational books. It is uncertain how parents will handle words that they believe their children do not know while reading. It is hypothesized that parents will treat unfamiliar words that are essential to the context the same, regardless of which genre they are reading.

d. *Do parents comment on concepts of print more for narrative or informational texts?* Children learn more than just the content of a book from shared book-reading situations. They also learn how to hold the book, how to turn the pages, the title, and other elements related to print. These concepts of print are very important in children’s learning how to read on their own (Chall, 1983). It is expected that parents will focus on these elements more when reading informational books, as they are aware that their children are less familiar with this genre.
Chapter 3 – Methodology

Participants

After receiving approval from the Institutional Review Board, participants were recruited from three major communities in Israel – Modiin, Beit Shemesh, and Hashmonaim - where there are high percentages of residents who are immigrants from native English-speaking countries (United States, United Kingdom, Australia, South Africa). All three communities maintain email lists dedicated to the English-speaking communities. The primary investigator (PI) posted a request for participants on each email list directing those interested in participating to contact the PI. In addition, written requests for participants were placed near local kindergartens in each community. Upon expressing interest, parents were contacted by the PI, who explained the study and the procedure and set up an initial meeting. A snowball method for further recruitment was used where participants recommended others to the PI for inclusion in the study. In addition to the three communities mentioned above, participants were included from Jerusalem, Neve Daniel, Yad Binyamin, and Efrat. At the initial meeting, parents were given a consent form and a permission form to read and sign. Likewise, prior to beginning procedures, verbal assent was requested from the children.

The following inclusion and exclusion criteria were defined prior to recruitment and were met by all participants. All participating children were between the ages of 4 and 5 years 11 months at the beginning of the study. All parents were native English speakers and English was the primary language spoken in the home. Children who were diagnosed with a language disability or delay were excluded from participation, as were children who attended a preschool designed for those with language disabilities (“gan safá”) or a preschool designed to integrate those with language disabilities (“gan shiluv”).
In total, 47 parent-child dyads were recruited for participation in the study, and 45 dyads completed the study. Of the two who did not complete, one dropped out without explanation and one child hit ceiling on the target word pretests and could not be included. The participating children were evenly divided between genders (22 male, 23 female) and ranged in age from 48 months to 72 months, with nearly one-quarter of the participants falling into each half-year age group, as can be seen in Table 1. While one child from the oldest age group was in first grade, the remaining children were either in preschool or kindergarten.

Table 1

**Children’s Age and Length of Time Living in Israel (N=45)**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>48-54</th>
<th>55-60</th>
<th>61-66</th>
<th>67-72</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child’s Age (in months)</td>
<td>Mean</td>
<td>S.D.</td>
<td>n(% of N)</td>
<td>Mean</td>
</tr>
<tr>
<td>&lt; 1 Year</td>
<td>51.9</td>
<td>1.78</td>
<td>12(26.7)</td>
<td>57.7</td>
</tr>
<tr>
<td>1-4 Years</td>
<td>2 (66.7)</td>
<td>0 (0.0)</td>
<td>1 (7.7)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>&gt;4 Years or Born in Israel</td>
<td>8 (16.7)</td>
<td>7 (63.6)</td>
<td>9 (33.3)</td>
<td>6 (66.7)</td>
</tr>
</tbody>
</table>

Overall, two-thirds of participants (66.7%) were either born in Israel or had lived there for more than 4 years, 8.9% had been in Israel for more than 4 years but were not born in Israel, 26.7% were in Israel between one-four years, and 6.7% had been in Israel for less than one year. Table 1 shows this breakdown per age group.

All the participants came from middle to upper-middle class homes, reflected by both parents’ years of education and occupations. Table 2 shows parents’ years of education.
Table 2

*Participating Parents’ Level of Education (N=90)*

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Mothers (n=45)</th>
<th>Fathers’ (n=45)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>High school</td>
<td>1 (2.2)</td>
<td>1 (2.2)</td>
</tr>
<tr>
<td>College</td>
<td>14 (31.1)</td>
<td>17 (37.8)</td>
</tr>
<tr>
<td>Post-college</td>
<td>26 (57.8)</td>
<td>11 (24.4)</td>
</tr>
<tr>
<td>&gt;18 years (post Master’s degree)</td>
<td>4 (8.9)</td>
<td>16 (35.6)</td>
</tr>
</tbody>
</table>

Most fathers were either professionals (doctor, lawyer, accountant) (31.1%), or in hi-tech or business/marketing jobs (40%). Most mothers held more traditionally “female” professions, including, teachers, nurses, social workers, and therapists, and 13% of mothers were not currently working.

**Materials**

**Books.** A review of previous book-reading literature revealed that book selection included the consideration of a number of factors including the interest level of the content, the vocabulary in the book, the familiarity of the book to the students, and text-related factors such as length, number of words, and reading level (e.g. Biemiller & Boote, 2006; Brabham & Lynch-Brown, 2002; Santoro, Chard, Howard, & Baker, 2008). These variables were therefore taken into consideration in the book selection process for this study.

Based on an informal survey of kindergarten teachers, common themes for the participant age group were selected, including: nature, animals, and foods. Based on this

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1 All participating parents were mothers in this study, and “mothers” and “parent” will be used interchangeably throughout the remainder of the paper.
and prior exploration of books in a pilot study (Bergman Deitcher & Johnson, 2012), multiple pairs of books, one non-fiction and one fiction, were selected on these themes. While both fiction and non-fiction genres have various subtypes, for the purposes of this study, narrative texts and informational texts were used. Books were then evaluated to determine if they contained genre-specific features. Based on suggestions by Gill (2009) and Yopp (2007) these features included:

For informational books:

- An emphasis on the visual, including illustrations and design layouts, especially those including photographs and diagrams with labels and captions.
- Engaging writing styles, including formats that invite interaction
- Expository text structures such as problem/solution, description, sequence, compare/contrast, and cause/effect
- Various access formats such as an index, glossary, and headings
- Timeless verbs and generic nouns

For narrative books:

- Story structure consisting of setting, characters, and plot
- Past tense verbs and nouns referring to individuals.
- Visually attractive presentations, including the use of illustrations and design layout.

Table 3 shows the selected books by theme and genre. All the selected books met the above criteria.
Table 3

Selected Books By Theme and Genre

<table>
<thead>
<tr>
<th>Theme</th>
<th>Genre</th>
<th>Title</th>
<th>Author</th>
<th>Illustrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animals</td>
<td>Informational</td>
<td>How &amp; Why Animals Prepare for Winter</td>
<td>Elaine Pascoe</td>
<td>Dwight Kuhn (Photographer)</td>
</tr>
<tr>
<td></td>
<td>Narrative</td>
<td>Groundhog Stays Up Late</td>
<td>Margery Cuyler</td>
<td>Jean Cassels</td>
</tr>
<tr>
<td></td>
<td>Informational</td>
<td>Snow Is Falling</td>
<td>Franklyn M. Branley</td>
<td>Holly Keller</td>
</tr>
<tr>
<td>Nature</td>
<td>Narrative</td>
<td>The Mitten Tree</td>
<td>Candace Christians</td>
<td>Elaine Greenstein</td>
</tr>
<tr>
<td></td>
<td>Informational</td>
<td>From Cow to Ice Cream</td>
<td>Bertram T. Knight</td>
<td>Bertram T. Knight</td>
</tr>
<tr>
<td>Food/Natural World</td>
<td>Narrative</td>
<td>Curious George Goes to an Ice Cream Shop</td>
<td>Margaret &amp; H.A. Rey’s</td>
<td>Margaret &amp; H.A. Rey’s</td>
</tr>
<tr>
<td>Nature/Food</td>
<td>Informational</td>
<td>Apples</td>
<td>Gail Gibbons</td>
<td>Gail Gibbons</td>
</tr>
<tr>
<td></td>
<td>Narrative</td>
<td>Apple Picking Time</td>
<td>Michele Benoit Slawson</td>
<td>Deborah Kogan Ray</td>
</tr>
</tbody>
</table>

Words. Studies on joint book reading have used various methods to select target words from texts. Some have inserted target words into books while others have selected words from the text without changing it (e.g. Robbins & Ehri, 1994; Justice, 2002). In keeping with the examination of reading in a natural setting, target words for this study were selected from those naturally occurring in the existing texts. Additionally, target words were selected to fit into Beck, McKeown, and Kucan’s (2002) concept of Tiers of words in a “mature literate individual’s” (p. 8) vocabulary. According to the authors:

The first tier consists of the most basic words – clock, baby, happy, walk, and so on. Words in this tier rarely require instructional attention to their meanings in school. The third tier is made up of words whose frequency of use is quite low and often limited to specific domains. Some examples might be isotope, lathe, peninsula, and refinery . . . These words are probably best learned when a specific need arises, such as introducing peninsula during a geography lesson.
The second tier contains words that are of high frequency for mature users and are found across a variety of domains (Beck, McKeown, & Kucan, 2002, p.8). Tier 2 words are those that are considered important for children to learn, but which tend to need more direct instruction to fully grasp the meanings. Additionally, Tier 2 words are often words for which children already “understand the concept but provide precision and specificity in describing the concept” (Beck et al., 2002, p. 19). Tier 3 words, while they tend to occur less frequently and are domain-specific, they also have only a single definition and may be learned more easily than certain Tier 2 words that can have different meanings in different contexts.

In the current study, 12 words were selected from each book in the following manner – 3 words that conform to Tier 1, as described above, but which the children were less likely to already know, 6 medium-difficulty words that conform to the concept of Tier 2, and 3 difficult words that conform to the concept of Tier 3. Varying levels of difficulty were used both to avoid floor and ceiling effects and to include some words that children would find easier so as to avoid frustrating them. Although the Tier 3 words are the most difficult due to their lower frequency and/or their domain specificity, some of them may be learned more readily by the children, as they may be better contextualized within the books. That is, the book may directly explain the meaning of the word in the course of the text (e.g. the word “pollination”) or provide more context clues surrounding the word, making it easier for the child to learn it as opposed to simply inferring its meaning from context without these clues. This possibility was explored in the current study. Words and the books from which they were selected can be seen in Appendix A.
Measures

**Parental measures.** *Demographic Survey:* Mothers filled out a researcher-designed demographic information survey. This provided basic information such as parental education level, number of children in the home, and the like. Responses to the demographic survey enabled an examination of potential mediating variables such as gender and age to be examined during the analysis of results (see Appendix B).

*Home Language & Literacy Environment Questionnaire:* Mothers filled out a researcher-designed questionnaire on the language environment and literacy activities in the home. This included the language spoken amongst those in the home, frequency of book reading in the home by the parents and frequency of shared book reading with children, along with questions about books in the home, library visits, and use of electronic media (See Appendix C).

*Reading Log:* Participating mothers were asked to keep a log of all books read to their children during the duration of the study. Logs were collected at the beginning of the last meeting (See Appendix D).

**Children’s measures.** The measures administered to the children are detailed below. Table 4 shows each measure and when it was administered to the children.

Table 4

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPVT</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>EOWPVT</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Target Word - Receptive</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Target Word - Expressive</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PPVT Hebrew</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Simon Says</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Child Book Preference</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Receptive Vocabulary Knowledge: The Peabody Picture Vocabulary Test (PPVT) – 4th Edition (Dunn & Dunn, 2007) was administered to all participating children and used to assess children’s receptive vocabulary knowledge prior to the book reading sessions. This is a norm-referenced test that is individually administered. Children were asked to point to one of four pictures that identifies the word spoken orally by the researcher. Reliability for the PPVT is reported as ranging from $\alpha=0.95$ to $\alpha=0.97$ for the age groups ranging from 4-6 years old (the relevant ages of the current study’s participants). Obtaining reliability within the current study sample was not feasible given the varying ages of the children and the varying start items of the tests. As a result, traditional alpha reliability would not have been meaningful.

