

ABSTRACT

Title of dissertation: DOES DISCUSSION MAKE A DIFFERENCE
IN VOCABULARY LEARNING FROM
EXPOSITORY TEXT READ ALOUDS?

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This study investigated the effects of discussion on vocabulary learning from expository text read alouds. This study used a pre-/post within-subjects design to investigate whether discussion contributed to improved vocabulary knowledge from expository text read alouds and whether the placement of discussion makes a difference in vocabulary learning. Fifty-five second-grade students participated in a total of six read aloud sessions. There were two sessions for each of three expository texts. Intact classrooms were randomly assigned to condition by book. All participants experienced each of three discussion conditions, which varied by book. For the Discussion During (DD) condition, students experienced discussion of target vocabulary words during the read aloud sessions. For the Discussion After (DA) condition, students experienced discussion of target vocabulary words after the read aloud sessions. For the No Discussion (ND) condition, students listened to an expository text read aloud without discussing the text at all.

An expressive vocabulary measure was used to examine growth in vocabulary knowledge. For each book, no difference was found for the ND condition. However, statistically significant treatment effects, with large effect sizes, were found for both the DA and DD conditions, indicating that discussion contributed to greater growth in vocabulary knowledge than no discussion. Post-hoc tests revealed that for one book, the DA condition led to significantly greater vocabulary growth than the DD condition. However, for the other two books there was no difference between the DD and DA conditions. These findings indicate that discussion of vocabulary words is an important factor in vocabulary learning.

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FROM EXPOSITORY TEXT READ ALOUDS?

By

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Chapter I: Introduction

Introduction

Reading aloud to elementary students contributes to their literacy development. In fact, Anderson, Hiebert, Scott, and Wilkinson (1985) have called reading aloud to students “the single most important activity for building the knowledge required for eventual success in reading” (p. 23). Listening to text read aloud allows students to hear a fluent reader, enjoy a story or topic, learn about a particular subject, and have exposure to various kinds of literature and text.

The purpose for reading aloud can be aesthetic, instructional, or both. Depending on the purpose, teachers may read aloud to their students in different ways. Some teachers may ask for student input throughout the read aloud and pause to discuss points or questions brought up by students (Varelas & Pappas, 2006). Others may just read the text with no discussion, pauses, or input from students (Copenhaver, 2001). Some teachers may use the same read aloud style regardless of the type of text they are using. But how a teacher reads a text aloud can impact students’ literacy development (Brabham, Boyd, & Edgington, 2000; Brabham & Lynch-Brown, 2002; Elley, 1989; Meyer, Wardrop, Stahl, & Linn, 1994; Silverman, 2007).

Read alouds are appropriate for various kinds of text. Narrative text tells a story and generally follows a predictable pattern (Moss, 2004). Characters are the focus from the beginning (Pappas, 1993) and there are common features across narrative texts that make them more predictable and easier to read and comprehend (Williams et al., 2005). Informational text can also be read aloud but this type of text is more challenging to define. There are various definitions of informational text but for the purposes of this

study, Kletzien and Dreher's (2004) description is appropriate. Kletzien and Dreher have broken informational text into three subcategories: *narrative-informational*, *expository*, and *mixed*. *Narrative-informational text* presents information in the form of a story or narrative. Expository text conveys information about the natural or social world using non-narrative text structures. These texts do not include characters, a setting, or other narrative features. A third type of informational text is *mixed text*, which is a hybrid of narrative and expository elements (e.g., *The Magic School Bus Series*).

Narrative and informational text are both appropriate for read alouds. However, instructional purposes and teacher preferences often influence teacher text choices. In general, many teachers choose narrative text far more often than informational text for instructional purposes (Donovan & Smolkin, 2001). Many teachers are not familiar with informational text and thus choose not to use it, and many others are faced with curriculum constraints that make it difficult to expose students to various types of text (Dreher & Zelinke, 2010). Also, many teachers do not know how to use informational text for read aloud purposes (Donovan & Smolkin, 2001), further limiting students' exposure to informational text.

Not only are there different types of texts to choose from for read alouds, there are different read aloud styles. Brabham and Lynch-Brown (2002) suggested three types of read aloud styles, *interactive*, *performance*, and *just reading*. An *interactive read aloud style* involves the teacher reading aloud and discussing the text with students while reading. The teacher and students share authority in the discussion, allowing students the chance to initiate questions and discussion points just as the teacher does. A *performance read aloud style* involves the teacher promoting discussion of the text before and after

reading but only focusing on actually reading the text during the read aloud. A third style is *just reading* with no discussion about the text at all.

Purpose

The purpose of this study was to compare the effects of two styles of expository text read alouds on second-grade students' vocabulary knowledge. The styles I compared were the interactive read aloud style, which I call discussion during (DD), and the performance read aloud style, which I call discussion after (DA). This study is an extension of previous work on read aloud styles, specifically that of Brabham and Lynch-Brown (2002), Brabham, Boyd, and Edgington (2000), and Elley (1989).

Brabham and Lynch-Brown (2002) used informational storybooks, also known as narrative-informational texts, in first- and third-grade classrooms to compare the differences in vocabulary and comprehension growth based on read aloud style. The three styles were interactive, performance, and just reading. After three read alouds of the same text for each condition, the authors assessed students' vocabulary knowledge and text comprehension. They found that students in the performance and interactive read aloud style conditions acquired more vocabulary and experienced more growth in comprehension than students in the just reading style. In addition, students in the interactive style condition scored significantly higher on vocabulary measures than students in the performance style condition. These findings support the notion that teacher explanations and discussions in which both students and teachers share ideas are important aspects of read alouds. This study focused on discussion during and after read alouds as well.

Brabham et al. (2000) examined the effects of informational storybook read alouds on the content vocabulary development of second-, third-, and fourth-grade students. The only style used in Brabham et al.'s study was the performance style in which the teacher and students engaged in discussions about the text both before and after reading, but not during reading. After two readings of the text, Brabham et al. assessed students' vocabulary knowledge and comprehension. Students in all grade levels experienced comparable gains in vocabulary. Second-grade students had lower comprehension scores than third- and fourth-grade students. Brabham et al. noted that second-grade students may need more explicit instruction than third- and fourth-grade students when reading or listening to narrative-informational text because second graders may have a harder time distinguishing fact from fiction. The study I conducted incorporated vocabulary instruction into read aloud events to support second-grade students' learning from expository text read alouds.

Elley (1989) conducted two studies. In his first study, teachers read aloud a story three times over the course of 10 days. For the first and second readings, teachers did not discuss target words at all but instead discussed the title and main characters. For the third reading, teachers allowed students to comment and make predictions. Students took a multiple-choice vocabulary assessment before the study and two days after the last read aloud session. Elley found that students scored higher on most target words on the posttest than on the pretest. In a second study, Elley compared read aloud styles using two additional stories. One style included an explanation of unfamiliar words while the other style did not. Students who received explanations of unfamiliar words showed greater vocabulary gains. A similar pattern emerged in the results for the second story

but the overall vocabulary gains were smaller in size than those for the first story.

Teacher explanation of vocabulary words, along with discussion of words, is part of my study as well.

My study extends results of Brabham and Lynch-Brown's (2002), Brabham et al.'s (2000), and Elley's (1989) studies by examining vocabulary knowledge gained from read alouds of varying styles. However, my study focused on read alouds of expository text rather than narrative or narrative-informational text. Both studies by Brabham and her colleagues used narrative-informational text to investigate student learning differences based on read aloud style whereas Elley focused on story read alouds.

Rationale

Read alouds. Reading aloud to students is important for literacy development. Read alouds contribute to increased vocabulary (Elley, 1989) and improved reading achievement (Kletzien & Dreher, 2004). Reading aloud and development of vocabulary are consistently connected (National Reading Panel, 2000).

Anderson et al. (1985) argued that most important activity for reading success is reading aloud to children. In addition, Anderson et al. noted that children benefit the most from story read alouds when they are actively participating through discussion of the stories and word meanings. Also, Anderson et al. said that the greatest benefits to children resulted from questions and discussions that connected stories to real life and required children to think, rather than just recall facts.

Adams (1990) noted that it is important to actively engage children in read alouds of stories than to read straight through. She also pointed out that in addition to reading books aloud, other important aspects of read alouds include reflecting on content,

enjoying the book, and supporting children as they try to develop understanding of meaning in the text. Also, Adams noted that reading books to children should be done so in a way that allows children to “examine pictures, discuss all aspects of meaning, and become aware of the format and function of the print” (p. 369).

Informational text. Narrative texts are not the only genre teachers should consider when selecting texts for read alouds. Informational texts can tap into students’ natural curiosity and motivation to read because these texts focus on interesting topics (Kletzien & Dreher, 2004). Using informational texts for read aloud purposes also serves to expose students to a wider range of vocabulary. Informational text read alouds expose students to specialized vocabulary (Duke & Kays, 1998), which supports students’ understanding of concepts (Yopp & Yopp, 2006). Brabham et al. (2000) found that elementary students had significant vocabulary gains as a result of listening to informational storybooks read aloud. Duke and Kays (1998) found that after several months of regular informational text read alouds, students’ vocabulary knowledge improved. Students in Blachowicz and Obrochta’s (2005) study of informational text read alouds increased their knowledge of content vocabulary.

Despite the benefits of informational text read alouds for students, informational text is often neglected in elementary classrooms (Dreher & Zelinke, 2010). Duke (2000) found that first-grade students’ exposure to informational text was less than four minutes on average per day. In an extension of Duke’s work, Jeong, Gaffney, and Choi (2010) found similar results in second-, third-, and fourth-grade classrooms. Yopp and Yopp (2006) found a similar pattern of limited exposure to informational texts when examining school and home read aloud practices. This limited exposure to informational text can be

attributed to a variety of reasons. Duke, Bennett-Armistead, and Roberts (2003) have suggested that there are three beliefs about informational texts that influence teachers' text selections for read alouds. First, informational books are too difficult for young children. However, Pappas (1993) and Duke and Kays (1998) have shown evidence against this because young children in their studies did benefit from exposure to informational texts. Second, young children do not like informational text, and third, students should learn to read before they read to learn. Again, Pappas, Duke and Kays, and others have provided research evidence that disputes these beliefs. In addition, curriculum constraints and a lack of knowledge about informational text may contribute to an overrepresentation of narrative texts in children's text experiences (Dreher & Zelinke, 2010). However, as noted earlier, expository texts are important to consider for read aloud purposes. My study addresses this consideration.

As mentioned above, informational text can be divided into three categories, narrative-informational, expository, and mixed (Kletzien & Dreher, 2004). Most research on informational text read alouds has focused on instruction with narrative-informational text, often in part due to its story-like nature, which may be more familiar to students and easier to understand. However, given concerns about students lack of exposure to informational texts in early grades and the potential academic impact of that limited exposure (Chall, Jacobs, & Baldwin, 2002; Yopp & Yopp, 2006), it is important to consider expository text as even more beneficial for students, particularly for vocabulary learning.

Vocabulary. Vocabulary knowledge is the best predictor of reading comprehension (Anderson & Freebody, 1981) and can provide insight into students'

specific comprehension skills (Pearson, Hiebert, & Kamil, 2007). A reader must know what most words mean in a text in order to understand that text (Nagy, 1988).

Vocabulary lends itself well to learning from its natural occurrence in context (Beck et al., 2002).

Nagy (1988) suggested that effective vocabulary instruction involves at a minimum “adequate definitions and illustrations of how words are used in natural sounding contexts” (p. 9). Nagy adds, though, that intensive vocabulary instruction is most beneficial for students when it includes the following: (a) integration of word knowledge with other knowledge, (b) repetition and (c) meaningful use. Nagy argued that integrating vocabulary instruction with support for connecting to background knowledge and concepts helps students learn and understand relationships between ideas, thus supporting understanding. Also, Nagy noted that repetition of words helps the reader better understand word meanings and uses, which allows for more effort to comprehend what is read. Finally, Nagy said that meaningful use means that the reader knows what a word means and can use it. Instruction supporting meaningful use helps students process words in order to understand how these words are useful in normal language activities, like speaking and reading.

Evidence of some of Nagy’s points can be found in research on vocabulary and narrative read alouds. Repeated readings of narrative text support vocabulary learning by offering multiple exposures to words (e.g., Biemiller & Boote, 2006; Coyne et al., 2009; Elley, 1989; Penno, Wilkinson, & Moore, 2002; Sénéchal, 1997; Silverman, 2007). Teacher explanation of word meanings during reading also contribute to word learning (e.g., Biemiller & Boote, 2006; Coyne et al., 2009; Elley, 1989; Penno et al., 2002;

Silverman, 2007). Discussion of words and related text concepts, in which word meanings and related background knowledge are shared at various stages of read aloud sessions, also supports vocabulary growth (e.g., Mol, Bus, & de Jong, 2009; Silverman, 2007). Variations in read aloud practices, including the addition of open-ended questions, expansions on children's ideas, and responses to children's questions can lead to increased language development (Whitehurst et al., 1988).

There is much less research showing evidence of Nagy's points about vocabulary instruction when informational text is used for read aloud purposes. This study aims to target this gap.

Discussion. Discourse in elementary classrooms often follows a traditional format. Cazden (2001) called this format Initiation/Response/Evaluation (IRE). The teacher initiates an idea by asking a question, students respond, and the teacher evaluates the student responses. This popular practice has been criticized because, as Cazden noted, students respond to something the teacher already knows the answer to. The teacher is seen as asking inauthentic questions to check student knowledge. Also, the teacher dominates discussion and students only contribute in response to teacher prompts.

In contrast, Cazden (2001) pointed out that nontraditional formats for discourse allow more flexibility and discussion surrounding questions and concepts. Teachers may accept alternative answers from students and ask students to support their answers. Cazden also noted that there are more benefits for student learning when students can share language, have a more active role in contributing to discussion, and build understanding together as a community, rather than participating in interactions controlled by the teacher with limited ideas accepted as answers.

Research has shown that the way in which teachers read aloud impacts student literacy development. There is evidence that read alouds including discussion provide multiple benefits to students. Discussion at various points during read alouds contributes to improved vocabulary (Blachowicz & Obracht, 2005; Brabham et al., 2000; Brabham & Lynch-Brown, 2002), increased intertextual connections (Leal, 1992; Oyler & Barry, 1996; Varelas & Pappas, 2006), and increased student engagement (Moschovaki, Meadows, & Pelligrini, 2007; Oyler, 1996), all of which contribute to comprehension. Teacher explanation of word meanings also helps students learn more vocabulary words (Biemiller & Boote, 2006). Students who participate in discussion at various points during read alouds show more literacy growth compared to students who do not participate in discussions as part of read aloud experiences (Brabham & Lynch-Brown, 2002; Horowitz & Freeman, 1995). But, the placement of discussion during read aloud sessions and what is discussed may differentially impact student learning.

Biemiller and Boote (2006) noted that “reading stories with word explanations has been shown to be more effective than simply reading stories, even when read repeatedly” (p. 46). Coyne, McCoach, Loftus, Zipoli, and Kapp (2009) found that students who participated in extended instruction involving discussions about words after story read alouds showed greater vocabulary knowledge than students who did not discuss words after reading. Brabham and Lynch-Brown (2002) found that students who participated in informational text read alouds before, during, and after reading showed more vocabulary and comprehension gains than students who participated in discussion only before and after and students who experienced no discussion about the texts.

As indicated above, research has shown that discussion as part of read alouds leads to literacy growth. In addition, there is research on the benefits of discussion around informational texts. Blachowicz and Obrochta (2005) found that discussion helped students learn vocabulary from informational text. Horowitz and Freeman (1995) found that students in the discussion condition of their read aloud study preferred expository text whereas students in the non-discussion condition preferred other texts. Horowitz and Freeman concluded that discussion could enhance interest in text, which could contribute to improved comprehension and text interpretation. Brabham and Lynch-Brown (2002) found that students in the interactive read aloud condition, where discussion occurred before, during, and after the read aloud, had the greatest vocabulary gains compared to students in the no-discussion condition and performance style condition, where discussion only occurred before and after. Leal (1992) also found that students who discussed an informational text during the read aloud session demonstrated more connections to other texts and more use of background knowledge. According to these studies, discussion during read alouds sessions may lead to more benefits for students, including improved vocabulary knowledge.

However, there is limited research examining the placement of discussion and how discussion placement differentially impacts literacy growth. In addition, there is limited research on what aspects of discussion best support student literacy growth. Heisey and Kucan (2010) and Brabham and Lynch-Brown (2002) compared conditions that varied in terms of when discussion of text occurred but more research is needed on discussion placement and what occurs during discussion that best supports literacy growth. In addition, despite the benefits noted above of discussion during read alouds,

discussion is not widely used in reading instruction (Scharer, Lehman, & Peters, 2001). Also, given that informational text, and especially expository text, is more challenging for many students (Chall, Jacobs, & Baldwin, 1990; Horowitz & Freeman, 1995), placement of discussion during expository read alouds and details about what this discussion looks like are important to consider. When discussion occurs, what kind of text is used for read alouds, and what occurs during discussion each contribute to vocabulary learning. My study addresses the combination of these factors and how they contribute to vocabulary growth.

Problem Statement

This study aims to address gaps in literacy research specifically related to vocabulary learning and expository texts. The focus of this study is significant for several reasons. With an education climate so focused on high-stakes testing and assessment in general, curriculum is becoming more constrained and teachers are faced with less flexibility in choosing instructional techniques and resources (Valli, Croninger, Chambliss, Graeber, & Buese, 2008). Reading aloud from and discussing informational texts can not only provide additional opportunities for practice with literacy skills but it can also combine these skills with many other areas of learning including content area information and vocabulary. Vocabulary knowledge is a key part of reading proficiency and overall school achievement (Beck et al., 2002). Supporting students' vocabulary learning through discussion of expository read alouds is an important instructional approach to consider.

There are challenges to understanding vocabulary learning from expository text read alouds. First, many researchers do not define informational text in the context of

their studies or have difficulty doing so. There is research evidence that young children experience vocabulary growth as a result of informational text read alouds but whether these texts are narrative-informational, expository, or mixed is not clear (Blachowicz & Obrochta, 2005; Santoro, Chard, Howard, & Baker, 2008). The challenge of defining informational text is not limited to studies of vocabulary learning from read alouds, but also includes studies of informational text read alouds and comprehension (Hooper & Hare, 1982; Santoro et al., 2005) and interaction and discussion during read alouds (Heisey & Kucan, 2010; Oylar, 1996). Clearly, defining informational text and communicating the kind of informational text used is an important factor of research on informational text in general.

As a result of my study, I hope to address gaps in the literature regarding beneficial uses of informational text and how discussion may impact vocabulary learning.

Research Questions

The research questions for this study were as follows:

- 1) Does discussion contribute to vocabulary learning from expository text read alouds?
- 2) Does the placement of discussion during expository text read alouds make a difference in vocabulary learning?

Definition of Terms

The following terms and definitions indicate how they will be used in the context of this study. Recognizing that there are many definitions of these terms in the literature, I have listed operational definitions on the following pages as they apply to this study.

Informational text. There are many definitions of informational text in research. For purposes here, Kletzien and Dreher's (2004) definitions are appropriate.

Informational text can be broken down into three categories according to Kletzien and Dreher (2004). *Narrative-informational text* presents information in the form of a story or narrative. *Expository text* conveys information about the natural or social world using non-narrative text structures such as description, sequence, causation, problem-solution, comparison, and listing. *Mixed text* includes elements of both narrative and expository texts (e.g., *The Magic School Bus Series*). The focus of this study is on expository text.

Read aloud and read aloud style. There are many different ways to define read alouds. For the purposes of this study, read alouds are defined as a teacher reading a book out loud to students. In terms of read aloud style, for purposes here, Brabham and Lynch-Brown's (2002) definitions are appropriate. Brabham and Lynch-Brown defined three read aloud styles, *interactive*, *performance*, and *just reading*. An *interactive read aloud style* involves the teacher reading aloud and discussing the text with students while reading. The teacher and students share authority in the discussion; students have the chance to initiate questions and ideas for discussion just as the teacher does. This style is the discussion during (DD) condition in this study. A *performance read aloud style* involves the teacher promoting discussion of the text before and after reading but only focusing on actually reading the text during the read aloud. This style is the discussion after (DA) condition in this study. A third style is *just reading* with no discussion about the text at all. This style is the no discussion (ND) condition in this study.

Vocabulary. Vocabulary is defined in many ways and can encompass a variety of things. For purposes here, vocabulary is knowledge of word meanings (Biemiller &

Boote, 2006). Target vocabulary is the list of targeted words selected for instructional focus during the read aloud sessions in this study.

Discussion. In the literature, discussion is described as the talk between teachers and students. Cazden (2001) has noted that the traditional pattern is that of Initiation-Response-Evaluation (IRE) in which the teacher asks for students to respond, the students respond, and then the teacher evaluates the response as right or wrong. However, other patterns of discussion exist and there is evidence that some of these patterns may be more beneficial to student learning. Oyster (1996), for example, has noted that both the teacher and students can share authority and initiate comments, which supports student learning and engagement more so than the IRE pattern. The definition of discussion will be addressed again later in the context of the results of my study.

Summary

Research has shown that read alouds benefit student literacy growth. There is less research, though, on how informational text read alouds benefit students in specific ways related to literacy growth, especially vocabulary knowledge. This study aims to address these gaps in literature by examining how discussion impacts vocabulary growth from informational text read alouds. Placement of discussion around read aloud events was examined and how this placement impacts vocabulary growth. This study also extends the work of Brabham et al. (2000), Brabham and Lynch-Brown (2002), and Elley (1989).

Chapter II: Review of Literature

Introduction

The purpose of this study was to investigate whether there are differences in vocabulary learning from expository text read alouds based on read aloud style. The following questions guided my research: 1) Does discussion contribute to vocabulary learning from expository text read alouds? 2) Does the placement of discussion during expository text read alouds make a difference in vocabulary learning?

Research has shown that elementary students benefit from exposure to informational text. Although there is much literature on informational text use in elementary classrooms, I narrowed my review to focus on the following: a) informational text as read alouds; b) informational text and vocabulary learning; and c) informational text and discussion. In addition, studies had to relate to learning in a school setting, specifically for students in kindergarten through fifth grade. Also, studies had to come from a peer-reviewed source and relate directly to the context of this study. Therefore, I did not include studies of parent/child interactions with informational text or studies of preschool students. Also, given the definitions of informational text explained in Chapter II, I did not include studies focused on reading biographies. This review highlights research directly related to the context of this study but is not intended to include all research on related topics.

I present the results of my review in three overarching categories: (a) informational text read alouds, (b) informational text and vocabulary, and (c) informational text and discussion. Within in each section, subcategories organize research by common topics. There are a number of studies that fall into more than one

category and I discuss each one in all appropriate sections. The section on informational text read alouds includes research on how informational text has been used as part of read aloud practices. This is a broad category and includes a variety of topics related to the use of informational text for read aloud purposes. Literature in this section supports the argument for including informational text in read aloud practices and two areas of focus in this study, vocabulary and discussion, are discussed. The section on informational text and vocabulary is especially important to this study since I investigated vocabulary learning from informational text read alouds. Research on vocabulary learning from informational text is included. The third section, informational text and discussion, includes research on the role of discussion in learning from informational text.

Informational Text Read Alouds

The categories that emerged across the studies related to informational text read alouds are as follows: interaction during read alouds, vocabulary growth, informational book language and text structure, and comprehension.

Interaction During Read Alouds

Eight studies referred to teacher-student interaction and discussion during informational text read aloud sessions. As discussed in more detail in this section, studies focused on discourse during discussions and included attention to both student-initiated and teacher-initiated comments during read aloud events.

Discussion and read alouds. In a descriptive study, Oyler (1996) set out to examine how first-grade students and their teacher shared authority in discussions during informational text read alouds. Oyler pointed out that there is little research on how students and teachers share roles in discussions about texts during read alouds since most

read aloud sessions are teacher-directed. Oyler used recordings of 14 informational book read alouds across the school year coupled with her notes as a participant observer to analyze student-initiated aspects of the read aloud sessions. Students in the class were of Mexican American, Puerto Rican, or African-American descent, they were situated in a poor, urban school, and they all qualified for free federal lunch.

From her analysis, Oyler found several patterns in student-initiated discussion. One pattern in student behavior was that students gave some direction for the process of the read aloud, such as telling the teacher to hold or open a book a particular way or suggesting a question to add to the KWL chart during reading. Another pattern of initiation was that of questioning, as students felt comfortable enough to ask questions often to help clarify their understanding. In many cases, student questions were answered by other students, further extending the discussion and authority of various speakers. In addition, students clarified their understanding of texts by commenting on photographs and illustrations. Students also initiated discussion by connecting the text to personal experiences, further extending comprehension and authority on the topic. Initiations were also made by students through intertextual connections. Most often these intertextual connections, or juxtaposition of texts, were to other books, and students retrieved the books to include them in the read aloud sessions. Other connections were to texts such as songs, poetry, and writing. Oyler noted that students who made connections to other texts or personal experiences showed expertise on a topic, which further supported their understanding.

Overall, Oyler concluded that students from poor, urban backgrounds are capable of sharing authority and knowledge on informational topics. She argued that her findings

contradicted beliefs that poor, urban students have little knowledge and instead wait for teachers to provide it for them. Allowing students to share authority and initiate comments and topics for discussion extended their understanding of texts and made the informational text read aloud sessions valuable and productive for student learning.

Oyler's (1996) positive findings that students can share authority and contribute knowledge as experts are important to consider. However, what is missing is an explicit definition of informational text. Oyler did not define informational text clearly and did not provide details on how certain informational texts were selected by the teacher for read alouds. More information on the definition of informational texts and text selection would help in better understanding the results of Oyler's analysis. Upon investigation of the nine information books Oyler specifically referenced, I located seven and found that six of those were expository and one was narrative-informational. My investigation provides some insight into the type of information books used in this study but these details were omitted by Oyler. In addition, this was a small scale study in one classroom and Oyler did not provide the number of students in the class. It is also difficult to say what an analysis of informational text read aloud sessions would yield with the same books in different classroom settings. Oyler's role as a participant observer indicated the non-experimental nature of this research. It is unclear how much influence Oyler had as a presence in the classroom.

Horowitz and Freeman (1995) also focused on discussion during informational text read alouds, specifically its impact on student preferences for science texts. They argued that two essential and beneficial aspects of discussion about science texts were effective questions and high quality texts. In this descriptive study, the focus was on

three types of questions: preference questions about whether students liked a particular science book; difficulty questions about student perceptions of text difficulty; and questions about author purpose. The teacher recorded herself reading each of two texts aloud. One book, a narrative-informational book about a spaceship and pollution, contained mostly narrative text structure and referenced the Biblical story of Noah's Ark in addition to robots and computers. The other book, an expository book about robots, included multiple expository text structures as well as topics similar to the other text such as robots, spaceships, and computers.

Two kindergarten classes, each with 18 students, and two second-grade classes, each with 18 students, participated in the study. One kindergarten class and one second grade class participated in discussion before and after listening to the tape of each informational book read aloud while the other two classes had no discussion of the texts after listening to the tapes. The before-reading discussions focused on introducing new concepts and unfamiliar vocabulary as well as activating prior knowledge. The after-reading discussions included some of the same before-reading questions and questions for summarization and for eliciting student reactions and comments about the texts. The teacher held the book and pointed to text and pictures on the pages as the tape with the read aloud played.

After both books had been read aloud, students individually responded to 10 questions to evaluate the books. Four of the questions related to preferences about the books, such as which book students like best, which book they would like to hear read again, which book was more interesting, and which book they would recommend to a friend. Four questions focused on the difficulty of the books, asking students which book

they thought was easier, which one made it easier to make mental pictures about, which book had more unfamiliar words, and which book was easier to remember. The authors were not clear on how the question about which book was easier and the question about which book was easier to remember differed. The last two questions covered what students thought about author's purpose, asking which book was for entertainment and which book was meant to teach something.

Although Horowitz and Freeman (1995) collected data from both second-grade classes, they were only able to collect data from one kindergarten class, the discussion condition class. However, they did not indicate why the no-discussion kindergarten results could not be obtained. Horowitz and Freeman (1995) found that students who were part of the discussion condition preferred the expository text over the narrative-informational text and said the expository text was designed to teach something. Those students who preferred the expository text also commented that it was more difficult and had more unfamiliar words. The class of second-grade students who did not participate in discussion preferred the narrative-informational text and thought it was the easier of the two texts. The results of this study show that discussion may play an important role in student preferences for text, student acknowledgement of text difficulty, and in student understanding of authors' purposes for writing texts. Horowitz and Freeman argued that discussion can enhance student interest in text, which may lead to improved comprehension and text interpretation.

However, there are a few important limitations to consider about Horowitz and Freeman's (1995) study. First, the read aloud sessions involved a tape of the text being read aloud rather than a person reading the text aloud. This altered read aloud format

may have made a difference in how students processed the texts because the teacher was not actually reading it to them in-person, thus removing any physical aspects of read alouds that teachers may bring such as gestures or facial expressions. Second, this study did not include discussion during the read aloud as the teacher and students went through the text. The discussions and interactions were only before and after listening to text. Discussing these informational texts before and after reading, but not during, may have limited student interactions with the text. Some students may have had thoughts and questions come up during the read aloud that they could not share in the moment. This limitation may have impacted comprehension as students tried to build understanding during reading but could not share questions or comments. Furthermore, Horowitz and Freeman did not discuss condition assignment so it is not clear how classes were assigned to conditions. Also, it is unclear why the authors did not or could not collect data from the kindergarten class with no-discussion. Including the data from this group to compare to the other kindergarten class and to the second-grade class with no discussion could have provided valuable information.