Expressive Vocabulary Knowledge: The Expressive One Word Picture Vocabulary Test (EOWPVT) - 4th Edition (Martin & Brownell, 2011) was administered to all participating children and used to assess children’s expressive vocabulary knowledge prior to the book reading sessions. The EOWPVT is a norm-referenced test of expressive vocabulary that requires users to name objects, actions, and concepts from illustrated pictures. As per the test administration guidelines, a basal was first established when the child answered eight consecutive correct responses. Items continued to increase in difficulty and testing was halted when six items in a row were answered incorrectly. Reliability for the test is reported as ranging between $\alpha=0.94$ to $\alpha=0.97$ for the age groups ranging from 4-6 years old (Martin & Brownell, 2011). As with the PPVT, obtaining reliability within the current study sample on the EOWPVT was not feasible given the varying ages of the children and therefore, the varying start items of the tests. Traditional alpha reliability would have had minimal meaning.
**PPVT – Hebrew:** This is the PPVT adapted for Hebrew language (Solberg & Nevo, 1979). The administration procedure was the same as the English language version. There were 58 items presented on test plates, where the individual was asked to point to the picture that corresponds to the word stated by the researcher. Reliability for the test has been shown to be Chronbach’s $\alpha=0.67$. As with the other standardized tests, internal reliability for the Hebrew PPVT within the current study sample was not feasible due to the varying ages of the children involved. Traditional alpha reliability would have little meaning.

**Target Word Pretest – Expressive** (only expressive and not receptive was measured at pretest): This is a researcher-constructed test assessing children’s knowledge of the target words. The test was modeled after the EOWPVT described above, and similar to that used by Justice (2002). As in the Justice study, in order not to sensitize participants to the target words themselves, only expressive vocabulary knowledge of the target words was evaluated at pretest. Testing plates with four pictures per plate were developed for the purposes of this study, one picture for the target word and the remaining three pictures serving as foils. A total of 96 plates were designed for the study (one plate for each target word, 96 target words total, of which, each child received 48). Children were asked to label the item being pointed to by the researcher; correct answers were scored 1, incorrect answers were scored 0.

**Target Word Posttest – Receptive:** This is a researcher-designed test of target words based on the style of the PPVT. For the purposes of this study, 96 test plates were designed where each plate contained four pictures, one that matched the target word and three foils. Twelve plates per book were designed to match the target words relevant to
each book. Administration of the test was similar to that of the PPVT -- the researcher stated a word and asked the child to point to the picture that matched the word.

*Target Word Posttest – Expressive:* Similar to the *Target Word Pretest.* To reduce the chance that children would recognize the picture based on its location, the locations of the pictures on each plate were switched for the posttest. Administration of the test was the same as in the Pretest.

*Executive Function Measure – “Simon Says”:* In between book readings of the second meeting with the participants, children played the Simon Says game with the researcher. While the initial plan in the study was to play this game during the third meeting as well, a pilot study revealed that by the third meeting the children had little interest in repeating the game. As such, the game was not included in the third meeting. Before playing the game, children received instructions, and after two introductory trials, engaged in three experimental trials. A total of eight turns took place during these experimental trials where the child had the opportunity to suppress their instinct to follow the researcher’s visual cue and instead had to follow the researcher’s oral directions. For each trial, children received a score of 0 if they did not successfully suppress the instinct and received a score of 1 if they did. Five children adamantly refused to play the game at all. At the conclusion of the study, 40 out of 45 children had scores for the Executive Function Measure.

*Child Book Preference:* In addition to the above, a qualitative measure was included to obtain feedback from the children regarding their interest in the different genre books. Each child was shown all the books that were read during the sessions, and asked which one they liked the best and why; answers were recorded by the researcher. If
the child had a difficult time answering the first question, the researcher phrased the question as, “If you could read one book again, which one would you pick? Why?” and recorded the child’s answer.

**Procedure**

Three meetings took place in the home of each participant as described below. Meetings were scheduled at the participants’ convenience, but a one-week interval between meetings was maintained across participants. Throughout the procedure, small rewards such as stickers, pencils, and bookmarks were given to the child.

**Meeting 1:** During this initial meeting, consent and assent procedures were administered. After consent and assent were received, the researcher asked the participating parent to first fill out the Demographic Survey, followed by the Home Literacy Environment Survey. After that, the Reading Log was presented and explained to the mother and she was given the opportunity to ask any questions. While the mother filled out the various measures, the researcher administered the standardized measures to the child.

**Meeting 2:** This was the first meeting during which shared book reading took place. In order to determine which books were presented to the participants, the following procedures were followed. The numbers 1-4 were written on slips of paper, each number representing one of the four themes of the books (apples, ice cream, snow, animals). The participating child was asked to pick two slips of paper from a basket. Mothers were then presented with the corresponding sets of books, one set at a time, and asked if they owned the books, were familiar with them, or had read them. If the answer was affirmative, then a second set of books was offered, with the process continuing until two sets of books
were found where both books were unfamiliar to the mother. Mothers were then invited to look at and read the books while the researcher administered the expressive vocabulary pretests to the child. If the child knew more than five words across the set of books, the child was asked to pick a new slip of paper and a new set of books was pretested. At the study’s completion, each book set was read by the following number of dyads: Apples/Apple Picking Time - 25; How & Why/Groundhog – 27; Snow Is Falling/Mitten Tree - 27; From Cow to Ice Cream/Curious George - 11.

Following the pretests, the mother read one book to the child while being videorecorded. After any discussion surrounding the book was complete, the primary investigator (PI) administered the appropriate vocabulary posttests (receptive and expressive) to the child. Following completion of the posttests, the PI played “Simon Says” with the child, while being videorecorded. The purpose behind playing this game was twofold: to serve as a measure of the child’s executive functioning while also providing an appropriate break between books. The PI explained the rules of the game, and after two practice trials, three experimental trials were completed. After the game ended, the PI administered expressive pretests for the second book in the set, the mother read the second book in the set to the child, after which the PI administered the receptive and expressive vocabulary posttests for that book.

Meeting 3: This meeting followed the same format as Meeting 2 described above, without the Simon Says game. Instead, the PI suggested the child take a drink or a snack to serve as a break between books. Books were read in a counterbalanced fashion from Meeting 2, such that if a narrative book was read first in Meeting 2, an informational book was read first at Meeting 3 and vice versa. As in Meeting 2, vocabulary posttests
were administered after each book. At the conclusion of this meeting, the Book Preference measure was administered to the child and the PI recorded their answer.

**Data Analysis**

Quantitative and qualitative analyses were conducted to evaluate the results from this study. The quantitative analysis was focused primarily on evaluating children’s learning of target words, predicting word learning, and examining associations between parent-child reading interactions and both genre and word learning. Results from the executive functioning measure were also evaluated and their relationship to word learning was explored. The qualitative analysis was focused primarily on the videos of parent-child shared reading. The videos were transcribed and then coded as detailed below. Children’s book preferences were evaluated as well.

**Quantitative data analysis.** Descriptives and Correlations. SPSS version 21 was used for initial analyses of the data, including the descriptive statistics and correlations between variables. Results from the executive function measure were also assessed and correlations between the measure and vocabulary learning were evaluated.

Regression analyses. The HLM 7 Hierarchical Linear and Nonlinear Modeling statistics program (Raudenbush, Bryk, & Congdon, 2010) was used for the regression analyses detailed below. To predict children’s target word learning at both the receptive and expressive levels, cross-classified non-linear regression models were run, using a Bernoulli distribution to contend with the dichotomous nature of this data (target word was scored correct/incorrect).

**Qualitative data analysis.** This analysis was based on the video recordings of the mother-child readings that occurred in Meetings 2 and 3. All videos were transcribed by
the PI and were coded by a colleague with a PhD in early childhood education and teaching.

**Unit of analysis and coding scheme.** Three units of analysis were used in this study. The primary unit of analysis was the “idea unit.” This was defined as a comment or multiple comments related to a particular idea. While some studies use an utterance as the unit of analysis (e.g. Price et al., 2009; Torr and Clugston 1999), this does not necessarily capture the back and forth that can occur between parent and child related to the same idea (e.g. question and answer). As such, the decision was made to use the “idea unit” as the unit of analysis. Within an idea unit, two additional elements were examined. The first was “initiation,” which was defined as the person who initiated the idea unit, either the mother or the child. The second unit was “turns.” This was counted as the number of times the mother and/or child spoke within the idea unit. Both initiations and turns were tallied and totaled for each book reading.

To examine a number of elements of interest in the interactions surrounding the mother-child book reading, idea units were coded into categories. These categories are based on a similar but more extensive coding scheme that was used in a pilot study conducted with kindergarten teachers (Bergman Deitcher & Johnson, 2012, June). In the pilot study, however, the large number of categories seemed to reduce inter-rater reliability. Consequently, the current study used fewer coding categories. The categories, along with their criteria and examples are listed in Table 5. Each idea unit was examined and coded into any and all categories that applied to the idea unit (i.e. each idea unit could fall under multiple categories). In order to calculate inter-rater reliability for the coding of the videos, a traditional kappa measure was not possible because there was no
possible “total” for each category. In lieu of the traditional kappa, a z-score was created to reflect the difference between raters for each category. Z-scores revealed minimal differences between the two raters. A few categories had perfect agreement and the rest were less than \( z=1.00 \) with the exception of the High Cognitive Demand category, which was \( z=-1.62 \). The full raw data along with the z-scores are available in Appendix F.

Table 5

**Coding Categories, Type, Criteria, and Examples**

<table>
<thead>
<tr>
<th>Type</th>
<th>Category</th>
<th>Criteria</th>
<th>Example by Parent</th>
<th>Example by Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent or Child</td>
<td>Vocabulary</td>
<td>Questions or comments by parent or child relating to the meaning of a specific word.</td>
<td>“‘ . . . but most are grown commercially,’ Do you know what that means – commercially?”</td>
<td>“What’s a . . . “ or “What does that mean?”</td>
</tr>
<tr>
<td>Parent or Child</td>
<td>Book Awareness</td>
<td>Questions or comments by parent or child relating to book features, including: title, author, illustrator, cover, book genre, length of book.</td>
<td>“Usually in a soft-covered book you don’t have an endpaper.”</td>
<td>“Who wrote this book?”</td>
</tr>
<tr>
<td>Parent or Child</td>
<td>Illustration</td>
<td>The parent or child asks a question related to an illustration or points something out relating to an illustration, including charts and labeled pictures in the book.</td>
<td>“Do you see the smoke in this picture? How do you think the artist drew that?”</td>
<td>“Wow, what a pretty picture!”</td>
</tr>
<tr>
<td>Text to Text/Reader</td>
<td>Questions or comments by the parent or child</td>
<td>“Do you remember when we went”</td>
<td>“I love chocolate ice”</td>
<td></td>
</tr>
<tr>
<td><strong>Restating</strong></td>
<td><strong>Parent or child says an idea from the book in his or her own words.</strong></td>
<td>“So the bee takes the pollen and brings it to the other flower.”</td>
<td>“These are all kinds of apples.”</td>
<td></td>
</tr>
<tr>
<td><strong>Elaborating</strong></td>
<td><strong>Parent or child goes beyond the idea in the text to explain or discuss something.</strong></td>
<td>“It says Happy New Year. That’s January 1st.”</td>
<td>“Why are they all matching?”</td>
<td></td>
</tr>
<tr>
<td><strong>Low Cognitive Demand</strong></td>
<td><strong>Questions or comments by the parent that require responses demanding a low level of cognitive demand, such as labeling questions.</strong></td>
<td>“What do you see on this page here?”</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>High Cognitive Demand</strong></td>
<td><strong>Questions or comments by the parent requiring responses showing a high level of cognitive demand, such as prediction, inference, or “why” questions.</strong></td>
<td>“Why do you think she is wearing that special apron?”</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Reading Skills</strong></td>
<td><strong>Questions or comments by the child related to how a certain word is read.</strong></td>
<td>N/A</td>
<td>M-a-m-a, Mama!</td>
<td></td>
</tr>
<tr>
<td><strong>Answering</strong></td>
<td><strong>Child answers a question posed by the parent either verbally or non-verbally -- with a nod, shrug or the like.</strong></td>
<td>N/A</td>
<td>Mm hm.</td>
<td></td>
</tr>
</tbody>
</table>
*Child book preferences.* For children’s book preferences, totals were tallied for each book to see which books were the most preferred by the children in the study. Totals were also examined to evaluate which themes were most preferred. Further, from each theme, the preferred genre was noted as well.
Chapter 4 – Results

This section first presents descriptive results relating to the population along with inter-correlations amongst variables. After that, children’s word learning is explored, in particular, regression analyses predicting children’s learning. Lastly, the evaluation of book reading interactions is detailed. Many of the children were unable or unwilling to express a preference for a book on the Book Preference measure. Those who did were rarely able to elucidate a reason. Similarly, although some mothers completed the Reading Log, most did not. Consequently, these two measures were not included in the analyses detailed below.