Heisey and Kucan (2010) also examined how read alouds combined with discussion impacted student learning. Specifically, Heisey and Kucan compared the effects of discussion during informational text read aloud sessions to the effects of discussion after informational text read aloud sessions. They looked for differences in student knowledge and literacy outcomes based on when discussion occurred as part of read aloud sessions. For the during-reading discussion group, students heard small segments of science text read aloud and answered carefully planned questions. Students in the after-reading discussion group also responded to questions but not until the end of

the read aloud. Two multiage first/second-grade classes participated, each with 17 students. One class experienced the during-reading condition and the other class experienced the after-reading condition. The classes were randomly assigned to a condition, making this a quasi-experimental design. The three texts chosen for this study focused on the work of scientists.

A script guided both discussion conditions. For the during-reading discussion condition, questions addressed specific aspects of the texts including the scientist at work, content information, support for making connections to texts students had previously read, and support for understanding new science vocabulary. For the after-reading discussion condition, students responded to the same questions as in the during-reading condition but only after hearing the entire text read aloud. After each read aloud in each condition, students completed after-story tests with content questions and a question about the person in the text. Also, pre- and posttests aimed at getting students to focus on understanding across the three books, measured students' knowledge about scientists, and measured students' knowledge about scientists' work in general. Heisey and Kucan audio taped and transcribed each read aloud session and accompanying discussion. The study spanned five days, with testing occurring on the first and fifth days and read alouds of each text on the other three days.

Heisey and Kucan (2010) found no differences in overall scores between groups on the after-story tests, which were focused on one book at a time. For one question, about describing what made the characters scientists, students in the during-reading discussion group provided more evidence to support their answer. Heisey and Kucan

claimed that the extra evidence provided by students in the during-reading discussion group showed their deeper understanding of the information found in the texts.

When analyzing pre- and posttest scores, which focused on student understanding across the texts, the authors found that students in the during-reading discussion group showed greater gains between pre- and posttest than students in the after-reading discussion group. Also, through analysis of transcripts, Heisey and Kucan (2010) found that students in the during-reading discussion group talked more frequently about important ideas from the texts and focused discussions on text content. Heisey and Kucan also noted that students in the during-reading discussion group were better at making intertextual connections across the texts used in this study. According to Heisey and Kucan, the during-reading discussion provided more benefits and better supported student learning and literacy development than the after-reading discussion.

Several limitations of Heisey and Kucan's (2010) study should be noted. First, the authors did not explicitly define informational text. This continues to be a concern as studies tout the benefits of informational text read alouds but fail to clearly define what is meant by informational text. Upon investigating the texts used in this study, I found one was mixed text and two were narrative-informational. Since none of the texts were expository but instead contained more story elements that many students were more familiar with, student outcomes could have been influenced by text choice in this case. The authors even termed one of their measures as an after-story test, showing that the texts were more story-like than expository. Additional research is needed to compare the differences between read alouds of different types of informational text. Also, like other research in this review, the scale of the study was very small, limiting the interpretation

of the results and transfer of procedures to different and larger contexts. Another concern with this study is that the authors did not find differences between groups on the after-story tests. Even though the authors argued that information regarding how students from each group answered specific questions is promising for future instructional recommendations, additional research is needed comparing discussion conditions.

Another study that included interaction through read aloud discussion was that of Brabham and Lynch-Brown (2002). Brabham and Lynch-Brown (2002) examined the effects of different read aloud styles on vocabulary and comprehension using narrative-informational texts. This study was an extension of similar work by Braham, Boyd, and Edgington (2000), which is covered in more detail in the vocabulary and comprehension sections of this review. Brabham and Lynch-Brown used the same two narrative-informational texts from the Brabham et al. (2000) study and implemented two read aloud sessions for each text. They used an experimental design involving random selection of student groups from 12 first-grade classrooms and 12 third-grade classrooms in five schools. In both grades, random selection of 5 groups of 12 students occurred for each of three read aloud styles, resulting in 60 students for each style treatment in each grade. Pre-service teachers were randomly assigned to carry out the read aloud sessions.

Of the 360 total subjects, only 246 were present for both read aloud sessions, 117 in first grade and 129 in third grade. In the just reading style condition, pre-service teachers read the text aloud with no discussion before, during or after. In the performance style condition, discussion occurred before and after the read aloud sessions with no interaction or interruptions during reading. The interactive read aloud style condition involved discussion before, during, and after the read aloud sessions. Scripts

for each style guided the pre-service teachers during the read aloud sessions. Participants completed pre- and posttests targeting 20 vocabulary words from each text. A multiple-choice comprehension test addressed both literal and inferential information found in the texts. Treatment fidelity came from audiotapes and videotapes of the read aloud sessions.

Brabham and Lynch-Brown (2002) found that student vocabulary knowledge was significantly higher for students in the interactive read aloud style compared to students in the other two read aloud groups. No statistically significant results occurred for comprehension related to either text for any of the groups. The authors noted that a pretest influence may have affected measures as well as the fact that students in the just reading style drew or wrote about the text after the read aloud sessions, which may have influenced comprehension.

The interactive read aloud style was most productive for vocabulary growth in this study, as the significant findings indicated. However, a limitation of this study is that the authors did not provide specific details about the scripts for each read aloud style. It is difficult to know exactly what was beneficial in how teachers discussed words and texts with students and how these differences may have impacted vocabulary gains and lack of comprehension differences across read aloud styles.

Like Brabham and Lynch-Brown (2002), Moschovaki, Meadows, and Pellegrini (2007) examined discussion and presentation of texts during read alouds. In this descriptive study, Moschovaki et al. (2007) focused on how teachers read aloud different texts and how student reactions to these read alouds varied depending on teacher presentation. Furthermore, Moschovaki et al. set out to determine if there were differences in teacher presentation style and student reactions based on text genre.

Twenty Greek kindergarten teachers volunteered to participate in this study and each teacher had between 10 and 20 students in the class. The teachers read four books aloud, two stories and two information books. The authors described one of the informational books as an expository text about fire and the other informational book as a narrative-informational text about creatures living underground. None of the students had been exposed to the informational books prior to this study and only one student had been exposed to one of the stories previously.

Moschovaki et al. (2007) developed a coding scheme for analyzing teacher and student responses related to the read alouds and used audiotapes and videotapes for analysis. Also, the researchers coded affect of both the teachers and students through examination of linguistic and prosodic features of discussion and interaction. Coding for teacher affect included: intonation, which referred to voice and reading speed changes while reading; dramatization, which meant teacher reenactment of dialogues or scenes; and personal involvement, meaning teachers' expression of interest and emotion. Categories for coding student utterances related to affect were: language play, meaning spontaneous student utterances in which students played with language or repeated funny words; dramatization, meaning students' spontaneous reenactments of scenes from texts; and personal engagement, meaning students' expression of personal interest or emotion. The authors coded all items in sequential order.

Overall, Moschovaki et al. (2007) found a causal relationship between teacher affective presentation and student affective response. Particular teacher presentations led to particular student responses but student responses did not impact teacher presentation. Analysis showed that there were differences in teacher affective presentation between

stories and information books. These presentation differences indicated that teachers had more affect in their presentation of stories than in presentation of informational books, which led to more affective reactions from students related to the stories.

Teachers used a more interactive style of read aloud presentation when reading the informational books but presented the stories in more of a performance style, reading the text first then going back to discuss it and share pictures. Moschovaki et al. found that there were significant relationships between: teacher dramatization in informational books followed by student personal engagement responses; teachers' personal involvement comments followed by children's personal engagement responses for all four books; children's language play followed by teacher intonation for the book about creatures underground; and children's language play followed by teachers' personal engagement comments for the fire book. Overall, teachers' intonation followed by children's language play and personal engagement was significant for all books except the fire book.

Moschovaki et al. (2007) concluded that there was a causal relationship between teachers' affective presentation and students' affective engagement. There were significant differences between teacher affective presentation and students' affective responses when comparing the stories and the informational books and when comparing the two stories. Also, Moschovaki et al. concluded that students often reflected their teacher's personal engagement in their own personal responses. Similarly, teachers reacted to student responses with like emotions and engagement. The interactive style of reading for the information books included attention to pictures, which offered more opportunities for student personal engagement. Teachers did not share pictures from the

stories during their performance style of presentation, which may have limited students' personal reactions. However, stories did have more of an impact on teacher intonation, which led to more student personal engagement. The authors concluded that a strong bidirectional relationship between teacher personal involvement and student personal engagement indicated that text genre did not necessarily matter.

Several limitations must be noted about Moschovaki et al.'s (2007) study. First, the authors indicated there was a causal relationship between teacher affective presentation and student affective reaction. This claim should be viewed with caution because the authors did not use an experimental design for their study. Teachers volunteered to participate in the study and random assignment to condition did not occur. In addition, teachers read aloud as they normally would. Moschovaki et al. gave no indication about the differences in how the 20 teachers may have read aloud to their students, regardless of style condition. These differences may have contributed to the results. Also, the authors only focused on interactions between the teachers and students and did not address the potential impact of student comments on other students as the entire class participated in read aloud sessions. Lastly, Moschovaki et al. noted that student responses did not impact teacher presentation; however they also said that teachers often reacted to student responses with similar emotions and engagement. These statements conflict with one another and it is not clear how student responses affected teachers.

Like Moschovaki et al. (2007), Leal (1992) compared how different text types impacted student discussion related to read alouds. In this descriptive study, Leal read aloud three different types of text to small groups of six students. A total of 54 students

participated and came from first, third, and fifth grades across three elementary schools. Each group had a balanced number of girls and boys and met with the researcher three times, one session for each book. The researcher read the texts to each group, asked students to discuss ideas about the texts, and redirected questions to the group so students could lead the discussion. At two points during the read aloud and then again after finishing the text, Leal stopped and asked students to talk to each other about the text. Leal audio taped and transcribed each session. She described one text as a storybook, the second text as an informational book, and the third text as an informational storybook which presented information in the context of a story.

Leal's (1992) goal was to examine differences in student responses based on grade level and determine any developmental differences between grades. Using the audio taped sessions, Leal coded student comments into five categories: sources of information, topic continuity, comment acknowledgements, forms of expressing thinking, and textual and extra-textual elements. For the sources of information category, Leal looked for whether students used prior knowledge, the text, or peer comments as sources. Topic continuity related to whether a comment started a new topic, continued the current topic, or reintroduced a previous topic. Comment acknowledgements were either a confirmation of a comment, a challenge, ignoring a comment, or a neutral comment. A neutral comment neither confirmed nor challenged another comment while ignoring a comment did not acknowledge a previous idea. Forms of expressive thinking related to whether students asked a question, reported something, provided an explanation, offered a speculation, or offered a theory. Lastly, textual and extra-textual elements focused on

specific aspects of each text's structure, for example story resolution or illustrations in the text. She tallied the number of utterances according to code for her analysis.

Leal (1992) found significant differences for several areas of focus. For sources of information, fifth-grade students used significantly more information from all three sources combined than third- or first-grade students. Also, students in all three grades used prior knowledge combined with peer-provided information for significantly more comments than other combinations of sources. Students used a combination of all three sources significantly more for the informational book and informational storybook than for the narrative book. For topic continuity, fifth graders made significantly more comments that continued a topic than third graders and third graders made significantly more comments of this nature than first graders. Students made the most continuing comments related to the informational storybook. For the acknowledgements category, challenge and confirmation comments rose significantly as grade level increased, meaning third graders made more acknowledgements than first graders and fifth graders made more than third graders. For forms of expressive thinking, reports were most common. Students asked more questions as grade level rose. Third and fifth graders made significantly more speculations than first graders. Fifth graders offered significantly more explanations than younger students. In general, students asked more questions about the informational book and informational storybook than about the story. Students made about twice as many speculations about the informational storybook compared to the other texts. Lastly, related to textual elements, third graders made more extra-textual comments about the informational storybook and the informational book

than other students. Fifth graders offered more comments about illustrations than other students.

Based on her results, Leal (1992) concluded several things. Students relied on more than one source of information to develop comments. Students most often combined prior knowledge with other sources. Leal also concluded that older students were more involved with their peers than younger students, drawing from peer comments, challenging or confirming what peers said, and sharing in longer discussions. Leal found that the informational storybook best enhanced student discussion because students discussed it longer, used speculation more often, and made extra-textual connections more often to draw from outside experience in building understanding of the text.

In terms of limitations, Leal did not indicate how students were chosen to participate in the small groups. Although groups were even in terms of gender, Leal provided no information about how particular students were chosen over other students. More information is needed about student backgrounds and abilities to determine how groups were similar or different both within and across grade levels. Also, more details are needed about how Leal selected the subcategories for each of her broader coding categories. Leal lists the subcategories but does not provide a rationale for them. In addition, Leal did not describe how she determined where to stop during the read alouds to allow student to discuss the text. It could be that stopping to discuss a text at particular points has more of an impact on student discussion than stopping at other points. More information is needed about when pauses occurred and why they occurred at those places during the read aloud sessions.

Intertextuality as a basis for discussion. As an extension of one aspect of Oyler's (1996) study, Oyler and Barry (1996) examined what intertextual connections meant for comprehension and development of reading strategies. Oyler and Barry defined intertextual connections as "students juxtaposing different texts" (p. 325). The setting for this descriptive study was Barry's first-grade classroom with students from poor, urban backgrounds. Using audio recordings and accompanying transcripts, along with observation notes, Oyler and Barry wanted to determine exactly what texts students juxtaposed during interactive read aloud sessions and what role the teacher served in these connections.

Oyler and Barry (1996) found that the texts that students connected to the informational books included songs, poems, items from television, other books from various genres, and personal experiences. In making these intertextual connections, students showed they were knowledgeable about other texts, which also demonstrated that students read a variety of texts and had knowledge about different topics. Also, students made connections across information sources, including personal experiences, which was the most frequent type of connection made. Oyler and Barry noted that students used personal experiences as a type of remembered text to connect with informational books. In addition, students used pictures and concepts as bases for intertextual connections.

Oyler and Barry determined that the teacher's role in these intertextual connections was to help facilitate student connections between texts presented and texts students remembered. The teacher actively encouraged students to make intertextual connections and comments through recognition and acknowledgement of what students

said, legitimizing student thoughts. The teacher also extended student comments by following up on student initiations of intertextual connections. Students often retrieved texts they referenced in their connections, which helped create a shared text for the whole class and further built intertextuality for the classroom reading community. Also, the teacher always acknowledged and extended intertextual connections when the connections referred to shared text that the entire class had knowledge of. As read aloud sessions occurred throughout the school year, students made more intertextual connections, further developing their knowledge of texts and reading. With the chance to make intertextual connections and share them with the class, students built shared understandings of texts, of reading, and of knowledge development. The students and their teacher built a strong community of readers that valued input from all and developed skills and strategies for connecting with and understanding texts together.

Like Oyler (1996), Oyler and Barry (1996) did not explicitly define informational books. The description of intertextual connections stems from the same data collected for Oyler's (1996) study and thus incorporated the same informational books, four of which I determined were expository texts. It is still not known if the other texts were expository, narrative-informational or mixed. Additional details about the definition of informational books and the kinds of informational books selected would provide more information about what students learned from the books and how students interacted with these texts. Also, with such a small scale study, it is difficult to determine how results would differ with more participants or in a different school setting.

Similar to Oyler and Barry (1996), Varelas and Pappas (2006) examined intertextuality in informational text read alouds. In this interpretive, ethnographic study,

Varelas and Pappas also focused on students in urban school settings and included students in first- and second-grade classrooms. The second-grade class had 30 students and the first-grade class had 23 students. In fact, the first graders had the same teacher as in the Oyler (1996) and Oyler and Barry (1996) studies. Varelas and Pappas defined intertextuality as “making sense of the ‘texts’ from other contexts that children and teachers bring to, and instantiate in, the read-aloud sessions of the unit as they juxtapose these meanings with the meanings from the current texts” (p. 215).

The goal of this study was to examine and compare the intertextual connections made by students and their teachers during informational text read alouds sessions for two science units, matter and the water cycle. There were seven read aloud sessions and Varelas and Pappas compared intertextual connections between classes since teachers differed in their read aloud styles. The first grade teacher focused on literacy aspects of science learning, opportunities to interact with high-quality text and test out ideas, and student engagement. The second grade teacher focused on learning science, student comprehension through asking questions and restating student comments; she did not focus as much on student engagement as the first grade teacher. The read aloud sessions were videotaped and transcribed and field notes came from observations. The teachers also kept journals during the study. Varelas and Pappas examined the frequencies of types of intertextual connections for their analysis.

Varelas and Pappas (2006) found that students in the second-grade classroom contributed more intertextual connections to informational text read aloud sessions, averaging 32 connections, than students in the first grade class, who averaged 18 connections. In both classes, intertextual connections to events occurred most often.

Types of events included specific events, recounting generalized events, such as a student's brother drinking milk, and implicit generalized events, for example the wind blowing leaves. When comparing student-initiated intertextual connections to teacher-initiated intertextual connections, Varelas and Pappas found that students more often initiated connections between informational texts and other media, specific events, and implicit generalized events. Teachers more often initiated connections between the texts they read and written texts, previous classroom discussions, hands-on exploration, and recounting of generalized events. Also, the number of intertextual connections made by the teacher and students in the first-grade class was equal for most of the read aloud sessions. However, in the second-grade class, the distribution of intertextual connections was more uneven with the students initiating more intertextual connections during the first three read aloud sessions and the teacher initiating more during the last four sessions.

Regardless of the types of connections students made, Varelas and Pappas concluded that students from poor, urban areas do have knowledge to contribute to topics found in informational texts. The authors noted that urban students are sometimes thought of as lacking the background knowledge that their non-urban peers have. Varelas and Pappas argued that their findings demonstrated otherwise.

Varelas and Pappas found that students solidified their knowledge of informational topics and contributed to the classroom community's shared understanding of topics through interactive read aloud sessions with informational texts. In addition, Varelas and Pappas noted that the language used in both classrooms represented a hybrid of narrative, story language and scientific, informational language, as evidenced in their analysis of connection frequencies and language used. They contended this hybrid

language helped all participants discover and share ideas. Also, over the course of the study, Varelas and Pappas noted that connections to specific events dropped simultaneous to an increase in connections to generalized events, both the recounting of events and the stating of implicit ones. This change in intertextual connections during interactive read aloud sessions showed a shift to characteristics of more scientific language and a movement away from narrative language. As the teachers and students explored ideas, students learned about new ways to express ideas and multiple meanings of concepts. Students and teachers shared authority as everyone had the chance to initiate intertextual links between the informational texts and other things. Without the interactive nature of these informational text read aloud sessions, results might have been quite different and the same kind of learning may not have occurred. The intertextual connections found in this study show evidence of how students struggle with and create meaning and understanding from exposure to informational text through read-alouds.

Interestingly, one of the classrooms where Varelas and Pappas (2006) collected data was that of the same teacher in both Oyler's (1996) and Oyler and Barry's (1996) study. Focusing on other teachers, or implementing a different research design such as random assignment of participants or conditions, might provide different information about productive literacy practices during interactive read aloud sessions with informational text. The authors' choice to include a second-grade teacher as a comparison provided more insight into how read alouds occur and impact students in different classes and grades. Unlike other authors, Varelas and Pappas addressed what makes informational books different from narrative books by talking about what informational book language looks like and genre characteristics such as co-

classification, in which classes of things are referred to rather than characters or events. However, they did not break down informational text into additional categories such as expository and narrative-informational. Further investigation of the texts used during the read aloud sessions led me to locate six of the seven texts, all of which were expository.

Summary. Overall, the studies I examined in this section point to some benefits of an interactive, discussion-based read aloud style for informational text read alouds. In all eight studies, the authors concluded that discussion and interaction between teachers and students during informational text read alouds was beneficial for student literacy development and is promising for read aloud practices in elementary classrooms.

Discussion, and various aspects of it, impacts the effects of read alouds on student learning and informational text knowledge development, including the placement of it before, during, and after read alouds, as well as how teachers allow students to contribute ideas,. However, there are key limitations that are important to note. Lack of explicit definitions of informational text, little use of experimental design, and small studies limit the interpretation and impact of results. More research is needed in a variety of settings, both larger and in various school environments, to determine how extensive the benefits of interactive read alouds are for elementary students. Explicit definitions of informational text will further support understanding of findings and implications for classroom practice.

Vocabulary Growth

In five studies I located, researchers focused on vocabulary knowledge as a literacy outcome of informational text read alouds. All five studies included targeted vocabulary words based on the texts used. But there were differences across studies in

when the target words were addressed during the read aloud sessions, as discussed in this section. In all five studies, informational text read alouds contributed to vocabulary growth; however, vocabulary was only one of several instructional foci. These studies were divided into three subcategories, vocabulary and read aloud style; vocabulary and regular read aloud practices; and vocabulary and read aloud curriculum.

Vocabulary and read aloud style. Brabham, Boyd, and Edgington (2000) conducted a descriptive study on informational text read alouds, which served as the basis for Brabham and Lynch-Brown's (2002) study, as mentioned in the section on interaction and read alouds. Brabham et al. (2000) used narrative-informational texts and examined the effects of different read aloud styles on several literacy outcomes, including vocabulary. Following procedures and a script developed by Brabham et al., pre-service teachers read aloud two narrative-informational books on science and social studies topics two times each. Pre-service teachers read aloud according to a style involving discussion before and after the read aloud but with minimal interruptions during reading. Student participants were 2nd, 3rd, and 4th graders from two suburban elementary schools in the southeastern United States. In total, 139 students participated in activities related to one of the narrative informational books and 146 students participated with the second book. One goal of this study was to determine if there were differences in vocabulary growth based on grade level. Students completed pre- and posttests featuring 20 targeted words selected from each of the two texts and the authors compared results on these to determine if vocabulary growth occurred. Brabham et al. noted that these words were low frequency words and not familiar to students according to the word frequency book they consulted by Carroll, Davies, and Richman (1971).

Brabham et al. (2000) found that students in all grades made similar and significant vocabulary gains of about four to five words, which was an unexpected and important result. The authors concluded that vocabulary gains can result from as few as two exposures to a text with unknown words. Overall, Brabham et al. argued that their findings showed the benefits of reading aloud for instructional purposes and urged that more instructional time be devoted to doing so for a variety of subject areas.

Brabham et al.'s (2000) findings would be more powerful with more details about the discussions before and after the read aloud sessions. Although they noted that pre-service teachers followed procedures and scripts, the limited details provided indicated that teachers invited students to talk about vocabulary words but that teachers did not confirm student beliefs about words before reading. It is difficult to know what the specific beneficial practices for vocabulary learning were during the read aloud sessions without knowing details about the scripts and procedures or how pre-service teachers introduced, taught, and discussed vocabulary. Also of concern is the lack of a comparison group to the treatment group. Although Brabham et al. used pre- and posttests, they did not have a control or no-treatment group for comparison. Without a comparison group, it is difficult to know how much of student vocabulary growth could have been due to maturation.

In an extension of Brabham et al.'s (2000) work, Brabham and Lynch-Brown (2002), as mentioned in the section on interaction and read alouds, examined the effects of different read aloud styles on vocabulary and comprehension. Brabham and Lynch-Brown used the same two narrative-informational texts from the Brabham et al. (2000) study and implemented two read aloud sessions for each text. However, Brabham and

Lynch-Brown used an experimental design, resulting in random selection of 5 groups of 12 students from first and third grades for each of the three read aloud styles and random assignment of teachers to carry out the read aloud sessions. In the just reading style, pre-service teachers read the text aloud with no discussion before, during or after reading. This served as the control group for the study. In the performance style, discussion occurred before and after the read aloud sessions with no interaction or interruptions during reading. The interactive read aloud style involved discussion before, during, and after the read aloud sessions. As noted, scripts guided pre-service teachers as they read aloud, students completed pre- and posttests targeting 20 vocabulary words from each text, and treatment fidelity came from audiotapes and videotapes of the sessions.

Brabham and Lynch-Brown found that there was a significant difference in vocabulary growth based on read aloud style. Students in the interactive read aloud sessions experienced significantly greater vocabulary gains in both grades compared to students in the performance and just reading styles. Students in the performance read aloud sessions showed significant vocabulary growth compared to students in the just reading style. However, lack of details about read aloud style scripts made it difficult to fully interpret the results because teacher actions and directions were unknown, similar to the Brabham et al. (2000) study. Yet the authors did note that their findings are important for considering how best to use read alouds of informational text for instructional purposes. They pointed out that discussion as part of read aloud sessions, especially before, during, and after reading, was particularly beneficial for vocabulary growth as students had support from teachers in constructing meaning and understanding of new words.

Vocabulary and regular read aloud practices. In another descriptive study, Duke and Kays (1998) compared students' knowledge of informational text features and language at the beginning of the school year and again three months later through students' pretend readings of wordless information books. Twenty kindergarten students participated in informational text read alouds three to four times a week, in addition to regular narrative read alouds, during the three months that elapsed. Duke and Kays examined length of pretend readings and also divided the pretend readings into intonation units to examine frequency of informational book features per intonation. Duke and Kays described intonations units as units of speech where pauses occur, which in written language would be represented by a comma or period. When students did pretend readings again after three months, Duke and Kays found a slight increase in vocabulary use and a slight increase in the number of students who used technical vocabulary. However, due to increased length of retellings, the ratio of vocabulary used compared to length actually decreased.

Duke and Kays (1998) stated that they focused on expository informational books. However, no details about specific texts used by the teacher during the course of the study were provided. Thus is it difficult to know what kind of informational texts teachers read aloud. Also, the fact that increased retelling length actually contributed to an overall ratio decrease in vocabulary use during retellings raises a concern about the strength of Duke and Kays' findings of improved vocabulary knowledge. More information is needed about the types of informational texts used as read alouds during the three month period between retellings and about differences in vocabulary use. Also, Duke and Kays had a small sample size, with only 20 students included in the final

analysis; a larger sample size may provide additional or different information about student vocabulary growth as a result of informational text read alouds.

Vocabulary and read aloud curriculum. In a study of their own read aloud curriculum design, Santoro, Chard, Howard, and Baker (2008) examined the effect of both narrative and informational book read alouds on literacy growth of first-grade students. The curriculum they developed focused on science and social studies topics. Santoro et al. (2008) compared students most at risk for reading difficulties and those on track for successful reading development. In addition, students in the read aloud curriculum classrooms were compared to students in classrooms where teachers used their own read aloud procedures and texts. However, Santoro et al. did not detail how the curriculum and the teachers' own practices differed.

For the informational text read alouds in particular, targeted vocabulary words were selected from the texts used. Santoro et al. used Beck, McKeown, and Kucan's (2002) three tier word selection criteria, selecting two to four words per text for explicit instruction during read alouds. The selected words were tier two words, which Beck et al. argued should be the focus of vocabulary instruction because they are words found across domains and in many texts students encounter. Tier three words tend to be more domain-specific and less frequently encountered across a variety of texts; however, in this case, tier three words were important for understanding the informational texts used so Santoro et al. selected some tier three words as well.

During the read aloud sessions, students learned targeted vocabulary words while also participating in comprehension-related activities including making connections and confirming predictions. Discussion and review of vocabulary also occurred after the read

aloud sessions. Although vocabulary was not the sole focus of their study, Santoro found that students in the read-aloud curriculum improved in vocabulary knowledge compared to students whose teachers used their own read aloud procedures and texts. After reading, students provided written retellings of books. For each narrative text, students used K-W-L charts they completed throughout the read aloud sessions to fill in a retelling chart targeting parts of the story including who, problem, solution, and ending. For each informational text, students used K-W-L charts to fill in fact sheets that served as guides for completing the retelling activity. The fact sheets directed students to fill in information about the topic. For example, prompts directed students to fill in a blank about what a sea turtle is, draw a picture of a sea turtle, and list what they eat. A statement at the bottom of the page described a few other features of the animal. Students used the fact sheets for retellings but the authors did not describe whether these retellings were oral or written.

Despite their findings that students' vocabulary knowledge improved, there are several limitations to note about Santoro et al.'s (2008) study. First, Santoro et al. provided no details on how students were assessed in any area of focus after the read aloud curriculum implementation other than saying retellings occurred. How Santoro et al. determined that students in the read aloud curriculum improved their vocabulary knowledge compared to other students is missing. It is difficult to fully interpret the findings with no information on assessment measures. Second, Santoro et al. did not solely examine the effects of informational text read alouds on literacy growth. It could be that the combination of read alouds with informational texts and narrative texts in this curriculum jointly contributed to student vocabulary and overall literacy growth. Third,

no details about study participants were provided, limiting the implications of this study for future instruction and literacy development in other elementary classrooms.

Fourth, the authors provided a limited definition of informational text; they defined informational text as expository text and only briefly mentioned a few expository text structures with little detail. Fifth, the authors did not describe how their read aloud curriculum differed from the procedures teachers used in the comparison classrooms. This lack of description makes it difficult to understand how the read aloud experiences were different when comparing classrooms using the curriculum and classrooms using the teachers' own procedures. Sixth, it is not clear how students completed retellings of informational books. The authors describe the fact sheets students completed to help with retellings but did not indicate whether the fact sheets counted as retellings or whether students used the fact sheets to orally retell the informational books. Lastly, although target vocabulary words were provided by the authors, it is not clear which words came from informational texts and which ones were in narrative texts, or if there were overlaps. Thus, the context for word learning, whether narrative or informational, is not clear.

Through another type of read aloud program, Blachowicz and Obrochta (2005) examined vocabulary growth as a result of read alouds as virtual field trips. Working with a group of teachers, Blachowicz and Obrochta developed a read aloud program to match science and social studies content relevant to the teachers that focused on learning new vocabulary. The idea for this program came as an alternative way to build on student enthusiasm and curiosity stemming from field trips. A first-grade teacher with 18 students implemented this descriptive study. In this program, content area books served

as the basis for virtual field trips to support student learning in new areas. The topics chosen were the human body, specifically skeletons, weather and climate, recycling, and animal habitats. Five texts were chosen as a set for each topic and teachers reviewed the texts to select vocabulary. After vocabulary selection for each set, a teacher from the group made a poster with thematic pictures for each topic. During read alouds, the class referenced the posters as part of a virtual field trip to discuss key concepts and vocabulary.