Descriptives

Home language use. With the exception of one family that characterized their home language as both English and Hebrew, all the participating families considered English to be their home language. This includes the language spoken between family members, as well as the language of daily routines between parents and children such as mealtimes, bath time, and bedtime. Table 6 shows the percentages of language use between family members relative to the number of years the child has been in Israel. As expected, those who were in Israel for less than one year speak solely in English to all family members. Those children who were born in Israel still use English as the dominant language in the home, but they begin to speak a mixture of both languages more frequently to their siblings.
In contrast to the language used in the home, the language used amongst friends seems to depend much more on the duration of time in Israel. Of those children born in Israel or in Israel for more than four years, 76.7% speak to their friends in Hebrew. Of those who have been in Israel between one-four years, 66.7% speak Hebrew to friends. In contrast, of those children who have been in Israel for less than one year not one speaks Hebrew to their friends; rather, they continue to speak English to those friends who can speak English as well.

**Children’s language exposure.** As the participants are dual-language learners, the questionnaires given to parents tried to assess how much of each language the child is exposed to in various situations, both in and out of school. With the exception of one child in the youngest age group, parents reported that the main part of the children’s school day takes place in Hebrew. English language instruction in Israel generally starts in the 3rd or 4th grade, with some schools beginning as early as the 2nd grade. In line with

<table>
<thead>
<tr>
<th>Years in Israel</th>
<th>Child to Mother</th>
<th>Child to Father</th>
<th>Child to Siblings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English</td>
<td>Hebrew</td>
<td>Both</td>
</tr>
<tr>
<td>Born in Israel or &gt; 4 years (n=30)</td>
<td>80.0</td>
<td>13.3</td>
<td>6.7</td>
</tr>
<tr>
<td>1-4 years (n=12)</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>&lt; 1 year (n=3)</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
this, 93.3% (n=42) of the children had no English language instruction in school, 2.2% (n=1) received 1-2 hours per week, and 4.4% (n=2) received more than 4 hours per week. More than half (59.1%, n=26) of the participants did not participate in any English language instruction outside of school. Of those children who did receive outside English instruction, 36.4% (n=16) received one-two hours per week and only 4.5% (n=2) received more than four hours per week.

Other after-school activities (sports, art, drama, etc.) were more evenly divided in terms of language. One-third of children (33.3%, n=15) had after-school activities in Hebrew, 22.2% (n=10) of children had activities in English, 17.8% (8) of children had activities in both languages, while 26.7% (n=12) of children did not participate in after-school activities, half of whom (50.0%, n=6) were in the youngest age group.

**Home literacy environment.** According to parents’ reports, most of the participating families have a strong home literacy environment. In more than half of the families (57.8%, n=26), the parents read to their children five times per week or more. An additional quarter (26.7%, n=12) read to their children three-four times per week, and 13.3% (n=6) read one-two times per week. More than half of the children (53.3%, n=24) prefer to have English books read to them, while only 4.4% (n=2) prefer Hebrew books. The remaining children (n=19) have no expressed language preference for the books read to them.

Further demonstrating a strong home literacy environment, nearly half of the families (48.9%, n=22) report owning more than 100 children’s books, 44.4% (n=20) own between 50-100 books, and only 6.7% (n=3) report owning between 25-50 books. A majority of the children’s books owned are English books, with 17.8% (n=8) of families
reporting that all their books are in English, and 71.1% (n=32) reporting than more than half of their books are in English. Only one family (2.2%) reported having less than 25% of their children’s books in English.

The parents of participating children report a reasonably high frequency of reading English books themselves, with 20.0% (n=9) of mothers and 17.8% (n=8) of fathers reporting reading English books on a daily basis. An additional 46.7% (n=21) of mothers and 28.9% (n=13) of fathers report reading English books between three-five times per week. Twenty-nine percent (n=13) of participating homes subscribe to at least one English newspaper (22.2%, n=10, subscribe to a Hebrew language newspaper) and 31.1% (n=14) of homes subscribe to at least one English language magazine.

**Television and electronic media use.** The majority of the participating children watch television with some regularity. Five mothers reported that their child doesn’t watch any television and nine reported only one-two times per week. In contrast, 16 mothers reported their child watching four-five times per week and 14 reported their child watching daily. More than half of the children (n=26) were reported to watch programs in English.

In addition to watching television, the children in this study use a variety of electronic devices, including computers and e-devices (Kindle, iPad, etc.). According to parent reports, 33 children (73.3%) use the computer at least once a week, with nine of those children (20% of total sample) using it four times per week or more. Of those reporting computer use, 27 (81.8%) use games or sites in English, with only six of them using games or sites in Hebrew. Furthermore, 31 children (68.9%) were reported to use an electronic device (Kindle, iPad, etc.) other than a computer, with nearly 50% (n=21) of
those children using the device four times per week or more. It appears that in this population, the majority of the children are quite electronically literate and much of this literacy is in English.

**Children’s Word Learning**

**Pre/Posttest correlations.** The correlations between children’s pretest and posttest and predictor variables as well as their intercorrelations are shown in Table 7. An examination of the means in Table 7 reveals that the children’s scores on both standardized English vocabulary measures (PPVT, EOWPVT) were quite high. In contrast, the scores on the Hebrew PPVT were not nearly as high. The intercorrelations show that, as might be expected, the PPVT and the EOWPVT were correlated ($r=0.56$, $p<0.01$). The PPVT scores were also correlated with the child’s scores on the English Target Word Pretest ($r=0.49$, $p<0.01$). Both the Hebrew PPVT ($r=0.61$, $p<0.001$) and the English Target Word Pretest ($r=0.50$, $p<0.001$) were significantly correlated with the child’s age in months, while Hebrew vocabulary pretests were not. Both the Hebrew PPVT ($r=0.42$, $p<0.01$) and the Hebrew Target Word Pretest ($r=0.41$, $p<0.01$) were correlated with the number of years the child was in Israel, as might be expected, but surprisingly, none of the other measures were correlated with the number of years. The two Hebrew pretests (Hebrew PPVT and the Hebrew Target Word Pretest) were also correlated with each other ($r=0.41$, $p<0.01$). Importantly, the English Target Words Pretest was moderately correlated with both standardized vocabulary tests (PPVT $r=0.49$, $p<0.001$; EOWPVT $r=0.43$, $p<0.01$), while the Hebrew Target Word Pretest was negatively correlated with the EOWPVT ($r=-0.34$, $p<0.05$).
Table 7

Intercorrelations and Descriptives of Child Variables and Vocabulary Pre-Posttests

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Child's age(^a)</td>
<td>-</td>
<td>0.13</td>
<td>0.05</td>
<td>0.61**</td>
<td>-0.14</td>
<td>0.50**</td>
<td>0.29</td>
<td>0.29</td>
<td>0.45**</td>
</tr>
<tr>
<td>2 Time in Israel(^a)</td>
<td>-</td>
<td>-0.21</td>
<td>0.42**</td>
<td>-0.12</td>
<td>-0.13</td>
<td>0.41**</td>
<td>0.05</td>
<td>-0.32*</td>
<td></td>
</tr>
<tr>
<td>3 PPVT</td>
<td>-</td>
<td>0.05</td>
<td>0.56**</td>
<td>0.49**</td>
<td>-0.18</td>
<td>0.33*</td>
<td>0.33*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 HebPPVT</td>
<td>-</td>
<td>-0.19</td>
<td>0.17</td>
<td>0.41**</td>
<td>0.23</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 EOWPVT</td>
<td>-</td>
<td>0.43**</td>
<td>0.35*</td>
<td>0.19</td>
<td>0.31*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 TWPEng(^b)</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
<td>0.56**</td>
<td>0.57**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 TWPHe(^c)</td>
<td>-</td>
<td>-</td>
<td>0.14</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 NarrPost(^d)</td>
<td>-</td>
<td>-</td>
<td>0.40**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 InfoPost(^d)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48</td>
<td>71</td>
<td>73</td>
<td>108</td>
<td>43</td>
<td>118</td>
<td>8</td>
<td>20</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>70</td>
<td>108</td>
<td>43</td>
<td>118</td>
<td>8</td>
<td>20</td>
<td>33</td>
<td>27</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>93.44</td>
<td>22.27</td>
<td>99.42</td>
<td>1.81</td>
<td>5.18</td>
<td>17.76</td>
<td>16.29</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6.84</td>
<td>17.59</td>
<td>7.79</td>
<td>10.3</td>
<td>11.93</td>
<td>3.69</td>
<td>4.65</td>
<td>5.79</td>
<td>9.24</td>
</tr>
</tbody>
</table>

Note: \(^a\) Child’s age and Time in Israel are in months. \(^b\) TWPEng=Target Word Pretest in English (total possible score was 48) \(^c\) TWPHeb=Target Word Pretest in Hebrew (total possible score was 58) \(^d\) NarrPost=Receptive + Expressive Narrative Texts Posttest; InfoPost=Receptive + Expressive Informational Texts Posttest

* \(p<0.05\), 2-tailed. ** \(p<0.01\), 2-tailed.
Table 7 also shows the correlations between children’s posttest scores from narrative and informational texts, and the other pretest and child-related variables. Both the Narrative and Informational Posttest scores (receptive and expressive for each) were significantly correlated with both the English PPVT ($r=0.33, p<0.01; r=0.33, p<0.01$) and the English Target Word Pretest ($r=0.56, p<0.01; r=0.57, p<0.01$). Additionally, the Informational Posttest was significantly positively correlated with child’s age ($r=0.45, p<0.01$), PPVT ($r=0.33, p<0.05$), and the Narrative Posttest ($r=0.40, p<0.01$), and significantly negatively correlated with Time in Israel ($r=-0.32, p<0.05$).

**Posttest scores.** To determine children’s word learning, a more detailed examination was conducted on children’s pretest-posttest scores. Table 8 shows the results of the children’s scores on target word pretests and posttests, broken down by genre and by type of assessment -- receptive or expressive.