The procedures for the read alouds were as follows. First, prior to starting a new topic, students wrote lists of words they knew connected to the topic. Second, the whole class discussed the poster made for the topic. When students shared vocabulary words, the teacher wrote them on sticky notes and put them on the poster while facilitating the discussion and helping students think about the vocabulary. Third, the teacher read the book aloud, asking students to use thumbs-up gestures when they heard any new words. Teachers then stopped to discuss those words in context. After reading the book, discussion ensued and attention to new vocabulary words was the priority. Lastly, students wrote about either something interesting from the book or something they learned. The books were later placed in the classroom where students could access them during independent reading. In addition, students read aloud at least one of the books every week to someone and recorded the book titles in individual reading logs. As read alouds of other books on the same topic occurred, the teacher and students added more vocabulary words to the original posters. After reading all five books on a particular topic, students completed two writing activities, one longer activity reflecting their learning such as making their own book, and a shorter activity where they listed all the

words they knew about the topic. These word lists were compared to the original lists made by students prior to the read aloud program for that topic to determine vocabulary growth.

Blachowicz and Obrachta (2005) found that all students showed vocabulary growth as a result of this read aloud program. When comparing word lists from before the virtual field trip to after, all students included more words on their list after the program. The increase in words ranged from two words to 20 words. Blachowicz and Obrachta concluded that these vocabulary visits, as part of virtual field trips, can lead to improved vocabulary knowledge, increased use of focus words, and increased reading motivation.

However, Blachowicz and Obrachta (2005) did not specifically describe the texts used in this program so it is not known what type of texts teachers read aloud. Even though the authors did indicate the program focused on content areas, descriptions of texts or lists of titles could provide more information about whether the books were informational texts or not. Also, the authors did not provide information about how vocabulary words were selected for instruction. Details about word selection, apart from them being tier two words, would provide more information about what kinds of words the teacher found important for students to know and why. In addition, the authors described the spark for development of this read aloud program as coming from a teacher study group but only one teacher implemented the program. It was not clear why only one teacher implemented the program, how or why that teacher was selected, or how the other teachers supported the development of the program other than helping to make the posters that were used. Finally, of the 18 students in this study, two of them showed an

increase of only two words from the first list to the second list. The authors did not address the vast difference between word lists of students or what may have contributed to such little increase for some and large increases for others.

Summary. Attention to vocabulary as part of informational text read alouds resulted in improved vocabulary in the studies reviewed in this section. However, similar to the section of this review on interaction during read alouds, lack of details for such things as study procedures and informational text definitions led to limitations in interpreting the research findings presented. It is important to note that this section included one of only two experimental studies located for this review. Although this design was more rigorous, more research is needed with more controlled designs to fully understand how informational text read alouds impact vocabulary growth. Despite the limitations, results from these studies show promise for instructional practices with informational text read alouds.

Informational Book Language and Text Structure

Given that informational text can vary in type and text structure, it is important to consider that informational text read alouds may provide students with the opportunity to learn about how informational text is different from other types of text. Six of the studies included in this review addressed text structure and informational book language knowledge. A variety of informational text structures, such as problem-solution or compare/contrast, can not only be confusing and overwhelming for students who have had no exposure to different text structures but different structures could appear within the same text, which may prove even more challenging for readers. Knowledge of informational text structure may help student literacy achievement, given that text

structure organizes information (Smolkin & Donovan, 2001), thus making understanding the text potentially easier for students.

Informational book language. As mentioned in the vocabulary section, Duke and Kays (1998) examined differences in kindergarteners' use of informational text language at the beginning of the school year and then again after three months of regular informational text read alouds. Twenty students did pretend readings of wordless informational books before and after the study. Duke and Kays acknowledged that some students exhibited knowledge of informational text language and structure in their initial pretend readings. However, Duke and Kays found that in pretend readings after three months of regular informational text read alouds, students exhibited far more knowledge of informational text structure and language than they had at the start of the school year. Duke and Kays determined that students had improved their knowledge by comparing the number of informational book features found in intonation units. Duke and Kays described intonations units as units of speech where pauses occur, which in written language would be represented by a comma or period. Students used far more timeless verb constructions, relating what happened in a general sense, for example "first people call the firefighters and then the firefighters come" (Duke & Kays, 1998, p. 307) rather than describing what happened to a character in a narrative text, such as "once upon a time there was firemans" (Duke & Kays, 1998, p. 307). Also, students used more generic nouns rather than nouns referring to specific things, for example "firefighters" instead of "the firefighter." Students did use more compare/contrast and classification structures in their December pretend readings, which was evidence of their understanding of informational book language and text structures. Duke and Kays noted that students'

retellings reflected more language found in informational books. Although students produced more general statements at the start of the text during their pretend readings in December, they were not quite familiar enough with the text to then produce a general, summarization statement when they reached the end of the text.

Duke and Kays (1998) cautioned, though, that they cannot claim the informational text read-alouds caused students' improved knowledge of informational text structure and language because the study was not an experimental one. However, they acknowledged that given the unique textual characteristics of informational books, they thought it was unlikely that students' knowledge of these characteristics would have developed so quickly without exposure to informational books. Additionally, Duke and Kays noted that students' natural linguistic development as well as experience with the researcher could have attributed to increased knowledge and use of informational text structure. In conclusion though, Duke and Kays pointed out that informational text read-alouds appear to be an effective way to expose students to the genre and a potentially effective way to increase students' knowledge of informational text structure and language.

In addition to the small scale of this study and the lack of a definition for information text, Duke and Kays provided no information about the read aloud sessions conducted by the teacher. Details about the teacher's read aloud style, when or if discussion occurred before, during, or after each read aloud, and the nature of discussions were missing. Due to these limitations, it is difficult to know precisely how much of an influence the informational text read alouds had on students' development of informational text language and knowledge of text structure.

Mantzicopoulos and Patrick (2010) also examined student knowledge of information book language as a result of read alouds. Specifically, Mantzicopoulos and Patrick assessed students' science-related informational text (SciT) knowledge through retellings and examined whether there were differences in retellings by boys and girls. The authors also examined student interest in and home exposure to these types of informational texts. There were 68 kindergarten students in this study, 39 boys and 29 girls. In this quasi-experimental design, the sample was chosen by randomly drawing student names from a list of participants from each class.

Mantzicopoulos and Patrick developed an assessment to measure students' retellings of SciT, which the authors called narrative responses. Instead of using informational books, the authors developed what they called single-page plates that included text and pictures found in informational books. Mantzicopoulos and Patrick reasoned that using single-page plates would allow students to have exposure to a variety of science-related topics. A pool of 192 books, based on lists of outstanding science books for children and outstanding children's literature, served as the basis for the development of the single-page plates. Two plates related to life science topics, one about dolphins and one about animal movement. One plate was about physical science, specifically a lever. The fourth plate involved earth and space science, specifically light in relation to the sun and Earth. Each plate included a photograph, title, author, and a short passage. Using a computerized program called the Computerized Propositional Idea Density Rater (CPIDR), the authors analyzed student retellings of these single-page plates. The CPIDR examined the number of informational ideas stated and the density of ideas, calculated by dividing the number of words in a passage by the number of ideas.

The authors also analyzed the number of rare words used by students, using two well-known lists of words understood by elementary students as guides, the Dale-Chall list of 3,000 common words (Chall & Dale, 1995) and Spache's list of 1,041 words likely to be understood by early elementary students (Spache, 1978).

Students completed the assessment individually in a room that was not their classroom. Those administering the assessment used an introduction script and then showed students a sample single-page plate. Students were guided through the process and then they completed the four assessment items. The examiners labeled the texts as stories when referring to them with students. Coding of the retellings focused on thematic meanings, comments beyond the text themes including those about pictures, complexity of verbal output, and use of informational language. Students responded with yes or no to questions about reading books at school and home that were similar in nature to information on the plates. Also, students responded with yes or no to a question about their interest in reading these books.

The authors found several important results. There were significant correlations between thematic ideas and number of propositional ideas as well as between thematic meanings and number of relevant words. There was a significant multivariate effect for text and the authors concluded that about 65% of children's narrative retellings contained thematically relevant words regardless of text topic. Children made extensions using their prior knowledge, experiences, and comments about the pictures, which contributed to the relevant thematic words included in retellings. After hearing the life science texts read aloud, each student identified at least one thematic meaning from each text, shared about four propositional ideas, and used about 10 words to express relevant thematic

meanings. In general, about half of the children used rare words in their retellings. Students used significantly more relevant words in retellings of life science texts than in the other retellings. Rare word use was highest for the text about levers and very limited for the text about light. Students shared more relevant words about the animal movement text than any other text. However, the animal movement text had the fewest total number of words compared to the rest of the texts.

Mantzicopoulos and Patrick (2010) found no significant differences in interest for SciT when comparing student gender. Boys and girls also did not differ on answers about reading books at school with similar themes to those in the life science book on dolphins. However, for the remaining text topics, animal movement, light, and levers, significantly fewer girls reported reading texts with these topics at school. Boys and girls did not differ when answering about home reading topics on levers and light. However, fewer girls than boys reported reading texts on life science themes at home.

Mantzicopoulos and Patrick (2010) concluded that boys and girls were capable of understanding SciT equally well after hearing it read aloud and both groups could produce retellings that had large percentages of words relevant to the texts after just one read aloud session. Also, kindergarteners provided comments beyond the text, indicating they drew on background knowledge and previous experiences. Students had an easier time with the life science texts than with the other texts, which led to more ideas identified and increased use of rare words. Students expressed much interest in the text topics in general. The authors concluded that a variety of science texts should be included in early elementary instruction, especially those about physical science since they are rarer in early grades.

There are several limitations to Mantzicopoulos and Patrick's (2010) study. The authors did not address students' prior knowledge about the specific topics of the texts. The authors noted this limitation as well. It is difficult to know how much of the students' retellings included information they gathered from the read aloud and how much came from background knowledge and prior experiences. Also, other science topics may have led to different results in any of the outcomes measured. Students may have reacted differently or had different background knowledge to support their retellings for other life science, physical science, and earth and space science topics. The authors also noted this limitation.

Text structure. Further evidence of informational text language and text structure knowledge as a result of informational text read alouds was evident in Pappas' (1993) study of kindergarten students. Pappas set out to examine the validity of the assumption that narrative is primary, meaning young students can only learn from and use informational text after developing a firm understanding of narrative, story text. She addressed the assumption with evidence gathered from students' interactions with and knowledge of both narrative and informational text. Pappas examined 16 kindergarten students' pretend readings of informational text that had been read aloud to them. Specifically, students sat one-on-one with a researcher, heard each text read aloud to them during various sessions, and then provided a pretend reading of the text. Pappas compared students' pretend readings of informational text to their pretend readings of narrative text in order to determine whether or not students responded differently according to different features of each text type. Pappas found that students did in fact exhibit features of informational text structure in their pretend readings of informational

text through the use of verb tenses, vocabulary, and other related lexical items and attention to text structure.

One particular feature of informational text Pappas (1993) found evidence of in the students' pretend readings was co-classification, or referring to classes of things. According to Pappas this text feature is unique to informational text. In informational text, there is no main character but rather a focus on general classes of things, such as squirrels instead of a squirrel or the squirrel. In contrast to informational text, Pappas described a unique feature of narrative text as co-referentiality. This feature of narrative text means that text and words continually refer back to a main character through such things as pronouns or a combination of "the + noun". Pappas was able to ascertain that students knew the difference between narrative and informational text structure because she noted that students' pretend readings of narrative text included co-referentiality and students' pretend readings of informational text included co-classification. With the retelling comparisons, Pappas concluded that young students can understand and use the text structure and other text characteristics of informational text just as well as they can with narrative text. This finding is further evidence that informational texts as read alouds can support student learning of informational text structure and language.

Pappas (1993) indicated that the individuals doing the read alouds did not point out anything specific to students during the sessions but did respond to student questions and comments. However, no information was given about the content of student questions or comments. It is difficult to know if the researchers' responses impacted students' knowledge and understanding of informational text language in a way that was more advantageous compared to students who did not ask questions or make comments

during the read aloud sessions. More information about any discourse during the sessions, especially since it would have been initiated by students, would be helpful in fully understanding students' development of informational text language knowledge. Also, the small scale of this study makes it difficult to generalize the findings to other contexts, particularly due to a lack of random assignment.

Summary. Informational text has unique features found in its text structure and language. Examinations of students' abilities to include and recall these features as a result of informational text read alouds show that elementary students are in fact capable of learning from and understanding this text type. In addition, they can differentiate informational text from stories and retell informational texts by including relevant content ideas, vocabulary, and other informational text features. However, with missing information in these studies, such as discourse during some read aloud sessions or the kinds of informational texts read during others, more research is needed to determine instructional practices that best support student development in this area.

Comprehension

Comprehension of informational text is a very important aspect of informational text read alouds. With such varied text structures, unfamiliar, content-specific vocabulary, and unique overall language, understanding informational texts can be challenging for elementary students. Research on comprehension and informational text read alouds shows promising results, as evidenced by eight studies included in this review.

Structured read aloud sessions. As mentioned above, both Brabham et al. (2000) and Brabham and Lynch-Brown (2002) included comprehension as a focus of

their studies of informational text read alouds. Brabham et al. examined vocabulary and comprehension growth as a result of narrative-informational read alouds. Brabham and Lynch-Brown also examined vocabulary and comprehension growth but compared growth in these areas across read aloud style, including just reading, performance, and interactive styles. Neither study, however, found significant differences in comprehension scores from pretest to posttest. Brabham et al. did find a significant difference in comprehension based on grade level, with second grade students scoring far below third and fourth graders. Brabham et al. cautioned, though, that second graders may not yet be able to differentiate fact from fiction in narrative-informational texts, thus negatively affecting their comprehension, and they recommended more teacher support for these students during read alouds of narrative-informational text. It is not exactly clear why differences in comprehension were not found after informational text read alouds in either study.

Unstructured read aloud sessions. In contrast to Brabham et al.'s (2000) and Brabham and Lynch-Brown's (2002) findings, Smolkin and Donovan (2001) found positive comprehension results stemming from informational text read alouds. Smolkin and Donovan revisited data from their case study of one teacher, Donovan, over two years as both a first- and second-grade teacher. In revisiting the data, Smolkin and Donovan focused on student comprehension improvements as a result of read alouds of six informational texts. Smolkin and Donovan used two narrative-informational texts, three expository texts, and a mixed text, which the authors called a dual-purpose text. Donovan recorded each read aloud session and did not intend to explicitly teach comprehension strategies.