Table 8

*Children’s Target Word Pretest-Posttest Scores by Genre & Assessment*

<table>
<thead>
<tr>
<th></th>
<th>Pretest Scores</th>
<th>Posttest Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Narrative - Receptive</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Informational - Receptive</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Narrative - Expressive</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Informational - Expressive</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Total Target Words</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

As can be seen in Table 8, at the receptive level the mean number of target words learned was fairly comparable across genres. Children learned nearly twice the mean number of
words from narrative texts at the receptive level compared to the expressive level, and more than twice the number of words from informational texts at the receptive level compared to the expressive level. At the expressive level, a greater mean number of words were learned from narrative texts compared to informational texts.

Table 8 further reveals that overall, children gained a large number of words from the pretest expressive tests to posttest. The mean number of words learned from both narrative and informational texts nearly tripled from pre- to posttest at the expressive level. Paired sample t-tests comparing mean pretest and posttest scores for expressive vocabulary (only expressive was tested at pretest) revealed significant differences \((t = -18.39, p < 0.001)\). A repeated measures regression model revealed age to be a significant factor in explaining these differences \((F=12.58, p<0.001)\). Book genre could not be used in the model as it was on the measurement level while age was on the subject level.

**Do children learn differently from different books? (Book effects)** Since not all children read the same books, it was of interest to see the breakdown of words learned per book, especially since prior research has shown particular book effects (Elley, 1989; Robbins & Ehri, 1994). Three out of the four book sets were used much more frequently than the other set, nearly 2-2.5 times the frequency than the set on ice cream (“Curious George” and “From Cow to Ice Cream”) was used. This was due to the fact that many of the children knew more than 5 words across the books at pretest, and were therefore given a different set to read. As a result, there is much more information on the words learned from the other three sets of books. Table 9 summarizes how many words were learned, on average, from each book at pretest and posttest.
Table 9

*Mean Number of Target Words Known Within Each Book By Genre & Assessment*

<table>
<thead>
<tr>
<th>Genre</th>
<th>Title</th>
<th>Expressive Pretest</th>
<th>Receptive Posttest</th>
<th>Expressive Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrative</td>
<td>Apple Picking Time (n=25)</td>
<td>0.56</td>
<td>3.64</td>
<td>1.60</td>
</tr>
<tr>
<td></td>
<td>Groundhog (n=27)</td>
<td>1.70</td>
<td>6.74</td>
<td>4.11</td>
</tr>
<tr>
<td></td>
<td>Mitten Tree (n=27)</td>
<td>1.04</td>
<td>6.04</td>
<td>2.85</td>
</tr>
<tr>
<td></td>
<td>Curious George (n=11)</td>
<td>0.91</td>
<td>8.18</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total Narrative</strong></td>
<td><strong>4.21</strong></td>
<td><strong>24.30</strong></td>
<td><strong>12.56</strong></td>
</tr>
<tr>
<td>Informational</td>
<td>Apples (n=25)</td>
<td>0.72</td>
<td>4.52</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>How and Why Animals (n=27)</td>
<td>0.44</td>
<td>5.70</td>
<td>1.81</td>
</tr>
<tr>
<td></td>
<td>Snow is Falling (n=27)</td>
<td>0.96</td>
<td>7.33</td>
<td>3.30</td>
</tr>
<tr>
<td></td>
<td>From Cow to Ice Cream (n=11)</td>
<td>1.55</td>
<td>6.36</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total Informational</strong></td>
<td><strong>3.67</strong></td>
<td><strong>23.91</strong></td>
<td><strong>10.11</strong></td>
</tr>
</tbody>
</table>

Table 9 demonstrates different book effects at the different assessment points. In terms of learning words from the narrative texts at the receptive level, the most words were learned from “Curious George,” followed by “Groundhog Stays Up Late,” “The Mitten Tree,” and least from “Apple Picking Time.” From the informational texts, the most words learned at the receptive level were from “Snow is Falling,” then “From Cow to Ice Cream,” “How and Why Animals Prepare for Winter,” and the fewest from “Apples.” In contrast, at the expressive level, the most words learned from narrative texts were from “Groundhog Stays Up Late”, closely followed by “Curious George,” and many fewer words from the other two books. The book effects were more similar between the receptive and expressive assessments from the informational texts, with the only difference being that at the expressive level, the fewest words were learned from “How
and Why,” whereas at the receptive level the fewest words were from “Apples.” These differences in the learning of the words from the texts held true despite the fact that all the words were nouns, each word appeared once per book, and each book had the same number of words that fell into the varying difficulty levels.

Are particular words learned more readily than others? (Word effects)

Beyond overall child learning of words from the texts, it was of interest to see if there were particular words that were learned more easily than other words. An examination of all 96 target words revealed only four words that were known at pretest by more than 50% of those receiving the word. All four of these words (baskets, family, refrigerator, sandwiches) were at the “easy” difficulty level. Three out of four of the words were from informational texts and each word came from a different text.

Further examination of the words focused on those with the greatest gains from pretest to receptive posttest (given that many more words were learned at the receptive level). As can be seen in Table 10, this examination yielded 21 words. Most of these words were of medium difficulty level, which would be expected as there were twice as many medium-difficulty words than easy or hard. Nonetheless, some of the words with the greatest gains fell into the easy and hard levels. Importantly, more than half (57.1%) of the words that were learned most frequently came from informational texts. Of these, the bulk of the words came from the texts “How and Why Animals Prepare for Winter” and from “Snow is Falling.” Of those learned most frequently from the narrative texts, the words came from the book “Curious George Goes to the Ice Cream Shop.”
Table 10  
*Most Frequently Learned Words and Their Properties*

<table>
<thead>
<tr>
<th>Word</th>
<th>Difficulty</th>
<th>Book(Genre)</th>
<th>Pretest&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Receptive&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Expressive&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shade</td>
<td>Medium</td>
<td>Apple Picking Time (N)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.0</td>
<td>56.0</td>
<td>28.0</td>
</tr>
<tr>
<td>Shelter</td>
<td>Medium</td>
<td>Groundhog (N)</td>
<td>0.0</td>
<td>80.8</td>
<td>7.7</td>
</tr>
<tr>
<td>Calendar</td>
<td>Medium</td>
<td>Groundhog</td>
<td>22.2</td>
<td>69.2</td>
<td>46.2</td>
</tr>
<tr>
<td>Chipmunk</td>
<td>Easy</td>
<td>How &amp; Why (I)</td>
<td>14.8</td>
<td>88.9</td>
<td>42.3</td>
</tr>
<tr>
<td>Stump</td>
<td>Medium</td>
<td>How &amp; Why</td>
<td>3.7</td>
<td>66.7</td>
<td>7.4</td>
</tr>
<tr>
<td>Beaver</td>
<td>Medium</td>
<td>How &amp; Why</td>
<td>7.4</td>
<td>70.4</td>
<td>29.6</td>
</tr>
<tr>
<td>Salamander</td>
<td>Hard</td>
<td>How &amp; Why</td>
<td>0.0</td>
<td>51.9</td>
<td>3.7</td>
</tr>
<tr>
<td>Cave</td>
<td>Easy</td>
<td>How &amp; Why (I)</td>
<td>14.8</td>
<td>81.5</td>
<td>51.9</td>
</tr>
<tr>
<td>Cap</td>
<td>Medium</td>
<td>Mitten Tree (N)</td>
<td>7.4</td>
<td>80.8</td>
<td>57.7</td>
</tr>
<tr>
<td>Powerlines</td>
<td>Hard</td>
<td>Snow is Falling (I)</td>
<td>0.0</td>
<td>63.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Sled</td>
<td>Easy</td>
<td>Snow is Falling</td>
<td>7.4</td>
<td>74.1</td>
<td>51.9</td>
</tr>
<tr>
<td>Flood</td>
<td>Hard</td>
<td>Snow is Falling</td>
<td>0.0</td>
<td>66.7</td>
<td>40.7</td>
</tr>
<tr>
<td>Streetlight</td>
<td>Medium</td>
<td>Snow is Falling</td>
<td>29.6</td>
<td>92.6</td>
<td>74.1</td>
</tr>
<tr>
<td>Barns</td>
<td>Easy</td>
<td>Snow is Falling</td>
<td>3.7</td>
<td>81.5</td>
<td>37.0</td>
</tr>
<tr>
<td>Cone</td>
<td>Easy</td>
<td>Curious George (N)</td>
<td>36.4</td>
<td>90.9</td>
<td>90.9</td>
</tr>
<tr>
<td>Counter</td>
<td>Hard</td>
<td>Curious George</td>
<td>9.1</td>
<td>72.7</td>
<td>54.5</td>
</tr>
<tr>
<td>Mountain</td>
<td>Easy</td>
<td>Curious George</td>
<td>27.3</td>
<td>90.9</td>
<td>63.6</td>
</tr>
<tr>
<td>Flavors</td>
<td>Medium</td>
<td>Curious George</td>
<td>0.0</td>
<td>90.9</td>
<td>36.4</td>
</tr>
<tr>
<td>Coconut</td>
<td>Medium</td>
<td>Curious George</td>
<td>9.1</td>
<td>90.9</td>
<td>45.5</td>
</tr>
<tr>
<td>Machine</td>
<td>Medium</td>
<td>Cow to Ice Cream (I)</td>
<td>9.1</td>
<td>81.8</td>
<td>63.6</td>
</tr>
<tr>
<td>Powder</td>
<td>Medium</td>
<td>Cow to Ice Cream</td>
<td>0.0</td>
<td>63.6</td>
<td>9.1</td>
</tr>
</tbody>
</table>

<sup>a</sup> Percentage correct from those receiving the word  
<sup>b</sup>(N)=narrative (I)=informational
Predicting Children’s Word Learning

**Initial regression analyses.** Cross-classified non-linear models were used to predict the children’s target word learning at both the receptive and the expressive levels. To contend with the dichotomous data (target word as correct-incorrect), a Bernoulli distribution was used. Additionally, since the analysis examined actual word learning, only words that were scored incorrect at pretest were included in the analysis described below (on the assumption that if the word was already known as pretest it wasn’t being “learned”). Based on *a priori* considerations, the following predictors were included: word difficulty level, book genre, child’s age, gender, and number of years in Israel, as well as the various vocabulary pretests (due to the correlation between the PPVT and the EOWPVT, only the latter test was included lest they mask one another’s effects). When predicting expressive word learning, receptive posttest score was added as a predictor. All the variables except for genre were grand-mean centered.

As can be seen in Table 11, the following variables were significant in predicting receptive learning of target words: word difficulty level (*p*<0.01), EOWPVT (*p*<0.05), and child’s age (*p*<0.01). In addition, the child’s score on the Hebrew Target Word Pretest was significantly predictive of target word learning (*p*<0.05). Book genre, gender, and number of years in Israel were not significant.

In predicting expressive learning of target words, the model revealed the following variables to be significant: word difficulty level (*p*<0.01), EOWPVT (*p*<0.01), child’s age (*p*<0.01), and the number of years in Israel (*p*<0.01). These findings correspond to those for receptive learning. While book genre was not statistically significant, it did approach significance (*p*=0.09), showing a possible trend in the data. In
contrast to predicting receptive learning, child’s score on Hebrew Target Word Pretest was not significant in predicting expressive learning. However, receptive learning was a significant predictor ($p<0.001$), which may have masked the effect of the Hebrew Target Word Pretest.