Throughout the read aloud sessions, Donovan scaffolded student learning and modeled many comprehension acts as needed, such as summarizing and rereading, by thinking aloud. She provided direct instruction in situations where she felt students needed it to build understanding of the text before continuing with the read aloud session. As a result of their observations and recordings of the read aloud sessions, Smolkin and Donovan (2001) determined that students were capable of acquiring comprehension strategies and skills. They determined that students acquired comprehension strategies and skills through two distinct periods, comprehension acquisition and direct comprehension instruction. They argued that comprehension acquisition was part of learning in early schooling, up through first grade and potentially including the beginning of second grade. Smolkin and Donovan said students would best benefit from unstructured read alouds of informational text, much like those of Donovan, and would be exposed to and begin to build comprehension skills and strategies during the acquisition stage. They recommend that the direct comprehension instruction period begin in second grade, where comprehension strategies would be explicitly taught, with second grade being a more developmentally appropriate time to begin direct comprehension instruction.

A few limitations are important to consider regarding Smolkin and Donovan's (2001) study. First, although they did state that the information presented dealt with their review of previous data, Smolkin and Donovan did not provide details about the classrooms. Although they were clear that the first year of the study was in a first-grade class and the second year of the study was in a second-grade class, Smolkin and Donovan did not provide information about how many students were in each class or the school or

classroom environments. In addition, Smolkin and Donovan did not provide information about how they determined that student comprehension changed for the better during the course of the study. Smolkin and Donovan provided details about what Donovan, the teacher, did to support student understanding but they did not describe any measures or explicit indication of how they measured student improvement. It is hard to say how comprehension acquisition or direct comprehension instruction would look in other classroom environments, even if those environments similar to the ones in Smolkin and Donovan's study, without details about these particular settings and features of change in comprehension knowledge.

Another study that incorporated unstructured informational text read aloud sessions was Webster's (2009) work with a Jamaican first-grade class. Webster attended Jamaican public schools and had been providing professional development for ten years to primary grades at the Jamaican elementary school she had attended. In this descriptive study, Webster worked with a Jamaican first-grade teacher from afar and traveled to Jamaica on two occasions to observe informational text read aloud sessions. There were 30 students in the class. Through observations, recordings of the read aloud sessions, interviews, and student drawing and writing artifacts, Webster examined the impact of informational text read alouds on science learning and understanding. Webster visited the class twice, in December 2007 and in June 2008, to observe, interview, and participate in classroom literacy activities.

Webster found that informational text read alouds contributed to science learning and comprehension. During the December visit, students responded to read alouds through drawings. During the June visits, students had developed more literacy skills and

were able to write responses to informational text read alouds, including more details in their writing. The written responses included features of informational texts such as vocabulary and examples of informational text structures. Interviews with students helped Webster better understand the change in student knowledge about the topics presented in the read aloud sessions.

Several limitations of Webster's (2009) study are important to note. This was a small scale study in an international setting. The environment for this study may have been different from a first-grade class in the United States and thus different results may come from a similar study done in this country. Also, explicit details about the professional development the teacher participated in that led to informational text read alouds is not known. Although students were able to go from just drawing to writing about things they learned from the informational science texts, maturation could have been a factor in literacy development in addition to the informational text read alouds. Webster indicated that the classroom teacher previewed each text, reviewed new vocabulary, and offered comprehension support during the read aloud sessions but little is known about what happened after the read alouds. Also, it is not clear what kind of exposure students had to informational texts in between Webster's visits. Webster provided a definition of informational text but she did not describe the specific texts she used during the read aloud sessions. I located one of the three texts and it was expository. More information about teacher professional development, read aloud procedures from start to finish, and student text exposure between Webster's visits would be helpful in understanding the findings.

Read aloud curriculum. Comprehension was another aspect of literacy development examined by Santoro et al. (2008), whose study was previously mentioned in the vocabulary section. Santoro et al. examined how the read aloud curriculum they developed for both narrative and informational texts impacted student literacy growth. Santoro et al. compared the read aloud curriculum condition to regular classroom conditions in which teachers used their own read aloud procedures and texts. In the read aloud curriculum, students participated in pre-reading activities to activate background knowledge, discussions about the text and vocabulary during reading, and follow-up activities afterwards to help students retell the texts in written form. Details about the regular classroom conditions were not provided. Santoro et al. found that students in the read-aloud curriculum did better than students whose teachers used their own read aloud procedures and texts. However, as mentioned previously, what students did better on is unclear because the authors did not specify if comparisons of summaries and retellings were made or if other measures were compared. Thus, it is difficult to interpret the improvement in comprehension the authors claim occurred as a result of their read aloud curriculum.

Hooper and Hare (1982) also examined comprehension as a result of a read aloud program. Specifically, Hooper and Hare examined how building students' background knowledge contributed to their comprehension compared to students who did not have the chance to build background knowledge on a topic. There were 26 first-graders in this study, eight of whom were considered above average in terms of academic performance and 18 who were considered average. All students were randomly assigned to treatment or control, with the above average students randomly assigned first. The treatment group

participated in a read aloud program consisting of thirteen books about circuses. The books were a mixture of fiction and nonfiction. Students participated in read aloud sessions twice a week for eight weeks with each session lasting 40 minutes. Children could offer comments during the read aloud sessions. Control group students continued with regular academic programs that were part of their normal classroom experiences but did not have explicit exposure to anything about circuses. All students were free to look at or read the books from the study during independent reading.

All students were pretested prior to the study, which consisted of students drawing a picture of a circus and including everything they could think of related to a circus. Then children individually told a story about their picture, which was audio taped and transcribed for analysis. After the eight weeks, students completed a posttest, which was the same measure as the pretest. Hooper and Hare used a rating system to examine students' drawings and look for common items. This system included 20 items that were most frequently used by students. Three judges rated the drawings and awarded a point for each item included from the rating list and their scores were averaged together for each student. In relation to students' stories about their drawings, Hooper and Hare calculated the mean length of response, or the number of words in student responses. Also, Hooper and Hare calculated the type-token ratio, which was the ratio of different kinds of words to the total number of words, to look at the diversity of student language.

After calculating the type-token ratio, Hooper and Hare determined it was an inappropriate measure because the read aloud sessions narrowed vocabulary choices to words that related only to a circus, rather than expanded students' overall vocabulary. Instead, Hooper and Hare devised a different measure of language diversity. The new

measure examined what vocabulary words students used based on a researcher-developed glossary of circus terms. Student use of words was counted and compared across pre- and posttest.

Hooper and Hare (1982) found that the read aloud program contributed to students' comprehension of circuses by helping students build background knowledge on the topic. Students in the treatment group showed significant increases in their knowledge about circuses compared to students in the control group. In addition, students in the treatment group used more mature language to describe circuses than students in the control group. Treatment and control groups were comparable on the language diversity measure.

Hooper and Hare (1982) provided very limited details about their study. No examples or descriptions of the scoring system or glossary were given. Details about the texts were missing, including how many of the 13 books were fiction and how many were nonfiction. Hooper and Hare also omitted information about how texts were read aloud and what the read aloud sessions specifically consisted of, such as how often teachers or students asked questions or offered comments. Also, student participants were of average or above average academic abilities. It is possible that results could differ for students with below average academic abilities. Additional research with below average students is needed to see how they may be differentially affected by this read aloud program. Hooper and Hare did not offer definitions for fiction or nonfiction genres, which could differ from other researchers.

Retellings. In her descriptive study of an expository text read aloud, Moss (1997) focused on students' retellings of the text in relation to comprehension. Twenty first-

grade students were individually paired with 20 research assistants. Each research assistant read aloud an expository text about kittens to his or her assigned student. During each individual session, the research assistant reviewed the cover of the text with the student, asked the student to make a prediction about the text, and asked the student to share prior knowledge about kittens. The research assistants told the students they would retell the book after the read aloud session as if they were telling someone who had not listened to the book. Students did not receive prompts to retell the book after it was read aloud except when research assistants asked them what else they remembered, as needed. Following the student retellings, the research assistants asked four questions: “If you were to tell a friend about this book in just a few words, what would you say? What was the most important thing you learned from the book? Did you like the book? Why or Why not?” (p. 4). Moss indicated that these questions aimed to examine students’ summarization ability and ability to identify the important information in the text as well as offer students the opportunity to share their opinions about the book.

Moss audio taped and transcribed each session. Each retelling received a score from one to five based on a scale adapted from work of Irwin and Mitchell (1983), with one being the lowest and five being the highest. Features of these scores focused on such aspects of retellings as main idea identification, summarization, inferences beyond the text, and connections between the text and students’ lives. Also, Moss coded students’ answers to the four questions.

Moss found that 18 of the 20 students received retelling scores of three or better. The breakdown of scores was as follows: two students’ retellings received a two, ten students’ retellings received a three, seven students’ retellings received a four, and one

student's retelling received a five. Moss noted that a score of three indicated that students recounted main ideas and details, retold the book sequentially, mirrored the text structure of the book, and summarized the text. Retellings that received a score of four showed that students did what those who scored a three did but also made extensive inferences beyond the text and connected the text to their own lives.

In examining student responses to the four follow-up questions, Moss wanted to investigate children's understanding of the text. Related to the first question about summarizing the text, Moss found that 12 of the 20 students summarized the text appropriately. Students who did not summarize appropriately provided information about minor details, gave incorrect information, or shared opinions. Student answers to the question about what they learned indicated that almost all students could identify the most important thing they learned, which was different for each student. In response to the third question about liking the book, all 20 students said they liked it. An additional question about whether or not students would recommend the book to a friend prompted most students to say their friend could learn the same things they learned from the book.

Moss concluded that young children can comprehend expository text when it is read aloud to them. She also noted that the individualization of this study showed evidence of a positive alternative to traditional assessment measures like tests. She further concluded that young children are capable of summarizing text and identifying important information from text as well as support their opinions about text. Moss noted that future research could provide more insight into students' comprehension of informational text.

Several limitations of Moss' (1997) study should be noted. Moss described her reasoning for selecting the particular text she used. However, she did not acknowledge that prior knowledge may have contributed to students' comprehension and retellings. She did not measure prior knowledge on the topic and did not indicate what prior knowledge students shared with their research assistants before the text was read aloud. It is difficult to know exactly how prior knowledge impacted students' understandings and retellings of the text. Also, this is a small study with only 20 participants from a first-grade class. Examining a larger number of students' retellings or focusing on students in other grades may lead to different results than what Moss obtained. Lastly, Moss mentioned that she coded student answers to the four follow-up questions. However, she did not indicate any other details about her coding scheme other than brief mentions of similarities in responses. It would be helpful to know a bit more about her coding scheme to better understand the analysis of student responses to these questions.

Summary. Comprehension instruction is an important part of read alouds. Given that informational text has different text structures and features compared to stories, it is important to consider that elementary students may need more support for understanding this type of text. Various ways to understand and measure student comprehension after expository read alouds have shown promising practices. However, more research is needed in this area to broaden the understanding of comprehension and address flaws I noted in these studies.

Summary

Overall, four categories related to informational text read alouds emerged from this review. Interactive read alouds involving discussion at various points of read aloud

sessions have shown to be productive for student literacy growth and development of knowledge about informational texts. Increased vocabulary knowledge also results from informational text read alouds, particularly because of the exposure to so much new, unfamiliar vocabulary. Knowledge about informational book language and text structures results from informational text read alouds, supporting students' understanding of the genre. Comprehension of informational texts is supported through read alouds and often occurs as students make sense of other aspects of informational text.

Informational Text and Vocabulary

Vocabulary knowledge is important for student reading development and in particular comprehension. Five studies described in the read aloud category also focused on vocabulary learning from informational text. These studies are briefly summarized below. In addition, four other studies focused on informational text and vocabulary learning and are organized by subcategories.

Vocabulary in Read Aloud Studies

Structured read aloud sessions. As mentioned above, Brabham et al. (2000) and Brabham and Lynch-Brown (2002) included vocabulary as part of their informational text read aloud studies. Brabham et al. used narrative-informational text and so did Brabham and Lynch-Brown but the difference between the two studies is that Brabham and Lynch-Brown did not just look at vocabulary growth. Brabham and Lynch-Brown examined the influence of read aloud style on vocabulary growth. The styles were just reading, performance which included discussion before and after reading, and interactive which included discussion before, during, and after reading. Details about teaching scripts were not included in either study, making it more difficult to interpret results.

Brabham et al.'s (2000) descriptive study focused on differences in vocabulary growth based on grade level. Pre- and posttests measured student knowledge of 20 target words which were not familiar to students. Students in all grades made significant vocabulary gains of four to five words.

Brabham and Lynch-Brown (2002) used the same texts from the Brabham et al. (2000) study and implemented an experimental design. Brabham and Lynch-Brown compared vocabulary growth based on read aloud styles. Students in the interactive style scored significantly higher on the posttest than students in the performance or just reading condition and students in the performance conditions scored significantly higher than those in the just reading condition. Brabham and Lynch-Brown concluded that discussion played a key role in supporting vocabulary growth, especially when it occurred during read alouds.

Regular read aloud practices. As mentioned in the read aloud section, Duke and Kays (1998) noted that kindergarten students in their study showed a slight increase in general vocabulary and technical vocabulary after three months of regular read alouds, including informational text. However, retellings increased in length, causing the ratio of vocabulary used to length of retelling to decrease.

Read aloud curriculum. Also mentioned in the read aloud section was Santoro et al.'s (2008) descriptive study of the read aloud curriculum they developed to determine comprehension and vocabulary growth related to both narrative and informational texts. Target words were selected for each text used, following Beck et al.' (2002) tier system for word levels. Most words were tier two words but several words were tier three due to their importance for understanding the concepts presented. Santoro et al. found that

students in the read aloud curriculum improved their vocabulary knowledge although the authors omitted a description of vocabulary measures used to determine this growth existed.

Another study mentioned in the read aloud section, that of Blachowicz and Obrochta (2005), investigated the effects of a read aloud curriculum involving informational text on vocabulary growth. Using science and social studies content, the authors examined a curriculum they developed involving virtual field trips and read alouds for its impact on vocabulary learning. The teacher read aloud five texts for each of four units involving discussion and before, during, and after reading activities. Two writing activities for each unit allowed students to show what they learning. The authors compared word lists made by students before and after the set of read alouds on each topic to determine vocabulary growth. All students showed an increase in known words of the topics of focus.

Summary. Four of the five studies summarized above relate to structured read aloud experiences as beneficial for vocabulary learning. Although Duke and Kays' (1998) study did not include a structured read aloud program, regular read alouds occurred in the context of the study, which provided consistency for student vocabulary learning. Informational text read alouds contribute to vocabulary learning.

Additional Studies of Informational Text and Vocabulary

Teacher scaffolding. Maloch's (2008) case study of one second-grade classroom provided evidence of how vocabulary learning results from interactions with informational text. This study was part of a larger study in which Maloch focused on interactions between the teacher and students across literacy events throughout the entire

school day. These events included interactions with informational texts during read alouds, guided reading instruction, students' individual silent reading, and content area instruction. Maloch collected data over 20 weeks via observations, audiotapes, videotapes, interviews with students and the teachers, and teacher and student artifacts including lesson plans and student work. For the two teacher interviews, Maloch focused on the teacher's instructional choices and reflections on students in the first one and informational text use for the second interview. Maloch interviewed 11 students and took notes during informal conversations with students at other times. She went into the classroom a total of 35 times over the period of the study as a participant observer.