Table 11

**Results of Logistic Regressions Predicting Target Word Learning**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Receptive Coefficient</th>
<th>Std. Error</th>
<th>Expressive Coefficient</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Difficulty</td>
<td>-0.73***</td>
<td>0.17</td>
<td>-1.37***</td>
<td>0.26</td>
</tr>
<tr>
<td>Book Genre</td>
<td>-0.08</td>
<td>0.24</td>
<td>-0.60</td>
<td>0.35</td>
</tr>
<tr>
<td>EOWPVT</td>
<td>0.01*</td>
<td>0.01</td>
<td>0.04***</td>
<td>0.01</td>
</tr>
<tr>
<td>Gender</td>
<td>0.28</td>
<td>0.15</td>
<td>-0.12</td>
<td>0.15</td>
</tr>
<tr>
<td>Age</td>
<td>0.05***</td>
<td>0.01</td>
<td>0.07***</td>
<td>0.01</td>
</tr>
<tr>
<td>Years in Israel</td>
<td>-0.06</td>
<td>0.07</td>
<td>-0.22**</td>
<td>0.08</td>
</tr>
<tr>
<td>Hebrew Pretest</td>
<td>0.51*</td>
<td>0.24</td>
<td>0.07</td>
<td>0.28</td>
</tr>
<tr>
<td>Receptive Learning</td>
<td>N/A</td>
<td>N/A</td>
<td>2.25***</td>
<td>0.20</td>
</tr>
<tr>
<td>Gender x Word Difficulty$^a$</td>
<td>-0.03</td>
<td>0.15</td>
<td>-0.41</td>
<td>0.22</td>
</tr>
<tr>
<td>Gender x Word Difficulty$^b$</td>
<td>-0.44</td>
<td></td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>Gender x Genre$^a$</td>
<td>-0.26</td>
<td>0.21</td>
<td>-1.18***</td>
<td>0.30</td>
</tr>
<tr>
<td>Gender x Genre$^b$</td>
<td>-1.09***</td>
<td></td>
<td>0.31</td>
<td></td>
</tr>
</tbody>
</table>

$^a$Controlling for prior knowledge of words in Hebrew  
$^b$Controlling for receptive knowledge of words

* $p<0.05$. **$p<0.01$. ***$p<0.001$.

**Interactions.** A number of possible interactions were examined between the various predictors. The first interaction explored was between word difficulty and book genre, to evaluate if children learned words of different difficulty levels based on book
genre. That is, would children learn easier words from narrative texts and more difficult words from informational texts or vice versa. Analyses revealed that there was no significant interaction between word difficulty level and book genre. That is, no significant differences were found between the level of difficulty of words learned in narrative versus informational texts.

A second potential interaction that was explored related to gender. It has been proposed in some research that boys are more inclined to read informational texts, while girls are more inclined to read narrative texts (Doiron, 2003; Mohr, 2003). Thus, there existed the possibility that males and females would learn words differently from the different book genres. As above, cross-classified models were used, this time including interaction terms. As prior knowledge of the words in Hebrew (based on pretest scores) was found to be predictive, we controlled for this knowledge in the analyses. When predicting receptive word knowledge, results showed that there was no interaction between book type x gender, nor was there a significant interaction between word level difficulty x gender at the receptive level (Table 11).

When predicting expressive knowledge of target words (controlling for Hebrew knowledge at pretest), however, the interaction between book type x gender was found to be significant (Table 11). That is, when predicting expressive word learning from informational texts, girls were less likely to learn the words compared to boys, even after controlling for prior knowledge of the word in Hebrew. The interaction between word level x gender approached significance as well ($p=0.062$), with girls less likely to learn the higher difficulty words. As receptive word knowledge was found to be predictive of expressive word knowledge in the above-described models, we ran the interaction
analyses controlling for receptive knowledge as well. In this analysis the interaction between book type x gender was significant (see Table 11) and the interaction between word level x gender grew even closer to significance ($p=0.057$).

Since the interactions between book type x gender as well as word level x gender were found to be significant or nearly so, a three-way interaction term between gender x book genre x word difficulty level was added to the analysis. Here too, prior word knowledge in Hebrew was controlled. Results showed no significant three-way-interaction when predicting either receptive or expressive learning.

**Does background knowledge affect word learning?** Research has shown that prior vocabulary knowledge can impact word learning from joint book reading (Aram, 2006; Coyne, Simmons, Kame’enui, & Stoolmiller, 2004; Elley, 1989; Ewers & Brownson, 1999; Penno, Wilkinson & Moore, 2002; Robbins & Ehri, 1994). As such, an analysis was run to evaluate whether knowing the word at the receptive level influenced word learning at the expressive level. Results showed that receptive knowledge of the target word did significantly influenced expressive knowledge of the word (Table 11).

While most of the analyses were conducted to evaluate actual word learning, and therefore excluded words already known by the participants, an additional analysis was run to evaluate what might predict knowledge of the word at pretest (i.e. prior to any book reading). Results can be seen in Table 12, showing that word difficulty level, EOWPVT score, and age all explain success at pretest; gender and number of years in Israel did not significantly predict pretest success.

A second analysis was run to explore success at pretest, this time including children’s score on the Hebrew pretest. As one language may impact the learning of
another language in second language learners, we wanted to include knowledge of the
target words in Hebrew. In this analysis, not only were word difficulty, EOWPVT, and
age significant, but years in Israel as well as score on Hebrew Target Word Pretest were
significantly predictive of knowledge of words at pretest. Results of this analysis can also
be seen in Table 12. In total, these significant variables explain 22% of the unexplained
variance at pretest.

Table 12

Logistic Regressions Predicting Word Knowledge at Pretest

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coefficient</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analysis 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Word Difficulty</td>
<td>-2.09***</td>
<td>0.37</td>
</tr>
<tr>
<td>EOWPVT</td>
<td>0.04***</td>
<td>0.01</td>
</tr>
<tr>
<td>Gender</td>
<td>0.35</td>
<td>0.20</td>
</tr>
<tr>
<td>Age</td>
<td>0.07***</td>
<td>0.01</td>
</tr>
<tr>
<td>Years in Israel</td>
<td>-0.13</td>
<td>0.10</td>
</tr>
<tr>
<td><strong>Analysis 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Word Difficulty</td>
<td>-1.89***</td>
<td>0.35</td>
</tr>
<tr>
<td>EOWPVT</td>
<td>0.04***</td>
<td>0.01</td>
</tr>
<tr>
<td>Gender</td>
<td>0.34</td>
<td>0.20</td>
</tr>
<tr>
<td>Age</td>
<td>0.06***</td>
<td>0.02</td>
</tr>
<tr>
<td>Years in Israel</td>
<td>-0.23***</td>
<td>0.26</td>
</tr>
<tr>
<td>Hebrew Pretest</td>
<td>1.29***</td>
<td>0.26</td>
</tr>
</tbody>
</table>

***p<0.001.

Do parents read different book genres differently? Due to the fact that mother-
child interactions were measured using count data (i.e. number of instances of a behavior
during a joint book reading interaction), negative binomial regressions were used to
address this question. As count data often violates the assumptions of OLS regression
(i.e. there cannot be a negative count), Poisson regressions may be used instead (Coxe,
West, & Aiken, 2009). Negative binomial is a subtype of Poisson regression and accounts
for the overdispersion that was present in the current dataset (unconditional variances
were higher than the unconditional means) (Coxe et al., 2009). The initial model included
negative binomial analyses for each of the 23 categories (See Appendix E). However, based on the strong inter-correlations between all the categories and in order to make the analysis more meaningful, new categories were formed as follows:

- **Parents General Reading Process**:  
  - Text to Text/Reader  
  - Restatement  
  - Elaborations  
  - Supportive Comments
- **Children’s General Reading Process**:  
  - Text to Text/Reader  
  - Restatements  
  - Elaborations  
  - Answering  
  - Reading Skills
- **Book Features (Parents and Children)**:  
  - Book Awareness  
  - Vocabulary  
  - Illustrations
- **Turns**:  
  - The Turns category was used to reflect the overall amount of talk by the parent and the child.
- **Cognitive Demand**:  
  - Although an overall level of cognitive demand was ideal, the decision was made to include both High and Low Cognitive Demand categories as subtracting one from the other led to negative numbers which are not usable in the negative binomial analysis.

After combining the categories, a new analysis was run using only ten categories with both book genre and the categories as main effects. The model was adjusted for individual differences. Results showed that the model provided a reasonable fit for the data. The odds ratio for narrative versus informational was 2.14 with a 95% confidence interval of 1.87 to 2.45. This indicates that on average, mothers and children used approximately twice as many of a particular behavior during the informational text compared to the narrative text. For example, references to vocabulary words were made
twice as often during an informational text reading, or twice as many restatements were made during informational texts.

**Does parental reading style influence word learning?** Given how strongly parental reading differed based on book genre, we examined whether reading style would influence child word learning. The first step taken was to examine whether there were correlations between the reading categories and the other child-level predictor variables.

Results are shown in Table 13.

Table 13

*Correlations Between Reading Interaction Categories and Child-Level Variables*

<table>
<thead>
<tr>
<th>Reading Categories</th>
<th>Years in Israel</th>
<th>Child’s Age (months)</th>
<th>EOWPVT Score</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiations (P)</td>
<td>-0.14</td>
<td>0.20</td>
<td>0.05</td>
<td>-0.02</td>
</tr>
<tr>
<td>Initiations (C)</td>
<td>-0.31*</td>
<td>-0.98</td>
<td>0.32*</td>
<td>0.21</td>
</tr>
<tr>
<td>Turns (P)</td>
<td>-0.27</td>
<td>0.13</td>
<td>0.13</td>
<td>0.07</td>
</tr>
<tr>
<td>Turns (C)</td>
<td>-0.32*</td>
<td>0.09</td>
<td>0.22</td>
<td>0.16</td>
</tr>
<tr>
<td>Vocab (P)</td>
<td>-0.10</td>
<td>0.27</td>
<td>-0.07</td>
<td>0.11</td>
</tr>
<tr>
<td>Vocab (C)</td>
<td>-0.15</td>
<td>0.07</td>
<td>0.20</td>
<td>0.10</td>
</tr>
<tr>
<td>Book Awareness (P)</td>
<td>-0.12</td>
<td>0.14</td>
<td>-0.01</td>
<td>-0.02</td>
</tr>
<tr>
<td>Book Awareness (C)</td>
<td>-0.23</td>
<td>0.04</td>
<td>0.27</td>
<td>0.05</td>
</tr>
<tr>
<td>Reading Skills (C)</td>
<td>-0.08</td>
<td>0.34*</td>
<td>-0.18</td>
<td>-0.16</td>
</tr>
<tr>
<td>Illustrations (P)</td>
<td>-0.09</td>
<td>0.02</td>
<td>0.10</td>
<td>-0.11</td>
</tr>
<tr>
<td>Illustrations (C)</td>
<td>-0.30*</td>
<td>0.06</td>
<td>0.17</td>
<td>0.05</td>
</tr>
<tr>
<td>Low Cognitive Demand (P)</td>
<td>-0.12</td>
<td>0.00</td>
<td>-0.11</td>
<td>0.06</td>
</tr>
<tr>
<td>High Cognitive Demand (P)</td>
<td>-0.22</td>
<td>0.13</td>
<td>0.28</td>
<td>0.11</td>
</tr>
<tr>
<td>Text to Text/Reader (P)</td>
<td>-0.25</td>
<td>0.12</td>
<td>-0.00</td>
<td>0.15</td>
</tr>
<tr>
<td>Text to Text/Reader (C)</td>
<td>-0.20</td>
<td>-0.09</td>
<td>0.29</td>
<td>0.21</td>
</tr>
<tr>
<td>Restating (P)</td>
<td>-0.35*</td>
<td>-0.00</td>
<td>0.06</td>
<td>0.15</td>
</tr>
<tr>
<td>Restating (C)</td>
<td>-0.37*</td>
<td>-0.35</td>
<td>0.22</td>
<td>0.02</td>
</tr>
<tr>
<td>Elaborating (P)</td>
<td>-0.21</td>
<td>0.03</td>
<td>0.18</td>
<td>0.03</td>
</tr>
<tr>
<td>Elaborating (C)</td>
<td>-0.21</td>
<td>-0.22</td>
<td>0.22</td>
<td>0.13</td>
</tr>
<tr>
<td>Answering (C)</td>
<td>-0.16</td>
<td>0.21</td>
<td>0.12</td>
<td>0.04</td>
</tr>
<tr>
<td>Supportive</td>
<td>-0.11</td>
<td>0.03</td>
<td>0.31*</td>
<td>-0.03</td>
</tr>
</tbody>
</table>
As can be seen in Table 13, none of the categories was significantly correlated to gender, and only the Reading Skills category was significantly correlated to age. Code switching was strongly negatively correlated to score on the EOWPVT, indicating that the lower the score on the EOWPVT, the more likely the parent and/or child was to switch between English and Hebrew during the book reading. Interestingly, the number of years the child was in Israel was negatively correlated to a number of elements in the general reading process – the number of Initiations and Turns by the child, the number of times the child referred to Illustrations, and the number of times the child Restated.

After examining the inter-correlations, negative binomial regressions were run for each of the categories of mother-child interactions. Based on the results of these, only the Parent Restating category came close to significance and was then used in a cross-classified non-linear model to predict word learning. In predicting receptive word learning, frequency of parental restatement was nearly significant ($p=0.055$) when controlling for Hebrew pretest score. Overall though, despite the strong differences in parent-child behavior when reading a narrative or informational text, these differences were not significant in predicting child learning of target words. Rather, the other variables, specifically, word difficulty level, pretest knowledge, age, and number of years in Israel contributed much more in predicting child word learning across the texts.

**Does child’s executive function level relate to child’s word learning?** This study also examined children’s executive function using the “Simon Says” game.
Frequency analysis of the 40 available scores revealed a mean of $M=4.43$ (min=0, max=8) with S.D. = 2.31. A correlational analysis showed that in contrast to expectation, the only correlation was between child’s score on “Simon Says” and child’s age in months, where the older the child the higher the score. Given the lack of significant correlations, as well as the fit of the predictive model, no further analysis was conducted using this variable.
Chapter 5- Discussion

Three main lines of literature serve as the theoretical background to the current study – parent-child shared book reading, non-fiction text use, and dual-language learning. This study set out to examine the impact of shared reading of narrative and informational texts on the vocabulary learning of dual language learners. The findings of this study expand the literature on shared book reading, extend it to the under-studied population of dual language learners, and highlight the importance of informational text reading.

Shared Book Reading and Vocabulary Learning

In line with the extensive literature reviewed above, this study supports children’s word learning from shared book reading. Overall, children’s mean number of words learned from both narrative and informational texts nearly tripled from pretest to posttest, based on only a single reading of the book. This study further lends insight to some of the areas where research had mixed results, including incidental word learning and single versus multiple exposures to target words.

Incidental word learning. The current study demonstrates that children can learn new words from exposure to those words during shared book reading, even without additional explanation of the words. This is in line with studies by Elley (1989), Robbins and Ehri (1994), and Aram (2006) but in contrast to findings by Penno et al. (2002) and Justice et al. (2005). Additional research could explore whether the addition of direct explanation of target words leads to greater learning of words, or to more words being learned at the expressive level. However the results from the current study clearly show
that through shared reading in a natural home setting, children can learn new words at the receptive level, and even to some degree at the expressive level.

**Single vs. multiple exposures.** As discussed above, the literature in this area is somewhat mixed. It seems that overall, children can learn new words from a single exposure, but they will learn more words with multiple exposures to those words. In the current study, in order to attempt to minimize the sensitization of the children to the word associated with a picture, only expressive pretests were used. However, while the children heard only one exposure of the word during the actual reading, they were additionally exposed to the words again during the administration of the receptive posttest. It is possible that these additional exposures to the words led to greater gains. Future research may focus on disentangling exposure to the words from the book versus through testing. Nonetheless, it is clear that significant gains were made across books and across genres to increase the children’s vocabularies from only one exposure to the words within the supportive context of the books themselves. This supports other studies that demonstrated that a single reading could lead to vocabulary gains (e.g. Robbins & Ehri, 1994).

**Fast mapping & “incrementality” of word learning.**

The results of this study support the fast-mapping view of word learning (Clark, 2003). The children had a single exposure to the words in the context of the book reading, and on average, nearly tripled their knowledge of the words from pretest to receptive posttest. The large difference in improvement between receptive versus expressive learning of words also seems to support fast-mapping. That is, the children were able to fast-map the word and its meaning which enabled them to succeed much more on the
receptive posttests. However, when it came time to produce the word on the expressive posttest, while there was some growth in children’s word knowledge, it was nowhere near as much as on the receptive test. This seems to supports the idea that multiple exposures or exposures with more direct explanation of words can lead to more extensive learning of the words by children. This premise can be further explored and validated in future research studies comparing single and multiple exposures to target words that are evaluated by both receptive and expressive tests of word learning.

The differences between receptive and expressive learning of the words in this study also offers support for Nagy and Scott’s (2000) idea of the “incrementality” of word learning. The initial learning occurred based on exposure from the shared book reading. However, to gain a deeper, more nuanced understanding of the words, or the ability to use the word in the appropriate context, children would likely need more or more varied exposure to the words.

**Book effects and word effects.** This study essentially contained three levels of population: children, books, and words. While there is a much greater understanding of how shared book reading impacts children, the characteristics of books and words that lend themselves and contribute to learning are less well understood. Gaining a greater understanding of these elements is essential when considering word learning from shared reading.

In line with earlier book reading studies (Elley, 1989; Robbins & Ehri, 1994), this study revealed differential learning of words from different books. Although an attempt was made to ensure that all the books contained elements that define their particular genre, it seems that differences still existed between the books that influenced how much
was learned from each book. It may be that the use of simpler language, or fewer words per page, as in the Curious George book, eased the process of learning the word from the context compared to books that have more complicated language and more words per page (e.g. “Apple Picking Time”). Elley (1989) suggested that to maintain children’s interest in the stories at a level that would enable vocabulary growth, the story must contain elements such as “novelty, humor, conflict, suspense, incongruity, vividness, and the like” (p.185). Similarly, Robbins and Ehri (1994) suggested the importance of attractive characters, humor, and a high action plot. Both the Curious George book, as well as “Groundhog Stays Up Late” contained a higher action plot with suspense, as well as humor and attractive characters. Of the narrative books, these were the ones from which children learned the most words on average, at both the receptive and expressive levels compared to the other two narrative texts.

Regarding the informational texts, “Snow Is Falling” revealed the greatest number of target words learned across children at both the receptive and expressive levels. Given that all the informational texts contained genre-specific elements such as repetition of the topic theme, timeless verbs, focus on the visual, access formats, etc. (Gill, 2009; Yopp, 2007), it is unclear why there were differential effects for the books. One possibility is that some book themes were particularly attractive to the children. Many of the children had seen snow on only a couple of occasions, either in Israel or abroad. However, most mothers raised this issue and drew text-to-reader connections while reading this book, which may have led to greater interest or attention on the part of the children, and thereby to greater learning. Future research focusing on differences between books may be able to
tease out certain differences within informational texts that lead to differential learning of vocabulary from the texts.

The results of this study also showed that certain words were learned more readily than others. Given that there were twice as many medium-difficulty level words compared to the easy or hard words, it was not surprising that more of the words learned were of medium difficulty. However, it was surprising to find that a few of the hard words were learned very frequently, compared to other easy or medium-difficulty level words. Given that all the words were nouns and each appeared once per text, it is unclear why certain words were learned more readily than others.

One possibility is that the supportive context for those words in the actual text was clearer, or that the mothers explained the words more. Of the four difficult words that were learned the most (counter, salamander, flood, powerlines), three out of four were clearly illustrated in the book, which led to discussion about the word during the mother-child interaction, possibly leading to improved learning of the word. This is in line with other studies that showed that greater interaction led to increased word learning (Ard & Beverly, 2004; Deckner, Adamson, & Bakeman, 2006; Fielding-Barnsley & Purdie 2002; Whitehurst et al., 1988). Additional studies could consider different types of levels of interaction during book reading to verify if that indeed leads to improved word learning.

**DLLs and Word Learning**

The current study can be added to the small but growing body of literature on shared book reading with DLLs. While it is known that knowledge of a word in one’s home language (L1) can influence learning of words in a new language (L2) (Collins,
2010; Roberts, 2008), this study demonstrated that the reverse is also true. Children’s scores on the Hebrew Target Word Pretest were significantly predictive of receptive learning of target words from both narrative and informational texts. That is, knowing a target word in Hebrew (L2) predicted receptive learning of the word in English (L1). It was somewhat surprising that Hebrew pretest scores were not predictive of expressive learning of the target words in English. However, as English receptive knowledge was significantly predictive of English expressive knowledge, this may have masked the contribution of Hebrew to predicting expressive word learning of the target words. Supporting this possibility is the fact that when examining success at pretest before any book reading was conducted, children’s knowledge of the word in Hebrew at the receptive level predicted their knowledge of the words at the expressive level in English.

These findings are in line with the explanation of dual language as a bi-directional system where the two languages are in “constant interaction” (Kecskes, 2008, p. 31). Thus, it would be expected that there would be a relationship between the children’s knowing the word at pretest in one language to learning it in the other language. The current study only examined knowledge of the target words in Hebrew at pretest. Future studies could continue to explore the bi-directional nature of dual language learning by including posttest evaluation of Hebrew target words. Gaining a better understanding of knowledge of target words in both L1 and L2 at pretest and posttest would shed more light on whether dual language learning is, in fact, bi-directional as proposed by Kecskes (2008) and on how the interaction with each language can influence the other.

It seems clear that more research needs to be conducted with DLLs of various languages to gain a better understanding of the impact of L1 and L2 on the other in terms
of vocabulary learning from book reading. Nonetheless, this population of children often demonstrates depressed vocabulary levels, which affects their language learning and their later literacy learning (Bialystok, 2001, 2007; Genesee, 2010). As noted by Mancilla-Martinez & Lisaux (2011), “low levels of vocabulary knowledge have repeatedly been identified as a key impediment to successful comprehension” (p. 1546) in DLL populations. The success of the current intervention on children’s word learning indicates that this type of interaction should continue to be encouraged with preschool children in the home.

**Book Genre**

**Parental reading style.** The videos of mother-child joint book reading in the current study revealed that mothers read narrative texts and informational texts very differently from one another. In their reading of all eight books in this study, mothers demonstrated a significantly higher number of examined behaviors when reading informational texts. These behaviors ranged from pointing to illustrations, explaining more words, restating and elaborating with regard to the text, to asking questions of varying levels of cognitive demand and thereby interacting more with the child during the reading. This demonstrates the importance of expanding beyond narrative texts in shared book reading.

Additionally, while not significantly predictive of children’s word learning of target words (though the data did show a trend in the direction of significance for expressive word learning), book genre was predictive of mothers’ and children’s behavior during reading, with there being a likelihood of much more questioning, restatement, and elaboration by both mothers and children, as well as explanation of words, increased
book awareness, etc. when reading an informational text compared to a narrative text. Encouraging parents to read greater numbers of informational texts has the potential to lead to greater interaction between parent and child during shared book reading.