To analyze the data, Maloch (2008) used the constant-comparative and discourse analysis methods. To start the analysis, Maloch used the data as well as theory to look for patterns. She analyzed and coded all data related to informational text, determining categories related to both teacher and student interactions with informational text.

Maloch first coded data by student categories, then reviewed the data again to code for teacher categories. Maloch developed three overall themes related to the teacher, which were: a) offers multiple opportunities for students to engage with ITs [informational texts] and encourages students to engage with ITs; b) supports students' encounters with ITs; and c) uses and invites explicit talk about text features. Student vocabulary learning fell under the theme of supporting students' encounters with ITs. Maloch determined that the discourse around informational text was part of the overall classroom discourse.

Maloch (2008) found several things related to vocabulary learning from informational text in this study. Maloch found that the teacher scaffolded students' understanding of key vocabulary knowing that it contributed to student comprehension.

The teacher connected vocabulary to the text, to real life topics, and to other resources. She also helped students use graphic organizers as needed to support word learning. In particular, the teacher focused on vocabulary during read alouds, again to support student comprehension. Discussion of vocabulary occurred throughout read alouds, which supported student word learning and ultimately student comprehension of texts.

Maloch defined informational text for her purposes; however, all the texts used by the teacher in this study were not listed in the study. The one specific text Maloch discussed was a narrative-informational text, which contains story features to share information. Lack of knowledge about the other texts used makes it difficult to fully understand student learning, especially vocabulary, from interactions with informational text in the context of this study because the types of texts students interacted with are not known.

Content area learning. Baumann, Edwards, Boland, Olegnik, and Kame'enui (2003) examined how vocabulary instruction connected to social studies curriculum contributed to students' vocabulary growth. Baumann et al. (2003) based instruction on vocabulary from the fifth-grade social studies textbook used in the participating classrooms. Using a mixed methods design, Baumann et al. compared two conditions, morphemic and contextual analysis instruction (MC) and textbook vocabulary instruction (TV). The TV group served as the comparison group. Students in the two conditions learned the same social studies content but how students attended to vocabulary differed. The MC group experienced instruction focused on morphemic and contextual strategies for understanding words in general, using words from the textbook as examples, while the TV group focused on learning specific content words in the textbook.

There were eight classrooms and a total of 157 fifth-grade students. Classrooms were paired based on data about student socioeconomic status. Once paired, one classroom from each pair was randomly assigned to the MC or TV condition. All students completed pre- and posttests. The study occurred over 33 days, with 25 days for instruction, 2 for pretests, 2 for chapter tests, and 4 for posttests. Pretests included a standardized test of word meaning knowledge and a test of content area knowledge related to the unit selected for the study, which covered the Civil War. Participants completed seven posttests including a textbook vocabulary test, a word part test, an immediate vocabulary in context test, a comprehension text, a chapter text, and a delayed vocabulary in context test. In addition, participants completed three descriptive posttests, which were a teacher written questionnaire about the impact of the instructional program on vocabulary and content learning and group interviews for students and teachers.

All students participated in 45-minute lessons, in which 15 minutes focused on vocabulary. The vocabulary selected for instructional focus varied by condition. Students in the MC condition learned anchor vocabulary, which served as a basis for learning morphemic and contextual strategies, and instructional vocabulary, which helped students practice using the strategies they learned. Students in the TV group learned vocabulary taken from the textbook for the Civil War unit. There was little overlap in words learned across conditions with the exception of three words: government, economy, and constitution.

For the assessments, the vocabulary chosen was as follows. Textbook Assessment Vocabulary came directly from the text and did not include any words from the MC lessons. Morphemic Assessment Vocabulary included words that had morphemic

elements that students in the MC condition learned about but were not explicitly taught to the MC students. Assessment Vocabulary in Context tests, immediate and delayed, included words taken directly from other units in the textbook but that were not part of any lessons. Finally, Passage Vocabulary included new words included in an excerpt from another textbook unit to serve as a measure of student comprehension.

Baumann et al. (2003)'s found several important things when analyzing the results. Students in the TV treatment scored significantly higher on the Textbook Vocabulary measure than MC students, as expected by the authors. Students in the MC condition scored significantly higher on the Word Part Test than students in the TV condition, as expected. There was not a significant difference between conditions on the Immediate or Delayed Vocabulary in Context Test when using the classroom as the unit of analysis. When Baumann et al. examined the results using the student as the unit of analysis, they found that there was a statistically significant difference between conditions, with students in the MC condition scoring higher than students in the TV condition. There were no statistically significant differences at the classroom level for comprehension of text containing morphologically and contextually decipherable vocabulary or for students' learning of social studies content.

The descriptive results showed that all students learned the strategies they were taught regardless of condition. Additionally, students used the strategies they learned to learn the content and generalized the strategies to other subjects and contexts. Finally, students and teachers enjoyed the vocabulary program.

Baumann et al. (2003) concluded that students benefit from instruction related to morphemic strategies to determine new word meanings and content learning does not

suffer as a result. Also, Baumann et al. concluded that their results supported pre-teaching specific content vocabulary in an explicit manner to help students learn vocabulary. Baumann et al. stated that their results leave questions about the benefits of contextual analysis instruction since there were no significant differences between conditions on the Vocabulary in Context tests.

Baumann et al. (2003) included many details about various aspects of their study. However, what is missing is a more detailed description of the textbook and the authors' definition of informational text. Although the text is referred to as content text throughout the study, the authors' explicit definition of this kind of text is missing, which may mean they assume the reader knows what they mean by this type of text. Also, more information about vocabulary selection for instruction is needed. Although the authors described the types of vocabulary used for instruction, details about why they selected particular words or the list of words taught to teach group were missing.

Predicting word meanings. Stahl and Kapinus (1991) examined the effectiveness of an instructional approach they developed for vocabulary learning in their mixed methods study. The Possible Sentences approach is designed to be a pre-reading activity that supports word learning and incorporates opportunities for students to activate prior knowledge to prepare for reading. The teacher selects six to eight challenging words from the text and four to six additional words that students are probably more familiar with. All words are recorded on the board and the teacher may give brief definitions. Students then must think of possible sentences that could be found in the text they will read using at least two of the words from the board. All suggestions are included regardless of accuracy. Then students read the text, after which the teacher

redirects attention to the sentences from the pre-reading activity. The entire class discusses the sentences and if a sentence could be true, it is left as is. If a sentence could not be true, the class decides how to change it so that it could be true in the context of the text.

Stahl and Kapinus (1991) examined the impact of Possible Sentences on the word learning of 62 fifth-grade students. Over the course of five days, Kapinus visited the students' classes. Each student completed the Gates-MacGinitie test as a pretest of overall vocabulary knowledge. Additionally, students checked off words they thought were real on a vocabulary list of 95 words and non-words. Eighteen of the words on the list were the target words for the study. On days 2, 3, and 4, students read a science passage on one topic, either the weather, the moon, or objects in the universe. The passages were about 500 words long and from a book of science readings for middle school students.

Students also completed three posttests, two right after post-reading discussion and one three days after the last treatment. The immediate posttests included one directing students to recall as many facts as possible from the text, for which they were given credit for if the fact was in the text. The second immediate posttest involved sentences using the target words, a sentence anomaly task. Some sentences were true and some were false and students had to correctly identify true sentences. The delayed posttest was a multiple-choice test on the target words. Four distracters were provided for each word, two of which were true, and students had to identify the true ones. This measure examined student knowledge of the target word definitions.

Students were assigned to either receive the Possible Sentences treatment, a Semantic Mapping treatment, or no pre-reading activity at all. In the Semantic Mapping condition, students shared what they knew about a topic, the teacher wrote these ideas on the board, and the teacher related target words to student ideas. The ideas were used to create semantic maps showing how target words and other ideas related to each other. After reading, additional words were added to the maps as necessary. Students receiving no treatment read the passage and prepared to answer questions after reading.

Stahl and Kapinus (1991) found that although the Possible Sentences condition resulted in higher scores across measures, the only measure on which Possible Sentences students scored significantly higher than other students was the multiple-choice test of target words. The Semantic Mapping students did significantly better than the no-treatment students. No significant differences were found on free recall but there was a significant interaction between class and condition, meaning the treatments had different effects in different classes. In two classes, students in the Possible Sentences treatment had significantly higher recall than other students. In the third class, there were no differences between treatments. These differences across classes may be due to differences in teacher support, with little support from the teacher in the third classroom.

Stahl and Kapinus (1991) concluded that Possible Sentences was effective in teaching content area vocabulary. In addition, the Possible Sentences treatment led to better retention of content area knowledge and produced the highest scores on all measures. Stahl and Kapinus argued that the prediction aspect of Possible Sentences may have led to greater student involvement in learning than Semantic Mapping. Stahl and Kapinus then conducted a second study to further investigate their findings.

In the second study, Stahl and Kapinus (1991) compared the Possible Sentences condition involving prediction and whole class discussion to two conditions, one in which students completed worksheets and did not discuss different sentences and the other in which students brainstormed ideas about a topic but no discussion occurred about specific words. Eighty fifth graders in four classes participated in this study. Stahl and Kapinus used the same passages and pre- and posttest measures. The students in the comparison condition went through the same procedures as those in the Possible Sentences condition but on an individual basis, with no discussion about possible sentences or changing sentences to be true.

Stahl and Kapinus (1991) found that students in the Possible Sentences group had the highest scores on all posttests. These scores were significantly higher than those of other students for the written free recall and sentence anomaly measures. Stahl and Kapinus (1991) concluded that Possible Sentences improved vocabulary recall as well as fact recall in five of the six classes. Discussion around how specific words related to a topic was more beneficial for students than general or no discussion. Although Possible Sentences led to higher scores in the first study than Semantic Mapping, Stahl and Kapinus caution that Possible Sentences should not necessarily replace Semantic Mapping or similar approaches but rather alternate with those as a pre-reading activity.

Stahl and Kapinus (1991) gave little information about the passages students read in terms of the type of informational, content text. More detailed descriptions of the passages and whether they were expository or narrative-informational would be helpful in understanding word learning. Also, Stahl and Kapinus noted that in the first study, a difference in teacher support existed in one classroom. More detail about how that

difference negatively impacted students may be helpful in understanding the lack of differences between conditions. Finally, target words were not chosen by any particular method. The authors indicated they chose words on intuition but it may be that a more systematic way of selecting words for instruction is needed.

Metacognitive strategies. In their descriptive study, Boulware-Gooden, Carreker, Thornhill, and Joshi (2007) investigated how systematic direct instruction of metacognitive strategies impacted vocabulary learning in addition to comprehension. Boulware-Gooden et al. (2007) focused on multiple-strategy use for the study, which was one of eight effective or promising strategies according to the National Reading Panel. The other seven strategies identified as effective or promising were comprehension monitoring, cooperative learning, graphic and semantic organizers, story structure, question answering, question generation, and summarization. Participants were 119 third-grade students in two schools. All students received 30 minutes of comprehension instruction for 25 days. Passages were taken from a commercial reading curriculum and were expository texts of 300 to 400 words. Direct instruction of metacognitive strategies accompanied the comprehension instruction in the intervention condition.

Lessons in the intervention condition typically included: an introduction; a focus on a couple vocabulary words that were examined using semantic webs before reading; reading of the passage by students and support for thinking aloud during reading; written summaries by students focusing on main idea and details, which stemmed from class discussion in which summary ideas were recorded on the board in a pyramid to support written summaries; and finally, teacher questioning about the text. The comparison condition consisted of the same comprehension instruction but vocabulary webs were not

used. Students instead copied word definitions and wrote vocabulary words in sentences, did not participate in discussion of any kind, did not think aloud during reading, and copied and answered questions after reading.

Boulware-Gooden et al. (2007) administered pre- and posttests to measure student knowledge. Pretests were three subtests of the Woodcock Johnson III Test of Achievement, the Word Attack, Letter-Word Identification, and Spelling. Students also completed pre- and posttests for comprehension and vocabulary. The comprehension measure came from the Gray Silent Reading Test and the vocabulary measure was a 40-item multiple-choice vocabulary test for which students picked synonyms for target words to answer the questions. The words were the same for pre- and posttest but arranged in a different order for each. Boulware-Gooden et al. compared scores on the vocabulary test and comprehension test to determine if differences existed between conditions.

The intervention group, which included students who received direct instruction in metacognitive strategies in addition to comprehension instruction, improved significantly over the comparison group in vocabulary and reading comprehension. Boulware-Gooden et al. (2007) concluded that instruction in multiple-strategy use contributed to differences in scores on the comprehension and vocabulary measures and that adding instruction in metacognitive strategies is beneficial for student comprehension.

It was not clear what strategies were included in the multiple-strategy use instruction from the beginning. Boulware-Gooden et al. (2007) provided more explicit descriptions of these combined strategies in their discussion of results but it would have

been helpful for these details to be outlined in the beginning so it was clear right away. Also, little information was provided about the texts used, other than that they were expository passages. More information about the texts would be helpful in understanding the findings.

Summary. The four studies reviewed above relate to different instructional methods for vocabulary learning from informational text. However, all four studies relate the same overall goal of vocabulary learning to support text comprehension. The methods used varied widely and show evidence of a variety of beneficial and effective ways of using informational text to support vocabulary learning.

Summary

The studies included in this section point to the effectiveness of using informational text as a basis for vocabulary learning. Structured read alouds, pre-reading activities, content area instruction, and comprehension instruction can all provide opportunities for effective and beneficial vocabulary learning using informational text.

Informational Text and Discussion

Ten studies, the most of any category, included discussion as it relates to informational text and were described in depth in previous sections. Brief summaries of these studies and the discussion findings are below.

Discussion and Read Alouds

Oyler (1996), Horowitz & Freeman (1995), Heisey and Kucan (2001), Brabham and Lynch-Brown (2002), Moschovaki et al. (2007), and Leal (1992) all examined how discussion connected to informational text read alouds impacted student learning. Oyler found that discussion during read alouds allowed students to share authority with the

teacher on content area topics. Students had the chance to initiate comments, lead discussions, and build understanding as a community, which supported student understanding of the texts.

Horowitz and Freeman focused on how students who participated in discussion before and after read alouds responded to questions evaluating the books compared to students who had no discussion. Students in the discussion condition liked the expository text better than the narrative-informational text and thought the expository text was the easier one to read. Horowitz and Freeman concluded that discussion enhanced student interest in texts, which may lead to improve comprehension.

Heisey and Kucan (2010) compared how discussions during read alouds and discussions after read alouds impacted student learning. No differences were found between groups on individual story tests but when examining student knowledge across texts, students in the discussion during read aloud group had significantly higher gains from pre- to posttest. Students in the discussion during read aloud group also talked more frequently about key ideas from the texts.