As studies of the dialogic reading (DR) style have shown (Mol, Bus, de Jong, & Smeets, 2008; Whitehurst et al., 1988), increased interaction during book reading can lead to greater learning by the child. However, whereas DR techniques needed to be taught to parents, these mothers showed differences in reading based solely on the book genre. It would seem, therefore that simply by including more informational texts into their shared reading repertoire, increased interaction and learning would be more likely, without additional teaching or intervention. Increasing the number of these texts would also lead to increased awareness of the reading process for the child, and greater exposure to a wider variety of texts that can better prepare the children for the types of texts that will be encountered in a school setting.

**Gender and book genre.** While the research on gender and book genre has shown conflicting results (Doiron, 2003; Mohr, 2003), this study demonstrated a clear interaction between gender and word learning across the two genres used. Results showed that girls are less likely to learn words overall at the expressive level from informational texts and that they are also less likely to learn the more difficult words, even when controlling for prior knowledge of the words in Hebrew and English. This may reflect what some studies have found, that girls have less exposure to and give less preference to informational texts (Doiron, 2003; Mohr, 2003). They may therefore be less familiar with the style of the text and less able to make use of the contextualized language in informational texts. This finding only increases the need to expose children more
frequently to informational texts. Starting this exposure at an earlier age, in the context of a share book reading setting, has the potential to start these children on the path to relating to informational texts and prepare them for later school-based text interactions.

**Study Limitations**

Results from the current study reveal a number of important aspects related to the importance of informational text use and the interactive nature of language in dual language learners, and support previous literature demonstrating the potential for word learning from parent-child shared book reading. Nonetheless, a number of limitations exist.

One important limitation is the limited population used. All the families in the current study were middle-high SES, making it harder to generalize the results to other socio-economic classes. Research has shown a clear connection between SES and home literacy environments (e.g. Hart & Risley, 1995). Indeed, nearly all the participating families had very strong home literacy environments. All the children owned a large number of books, were read to frequently, and the parents were highly educated and literate themselves. Some studies have also shown that those from higher SES show higher levels of word learning from shared book reading (Penno, Wilkinson, & Moore, 2002; Stanovich, 1986). Future research would need to replicate the results of the current study in other populations, including those of varying socio-economic backgrounds and varying levels of home literacy environments. Children of different DLL profiles should be examined as well in future studies, with other home and new languages aside from Hebrew and English. Furthermore, the range of proficiency in the home and new
languages should be considered. Studies including these types of participants could further our understanding of DLL populations.

A second limitation of the study relates to the timing and method of the target word assessments. In order to reduce the possibility of sensitization to the pictures by the participants, only expressive knowledge of the target words was assessed at pretest (based on Justice, 2002). However, it may be that evaluating target words at the receptive level at pretest in some other fashion would have demonstrated greater word knowledge at pretest, and therefore less growth in word learning by posttest. This possibility should be addressed in future studies.

The other limitation of the assessment is in the nature of the pictures selected. Despite having been pilot tested, certain pictures may have been harder to identify than others, and thereby not served as an effective assessment of expressive word learning for particular words. For example, the picture showing “Colonists” shows a group of people dressed in Colonial fashion. Children may not have understood that the word “Colonists” was the desired word, rather than “people,” although the foils also showed groups of people. Additional testing and evaluation of the pictures selected to represent the word could reduce some of the ambiguity of the pictures.

**Educational Implications and Future Research**

To the best of our knowledge, this study is the first to evaluate the impact of different genre books on the word learning of Hebrew-English dual language learner children. As such, there are various educational implications that emerge based on the results from the current study.
While recent research has reported on the importance of informational texts (e.g. Marinak & Gambrell, 2008; Moss, 2008), the results from this study highlight some of the differences in mother-child joint reading of this type of text, as well as the importance of including these types of texts in the home. Based on these results, intervention studies examining the outcome of parent-child reading of informational texts can be conducted with children of varying ages. Longitudinal examination of the impact on school readiness could further shed light on the importance of this type of text.

Following the adoption of the Common Core across the majority of the US curriculum, there is a growing requirement to focus on informational texts. This study demonstrates that these texts can be integrated into the home starting from preschool age. Not only will this help children when they reach school age, but the increased interactions between parents and children that were evident in the shared reading of informational books can improve the shared reading experience and lead to greater learning.

One of the advantages of the growing focus on informational texts in light of the Common Core is the increase in production of these types of texts for younger-aged children. For example, Scholastic Inc.’s website has a list of 28 non-fiction books (http://commoncore.scholastic.com/teachers/books/non-fiction) appropriate for kindergarteners/first graders that meet the Common Core standards. Other publishers such as DK (us.dk.com) have a variety of non-fiction books in their leveled books for younger children. Parents can take advantage of the proliferation of informational books and begin to include them in their shared reading with their children.
In addition to demonstrating the accessibility and importance of informational texts, this study also confirmed the importance of both languages in shared reading with DLLs (Collins, 2010; Roberts, 2008). Results demonstrated the unique predictive value of knowledge of a word in Hebrew to learning of the word in English, supporting an interactive view of dual language learning (Kecskes, 2008). More research is needed in this area to further determine how Hebrew and English, as well as other languages interact in terms of vocabulary learning and language learning overall. This is particularly true as there is much current debate amongst researchers as to how to measure DLLs vocabulary levels. That is, should the number of words in each language be taken into account, only the words in the L2, or should the child’s total conceptual vocabulary be measured, with the understanding that children sometimes have words in either language that relate to a concept and that there may be overlap (Allman, 2005; De Houwer, Bornstein, & Putnick, 2013). Further research could examine this issue more carefully and compare DLLs of a variety of languages to gain a better understanding of the vocabulary knowledge of these dual language speakers.

Conclusion

This study set out to examine the impact of parent-child shared book reading of both narrative and informational texts on English-Hebrew dual language learning children’s vocabulary. Results showed that children are able to learn new vocabulary words from books of both genres from a single exposure without any additional explanation of the words. More relevant in determining if children would learn the words was the level of difficulty of the words, child’s age, and prior vocabulary levels.
Book reading of informational texts between mothers and children were much more interactive compared to that of narrative texts. There was more overall talk between mothers and children and a greater focus on elements that could improve the reading experience and the learning experience. This study further supports and contributes to the view that both L1 and L2 contribute to each other in the learning process. This study also contributes to the broader shared book reading literature and strongly demonstrates the importance of including informational texts in the home setting.
# Appendix A – Word & Foils Selections

<table>
<thead>
<tr>
<th></th>
<th>Apple Picking Time</th>
<th>Foils</th>
<th>Apples</th>
<th>Foils</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Easy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer</td>
<td></td>
<td>Winter, fall, spring</td>
<td>Baskets</td>
<td>Platter, garbage can, buckets</td>
</tr>
<tr>
<td>Cushions</td>
<td></td>
<td>chair, pillow, beanbag</td>
<td>Insects</td>
<td>Birds, reptiles, zoo animals</td>
</tr>
<tr>
<td>Orchard</td>
<td></td>
<td>Tree, field, flower</td>
<td>Awards</td>
<td>Tickets, graphs, money (bills)</td>
</tr>
<tr>
<td><strong>Medium</strong></td>
<td>Harvest</td>
<td>Houseplant, produce, seeds</td>
<td>Colonists</td>
<td>Indians, sailors, soldiers</td>
</tr>
<tr>
<td></td>
<td>Canvas</td>
<td>Plastic bag, briefcase, suitcase</td>
<td>Stands</td>
<td>Clocks, chairs, bookcases</td>
</tr>
<tr>
<td></td>
<td>Quilt</td>
<td>Bed, carpet, towels</td>
<td>Fairs</td>
<td>Circus, parade, ballet</td>
</tr>
<tr>
<td></td>
<td>Valley</td>
<td>Mountain, forest, plains</td>
<td>Soil</td>
<td>Grass, trees, rocks</td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Store, playground, arcade</td>
<td>Village</td>
<td>City, farm, beach</td>
</tr>
<tr>
<td></td>
<td>Shade</td>
<td>Sun, shadows, blue</td>
<td>Products</td>
<td>Books, metal parts, flowers</td>
</tr>
<tr>
<td><strong>Hard</strong></td>
<td>Convent</td>
<td>Museum, opera house, schoolhouse</td>
<td>Shades (color)</td>
<td>Paint, pencils, glasses</td>
</tr>
<tr>
<td></td>
<td>Harness</td>
<td>Belts, swing, bullwhip</td>
<td>Wilderness</td>
<td>Desert, city, forest</td>
</tr>
<tr>
<td></td>
<td>Procession</td>
<td>Crowd, train car, sleigh</td>
<td>Crop</td>
<td>Tools, cereal boxes, pens</td>
</tr>
</tbody>
</table>
### Appendix A – Word & Foils Selections (Cont’d.)

<table>
<thead>
<tr>
<th>Curious George Goes to an Ice Cream Shop</th>
<th>Foils</th>
<th>From Cow to Ice Cream</th>
<th>Foils</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Easy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sprinkles</td>
<td>Chips, fruit, flowers</td>
<td>Refrigerator</td>
<td>Oven, mixer, dishwasher</td>
</tr>
<tr>
<td>Mountain</td>
<td>River, valley, field</td>
<td>Summer</td>
<td>Winter, spring, fall</td>
</tr>
<tr>
<td>Cone</td>
<td>Cups, waffle, pancake</td>
<td>Sandwiches</td>
<td>Steak, ice cream sundae, salad</td>
</tr>
<tr>
<td><strong>Medium</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavors</td>
<td>Colors, sizes, shapes</td>
<td>Pistachio</td>
<td>Walnut, chocolate, strawberry</td>
</tr>
<tr>
<td>Jars</td>
<td>Container, can, vase</td>
<td>Machine</td>
<td>Tool, robot, book</td>
</tr>
<tr>
<td>Dish</td>
<td>Mug, napkin, silverware</td>
<td>Container</td>
<td>Basket, garbage can, jar</td>
</tr>
<tr>
<td>Walnut</td>
<td>Banana, dates, cherries</td>
<td>Powder</td>
<td>Dust, water, seed</td>
</tr>
<tr>
<td>Coconut</td>
<td>Apple, orange, watermelon</td>
<td>Blade</td>
<td>gun, scissors, windmill</td>
</tr>
<tr>
<td>Town</td>
<td>City, Beach, Farm</td>
<td>Tank</td>
<td>Bathtub, cauldron, pot</td>
</tr>
<tr>
<td><strong>Hard</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sundae</td>
<td>Cone, Cake, muffin</td>
<td>Bacteria</td>
<td>syringe, pills (medicine), food</td>
</tr>
<tr>
<td>Counter</td>
<td>Bench, shelf, easel</td>
<td>Pasture</td>
<td>garden, parking lot, playground</td>
</tr>
<tr>
<td>Crowd</td>
<td>Battleship, couple, school of fish</td>
<td>Refinery</td>
<td>Building, humidifier, storefront</td>
</tr>
</tbody>
</table>
## Appendix A – Word & Foils Selections (Cont’d.)

<table>
<thead>
<tr>
<th>The Mitten Tree</th>
<th>Foils</th>
<th>Snow is Falling</th>
<th>Foils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>Tribe, individual, class</td>
<td>Roofs</td>
<td>Cars, carpets, doors</td>
</tr>
<tr>
<td>Shutters</td>
<td>Curtain, blanket, screen</td>
<td>Barns</td>
<td>Basement, hangars, shed</td>
</tr>
<tr>
<td>Stripes</td>
<td>Dots, ribbons, flowers</td>
<td>Sled</td>
<td>Skate, slide, swing</td>
</tr>
<tr>
<td>Easy</td>
<td>Hedge</td>
<td>Houseplant, fence, grass</td>
<td>Mole</td>
</tr>
<tr>
<td>Medium</td>
<td>Scaps</td>
<td>Crumbs, newspapers, plate (of food)</td>
<td>Chipmunk</td>
</tr>
<tr>
<td>Dawn</td>
<td>Moon, sun, flame</td>
<td>Cluster</td>
<td>Bundle, gaggle of geese, school of fish</td>
</tr>
<tr>
<td>Vines</td>
<td>Plant, seeds, fruit</td>
<td>Lawn</td>
<td>Field, forest, flower</td>
</tr>
<tr>
<td>Porch</td>
<td>Door, window, hammock</td>
<td>Town</td>
<td>City, beach, farm</td>
</tr>
<tr>
<td>Cap</td>
<td>Scarf, glove, wig</td>
<td>Streetlight</td>
<td>Lamp, lantern, flashlight</td>
</tr>
<tr>
<td>Hard</td>
<td>Wool</td>
<td>Loom, denim, silk</td>
<td>Power-lines</td>
</tr>
<tr>
<td>Brims</td>
<td>Fringe, lips, frame</td>
<td>Vapor</td>
<td>Soil, clouds, glass of water</td>
</tr>
<tr>
<td>Lane</td>
<td>Lawn, car, hallway</td>
<td>Flood</td>
<td>Stream, snow, sun</td>
</tr>
</tbody>
</table>
### Appendix A – Word & Foils Selections (Cont’d.)

<table>
<thead>
<tr>
<th>Level</th>
<th>Groundhog Stays Up Late</th>
<th>Foils</th>
<th>Animals Prepare for Winter</th>
<th>Foils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy</td>
<td>Berries</td>
<td>Apples, oranges, melons</td>
<td>Cave</td>
<td>Mountain, river, golf hole</td>
</tr>
<tr>
<td></td>
<td>Snowflake</td>
<td>Raindrop, cereal (cornflakes), ice cubes</td>
<td>Chipmunk</td>
<td>Hedgehog, turtle, rabbit</td>
</tr>
<tr>
<td></td>
<td>Mud</td>
<td>Sand, water, bricks</td>
<td>Pond</td>
<td>Ocean, puddle, rain</td>
</tr>
<tr>
<td>Medium</td>
<td>Color</td>
<td>Size, shape, paint</td>
<td>Flock</td>
<td>School of fish, class (kids), family</td>
</tr>
<tr>
<td></td>
<td>Storm</td>
<td>Tornado, tidal wave, fire</td>
<td>Coop</td>
<td>Fish tank, doghouse, tractor</td>
</tr>
<tr>
<td></td>
<td>Shelter</td>
<td>Pillow, playground, field</td>
<td>Burrow</td>
<td>Dam, nest, tree</td>
</tr>
<tr>
<td></td>
<td>Fur</td>
<td>Feathers, scales, hooves</td>
<td>Litter</td>
<td>Crumbs, marbles, scraps</td>
</tr>
<tr>
<td></td>
<td>Weasel</td>
<td>Porcupine, mouse, cat</td>
<td>Beaver</td>
<td>Lion, mouse, badger</td>
</tr>
<tr>
<td></td>
<td>Calendar</td>
<td>Phone, notepad, map</td>
<td>Stump</td>
<td>Branch, bud, tree</td>
</tr>
<tr>
<td>Hard</td>
<td>Woodpile</td>
<td>Flowers, garbage, trees</td>
<td>(Arctic) Tern</td>
<td>Pigeon, Hoopoe (bird native to Israel), parrot</td>
</tr>
<tr>
<td></td>
<td>Buttercups</td>
<td>Butterflies, grass, tulips</td>
<td>Salamander</td>
<td>Frog, snake, koala</td>
</tr>
<tr>
<td></td>
<td>Opossum</td>
<td>Skunk, bat, squirrel</td>
<td>Lodge</td>
<td>Hotel, skyscraper, castle</td>
</tr>
</tbody>
</table>
Appendix B - Parent Questionnaire

1. Where were you born? ________________

2. Where was your spouse born? ________________

3. Where was your child born? ________________

4. When was your child born? ________________

5. How many children are in the family? ___________

6. What are their ages? ________________

7. How many years of schooling have you completed? ________________

8. How many years of schooling has your spouse completed? ________________

9. What is your occupation? ________________

10. What is your spouse’s occupation? ________________

11. How many years have the following people been living in Israel:
    a. You ________________
    b. Your spouse ________________
    c. Your children ________________

12. Does anyone else live in your household (e.g. grandparents)? ________________. If yes, please answer the following questions:
    a. Who else lives in your household? ________________
    b. Where was he/she born? ________________
    c. How long has he/she been living in Israel? ________________
    d. What is his/her occupation? ________________
    e. How many years of schooling has he/she completed? ________________
Appendix C – Home Literacy Questionnaire

1. What do you consider to be the primary language in your home?
   a. Hebrew
   b. English
   c. Other. Please describe: ______________

2. Please select the language spoken the majority of the time by the following people to your child:
   a. Mother
      i. Hebrew
      ii. English
      iii. Other. Please describe: ______________
   b. Father
      i. Hebrew
      ii. English
      iii. Other. Please describe: ______________
   c. Siblings
      i. Hebrew
      ii. English
      iii. Other. Please describe: ______________
      iv. No siblings
   d. Caretaker (other than parents or grandparents)
      i. Hebrew
      ii. English
      iii. Other. Please describe: ______________
      iv. No caretaker
   e. Grandparents
      i. Hebrew
      ii. English
      iii. Other. Please describe: ______________

3. Please select the language spoken by your child the majority of the time to the following people:
   a. Mother
      i. Hebrew
      ii. English
      iii. Other. Please describe: ______________
   b. Father
      i. Hebrew
      ii. English
      iii. Other. Please describe: ______________
   c. Siblings
      i. Hebrew
      ii. English
      iii. Other. Please describe: ______________
      iv. No siblings
   d. Caretaker (other than parents/grandparents)
1. Hebrew
2. English
3. Other. Please describe: ________________
4. No caretaker

e. Grandparents
   i. Hebrew
   ii. English
   iii. Other. Please describe: ________________

4. In your family, during the following typical daily routines, which language is **usually** used for communication?
   a. Mealtime
      i. Hebrew
      ii. English
      iii. Other. Please describe: ________________
b. Bathtime
   i. Hebrew
   ii. English
   iii. Other. Please describe: ________________
c. Bedtime
   i. Hebrew
   ii. English
   iii. Other. Please describe: ________________
d. Getting to/from school
   i. Hebrew
   ii. English
   iii. Other. Please describe: ________________

5. In what language does your child communicate with **most** of his/her friends?
   a. Hebrew
   b. English
   c. Other. Please describe: ________________

6. In what language do **most** of your child’s friends communicate with your child?
   a. Hebrew
   b. English
   c. Other. Please describe: ________________

7. At what age did your child begin attending school/day-care setting in Israel?
   a. Under 2
   b. 2
   c. 3
   d. 4
   e. 5

8. What language is the **primary** language in your child’s current school?
   a. Hebrew
   b. English
   c. Other. Please describe: ________________

9. At what age did your child being attending a primarily Hebrew-based school/day-care setting in Israel?
a. Under 2
b. 2
c. 3
d. 4
e. 5
f. My child has only had English language schooling

10. How many hours per week of English language instruction does your child receive at school?
   a. 1-2 hours/week
   b. 3-4 hours/week
   c. More than 4 hours/week
   d. No English instruction at school

11. How many hours per week of English language instruction does your child receive outside of school?
   a. 1-2 hours/week
   b. 3-4 hours/week
   c. More than 4 hours/week
   d. No English instruction outside of school

12. In what language do your child’s after-school activities occur?
   a. Hebrew
   b. English
   c. Both
   d. Other. Please describe: _______________________
   e. Child does not attend after-school activities

13. In what language does your child prefer having books read to him/her?
   a. Hebrew
   b. English
   c. Other. Please describe: _______________________

14. How often would you say you read to your child?
   a. 1-2 times/week
   b. 3-4 times/week
   c. 5 times/week
   d. Daily

15. Approximately how many books would you say your child owns?
   a. 10-25
   b. 25-50
   c. 50-100
   d. 100-200
   e. More than 200

16. Of the above books, what percentage would you say are English books?
   a. Less than 25%
   b. 25-50%
   c. 50-75%
   d. 100%

17. How often does your child go to the library?
   a. Once/week
b. More than once/week
c. Once/month
d. Less than once/month
e. We don’t belong to the library

18. How often would you say you read English books (for yourself)?
   a. Not at all
   b. 1-2 times/week
c. 3-4 times/week
d. 5 times/week
e. Daily

19. How often would you say your spouse reads English books (for him/herself)?
   a. Not at all
   b. 1-2 times/week
c. 3-4 times/week
d. 5 times/week
e. Daily

20. How often would you say you read Hebrew books (for yourself)?
   a. Not at all
   b. 1-2 times/week
c. 3-4 times/week
d. 5 times/week
e. Daily

21. How often would you say your spouse reads Hebrew books (for him/herself)?
   a. Not at all
   b. 1-2 times/week
c. 3-4 times/week
d. 5 times/week
e. Daily

22. Does your family subscribe to any English language newspapers?
   a. None
   b. One
c. More than one

23. Does your family subscribe to any Hebrew language newspapers?
   a. None
   b. One
c. More than one

24. Does your family subscribe to any English language magazines?
   a. None
   b. One
c. More than one

25. Does your family subscribe to any English language children’s magazines?
   a. None
   b. One
c. More than one

26. How often do you or your spouse read literature on an electronic device (e.g. Kindle, iPhone, iPad, etc.)?
a. 1-2 times/week  
b. 4-5 times/week  
c. Daily  
d. We don’t read on an electronic device

27. How often does your child watch television?
   a. 1-2 times/week  
b. 4-5 times/week  
c. Daily  
d. Not at all

28. In what language are the majority of television programs that your child watches?
   a. Hebrew  
b. English  
c. Other. Please describe: ________________

29. How often does your child play on the computer?
   a. 1-2 times/week  
b. 4-5 times/week  
c. Daily  
d. Not at all

30. In what language are the majority of websites your child visits?
   a. Hebrew  
b. English  
c. Other. Please describe: ________________
Appendix D – Reading Log

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Appendix E – Original Analysis of Parent-Child Interactions

The original analysis of parent-child interaction by book genre included all 23 coded categories. The results of the negative binomial regression predicting the mother-child behaviors based on book genre are details in Table A-1, including the descriptive statistics for each category examined, as well as the B, standard error, and exponent(B) for each category, based on book genre. Book genre was significantly predictive of the behavior for all of the categories of parent and/or child behavior examined during the book reading events, with the exception of Parent Book Awareness and Child Elaborations.

Table A-1

Results of Negative Binomial Regression of Parent-Child Interactions by Genre

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<th>Category</th>
<th>Narrative</th>
<th>Informational</th>
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<th>Inf*</th>
<th>Intercepts</th>
<th>Inf</th>
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<td>1.03</td>
<td>0.74**</td>
<td>0.19</td>
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<td>0.59**</td>
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<td>0.08</td>
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<td>2.83</td>
<td>0.66**</td>
<td>0.14</td>
<td>0.11</td>
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*a Inf=Informational text b (P)=Parent c (C)=Child
*p<0.05. **p<0.01. ***p<0.001.
### Appendix F – Inter-Rater Reliability of Coding

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* (P) = Parent (C) = Child
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