Brabham and Lynch-Brown (2002) compared how read aloud styles involving discussion affected student vocabulary learning and comprehension. The three styles were just reading (with no discussion), performance, with discussion before and after reading, and interactive, with discussion before, during, and after reading. Students in the interactive style scored significantly higher on vocabulary measures compared to other students. No significant differences in comprehension were found. Brabham and Lynch-Brown concluded that discussion does contribute to student vocabulary learning related

to informational text read alouds and may support comprehension but more research is needed on comprehension and read aloud style.

Moschovaki et al. (2007) examined how teachers read aloud different kinds of text and how those differences impacted student responses to texts. Particular teacher presentation of text led to particular student responses. Affective presentation by the teacher led to affective responses from students. Additionally, teacher affective presentation differed between stories and informational texts with teachers presenting in a more affective and performance-type manner when reading stories and in an interactive manner when reading informational texts. The interactive manner involved more discussion as the read aloud progressed and the affective, performance manner involved little interaction during reading but more after reading. Students were often more engaged during the interactive presentations of informational text.

Leal (1992) focused on student responses to read alouds based on grade level to determine if there were differences across grade levels. Leal found that fifth graders used significantly more information across the three sources, an informational book, a narrative-informational book, and a narrative book, than first or third graders. Students made significantly more challenge or confirming comments in response to peer comments as grade level increased. Students also asked more questions as grade level rose and in general, students asked more questions about the informational and narrative-informational texts. All students used a combination of all three text sources significantly more when discussing the informational and narrative-informational texts. Leal found that the narrative-informational book served to best support student discussion as students

discussed this text for a longer period of time, made more connections to outside sources and experiences, and used speculation more often.

Intertextuality and Discussion.

Oyler and Barry (1996) and Varelas and Pappas (2006) examined a specific aspect of discussion during informational text read alouds, that of intertextual connections. Oyler and Barry (1996) focused on how intertextual connections impacted student comprehension and strategy development. Oyler and Barry noted that students connected the read aloud texts to songs, poems, television, other books and personal experiences. The teacher encouraged students to make connections and supported student discussion, as well as acknowledged all student contributions to the read aloud sessions. As a result, the class as a whole built shared understanding of reading, texts, and learning while building reading skills and strategies for understanding and connecting to texts.

Varelas and Pappas (2006) focused on intertextual connections students made for two science units, one on matter and the other on the water cycle, in first- and second-grade classrooms. Varelas and Pappas found that second graders made more intertextual connections than first graders and these connections were most often made between the texts and events. First-grade students and their teacher initiated a consistent number of connections across read aloud sessions but second-grade students initiated more connections for the first three read alouds and their teacher initiated more for the last four.

Discussion of Word Meanings

As mentioned in the vocabulary section, Stahl and Kapinus (1991) sought to determine if predicting word meanings would help students learn vocabulary. Part of this instructional approach involved discussion of predicted word meanings and uses of words after reading the texts containing these words. Stahl and Kapinus found that students who predicted word meanings before reading, in an approach called Possible Sentences, then discussed these predictions and changed sentences using target words as needed based on the reading, scored higher on all measures of vocabulary and recall than other students. The prediction of words may have led students to be more actively involved in learning and discussing these predictions. Also, changing sentences as needed after reading may have had the same impact. Discussion supported vocabulary learning in this case.

Summary

The studies that included discussion as aspects of learning from informational text show that discussion is beneficial for students. Discussion supports student reading development and comprehension through aspects including vocabulary learning, intertextual connections, and examining word meanings and use. Interestingly, the benefits of the placement of discussion may make a difference for students, as evidenced by some of the research presented here. Discussion before, during, or after reading supports student learning but the placement of discussion that is most beneficial for students depends on the context for learning.

Conclusion

The purpose of this study was to investigate whether differences exist in vocabulary learning based on expository text read aloud style. The following questions guided my research: 1) Does discussion contribute to vocabulary learning from expository text read alouds? 2) Does the placement of discussion during expository text read alouds make a difference in vocabulary learning?

Research I reviewed here shows the multiple benefits of informational texts as read alouds. Specifically, vocabulary learning occurs as a result of discussion of informational text read alouds. While this is not an exhaustive review of literature, there is important and seminal work included that has informed my study. In addition, limitations I noted for many studies have provided information and purpose for my study. My study addresses gaps found in the literature reviewed here.

Chapter III: Method

Research has shown benefits of discussion both during and after read alouds of expository texts, as discussed in Chapter II. However, limited research addresses how placement of discussion impacts vocabulary learning from expository text read alouds. Brabham and Lynch-Brown (2002) compared vocabulary and comprehension growth based on when discussion occurred as part of read alouds for narrative-informational texts. My study extends Brabham and Lynch-Brown's work by focusing on expository text.

In this study, I investigated the effects of two types of discussion on vocabulary growth from expository text read alouds. I examined whether discussion impacted vocabulary growth in general and whether the placement of discussion differentially impacted vocabulary growth. I used a pre-post within-subjects design to determine if differences in vocabulary learning existed based on discussion and discussion placement in read aloud events.

I compared two read-aloud discussion conditions to a control condition with no discussion. The research questions for this study were: 1) Does discussion contribute to vocabulary learning from expository text read alouds? 2) Does the placement of discussion during expository text read alouds make a difference in vocabulary learning?

Pilot Study

I conducted a pilot study to determine the feasibility of my methods. Twelve second-grade students were randomly assigned to condition, either discussion before, during, and after, or discussion before and after an expository text read aloud. Students completed a pretest on 14 words found in an expository text I read aloud, *Desert Giant* by

Barbara Bash. Seven questions required students to select one picture from four that showed the word in question and seven questions asked students to select a synonym for the word in question. This pretest was modeled after measures that Elley (1989) used in his study of narrative read alouds.

There were three read aloud sessions of the text during the course of a week. Each session lasted approximately 30 minutes. I followed scripts for each session. Participants in both conditions experienced the same discussion before reading. Discussion about vocabulary words in the book was the same for both conditions; however, participants in one condition discussed words as they were encountered in text in addition to after the read aloud and participants in the other condition only discussed words after the read aloud. I divided the 14 words across the three instructional sessions.

After the last read aloud session, participants completed a posttest on an individual basis. The posttest had the same questions as the pretest but in a different order. In addition, I asked participants to provide oral definitions of five words on an individual basis. I also asked participants several survey questions about being in the study.

The mean pre- and posttest scores, standard deviations, and mean differences for the treatment conditions are listed in Table 1.

Table 1

Desert Giant Receptive Vocabulary Measure

Book	Treatment	n	Pretest Mean (SD)	Posttest Mean (SD)	Mean Difference
<i>Desert Giant</i>	DDA	6	13.17 (.98)	14.00 (.00)	.83
	DA	6	11.50 (2.81)	12.50 (2.19)	1.00

Notes. DDA=Discussion of target vocabulary words during and after read aloud; DA=Discussion of target vocabulary words after read aloud; The range of scores was 0-14 as each item was worth one point and there was a total of 14 items.

I conducted a repeated measures ANOVA with Time (pretest before intervention vs. posttest after intervention) as the within-subjects factor and Time by Condition as the between-subjects factor to determine differences between treatment conditions. The results of this analysis are summarized below in Table 2.

Table 2

ANOVA for *Desert Giant* Receptive Vocabulary Measure*Within-Subjects Effects*

Source	Sum of Squares	df	Mean Square	F	P
Time (pre/posttest)	5.04	1	5.04	11.42	.007
Time* <i>Desert</i> Condition	.04	1	.04	.09	.765
Error	4.42	10	.44		

Between-Subjects Effects

Source	Sum of Squares	df	Mean Square	F	P
Intercept	3927.04	1	3927.04	660.93	.000
<i>Desert</i> Condition	15.04	1	15.04	2.53	.143
Error	59.42	10	5.94		

The repeated measures ANOVA showed that there was a statistically significant main effect for time [$F(1, 10) = 11.41, p = .008$]. This result indicates that there was vocabulary growth from pre- to posttest. There was no statistically significant main effect interaction from Time by condition. I concluded that discussion led to an increase in vocabulary; however I was unable to determine which discussion condition was more beneficial based on the results.

I also asked students to individually provide oral definitions for five words after the intervention. However, no comparisons could be made because I did not ask students to provide oral definitions before the study. Students also answered interview questions about participating in the study. Seven students said what we did during the read aloud sessions helped them learn new words. Four students said they did not like hearing the book read aloud three times because they got bored. When asked what they liked most about the project, six students said they liked talking about the words and the book the most.

The results of this pilot informed the procedures and measures I used in this study, as described in the Research Design section. Specifically, student input about the number of times I read the book aloud led me to decide on two read aloud sessions of each book for this study. I compared the words I selected to several lists of common words to determine the likelihood that these words would be known by second-grade students. I compared selected words to the Dale-Chall (1995) list of 4,000 words known by fourth graders and the Gates (1935) list of 1,811 words known by early elementary students. One word on the target vocabulary list appears on the Dale-Chall list. Also, having expressive vocabulary measures pre- and post- intervention in my study provided valuable information about vocabulary learning that may have occurred during the study, which I did not collect during the pilot study.

Research Design

For this study, I used a pre/post within subjects quasi-experimental design to look for differences in vocabulary learning based on discussion and placement of discussion for expository text read alouds. Rather than assign individual participants to condition, I

randomly assigned intact classrooms to conditions. Each classroom experienced all conditions but differed on the condition by book. Table 3 shows the conditions each classroom experienced by book.

Table 3

Classroom Conditions by Book

Class	Condition by Book		
	Discussion During (DD)	Discussion After (DA)	No Discussion (ND)
1	<i>Flight</i>	<i>Wolves</i>	<i>Beacons</i>
2	<i>Beacons</i>	<i>Flight</i>	<i>Wolves</i>
3	<i>Beacons</i>	<i>Flight</i>	<i>Wolves</i>
4	<i>Wolves</i>	<i>Beacons</i>	<i>Flight</i>
5	<i>Flight</i>	<i>Wolves</i>	<i>Beacons</i>
6	<i>Wolves</i>	<i>Beacons</i>	<i>Flight</i>

Participants

All second-grade students at an elementary school where I taught four years ago were invited to participate in the study. This school is in a small, mostly rural county in the Mid-Atlantic region of the United States. The area of the county where this school is located happens to be mostly suburban, with a small portion of the population from rural communities. There were six second-grade classrooms and a total of 132 students were invited to participate. I went to each classroom and explained the study to students, after which I sent home a letter with each student explaining the study to family members and

a consent form asking for family members to give permission to allow their student to participate. Fifty-eight students returned signed consent forms. During the course of the study, one participant moved and two participants were absent for the pretest and posttest administration. Therefore, the study included a total of 55 students across six classes.

Table 4 includes a breakdown of students by class. I have included a breakdown by gender for informational purposes only. I did not examine gender in this study. Chapman, Filipenko, McTavish, and Shapiro (2007) conducted research to address the assumption that boys prefer informational text and girls prefer stories. Chapman et al. (2007) found evidence against this assumption; boys and girls had similar interests in text genres.

Table 4

Participants by Classroom

	Females	Males	Total
Class			
1	7	2	9
2	6	1	7
3	7	3	10
4	6	1	7
5	3	4	7
6	8	7	15
Totals	37	18	55

Rather than randomly assigning individual participants to condition, I randomly assigned classrooms to conditions by book, with the conditions being discussion during read aloud (DD), discussion after read aloud (DA), or a no discussion control (ND). More details about this will be explained in the procedures. I focused on second-grade students for several reasons. First, research on informational text read alouds tends to focus on students in preschool, kindergarten, or first grade (e.g., Duke & Kays, 1998; Leung, 2008; Oyler, 1996; Pappas, 1993). However, based on my experiences as a second-grade teacher, not all students entering second grade have learned to read. Many students finally “get” reading in second grade and begin to be confident, wide readers during that year. In addition, read alouds are still common literacy practices in second grade classrooms.

Materials

Target books. I read aloud three expository texts in this study. I chose these texts for several reasons. First, each text fits with a unit of study in the second-grade curriculum for the school where I conducted the study. Also, each text contains challenging vocabulary, examples of which are provided in the description of the texts. Each text is appropriate for second-grade students according to publisher information about targeted grade levels. In addition, my own experiences as a second-grade teacher helped me determine that these texts were appropriate for the context of this study based on topic, language, and text features.

Animals in Flight (Jenkins & Page, 2001) describes birds and other animals that can fly in addition to attempts by humans to fly machines. Features that make flight possible are detailed, along with comparisons of size and characteristics of animals that

fly and animals that appear to fly but really cannot, like the flying squirrel. The text contains challenging vocabulary, including *generate* and *streamlined*. The illustrations in this book were made with colored paper assembled into images, which are visually appealing and supplemented by captions.

Beacons of Light: Lighthouses (Gibbons, 1990) provides a history of lighthouses. The author, Gail Gibbons, is an award-winning children's literature author specializing in expository text. The book contains captions, diagrams with labels, and vivid illustrations to supplement the text. Challenging vocabulary, such as *beacon* and *isolated*, is present throughout the text.

When the Wolves Returned: Restoring Nature's Balance in Yellowstone (Patent, 2008) details the important role wolves play in Yellowstone National Park and includes information about many animal inhabitants of the park. This book was an Honor Book for the National Council of Teachers of English (NCTE)'s 2009 Orbis Pictus Award for Outstanding Nonfiction for Children. Photographs of wolves and other animals in Yellowstone provide real views that support the text. Text boxes summarizing each page also supplement the text and photographs. Challenging vocabulary is included, such as *preserve* and *thrived*.

Target Vocabulary Words. I selected specific target vocabulary words from each of the three expository books. I selected a total of nine words, three from each text, and compared them to three sources to determine whether these words are commonly known by average second-grade students. I used the Dale-Chall (Chall & Dale, 1995) list of 3,000 common words and the Gates (1935) list of 1,811 words likely to be understood by early elementary students. In addition to the above lists, I compared target vocabulary

words to Dale and O'Rourke's (1981) *Living Word Vocabulary*. This resource is still considered an important reference for students' vocabulary knowledge. Biemiller and Slomin (2001) validated the relevance of Dale and O'Rourke's list with more current student populations, finding that Dale and O'Rourke's original designations for vocabulary knowledge by grade level were still accurate. Only one of the nine words appears on the Dale-Chall list and none of the words appear on the Gates list. See Table 5 for a list of words by book and how they are leveled according to the *Living Word Vocabulary*.

Table 5

Target vocabulary word levels based on the *Living Word Vocabulary*

Word	Grade Level	% of students who knew word meaning
generate	6	74
preserve	6	68
soar	6	75
streamlined	6	68
swelled*	6	70
beacon	8	72
isolated	8	79
thrive	8	67
wick	8	83

**Swell* appears on the Dale-Chall (1995) list of 3,000 common words

I developed word meanings for the target vocabulary words, which were taught to participants during this study. I used several resources to develop the word meanings. I examined the common dictionary definition for each word using Merriam-Webster's Collegiate Dictionary (2008), how each word was used in context in each book, and how

each word was defined according to the *Living Word Vocabulary*. Table 6 includes the word meanings used in this study.

Table 6

Expressive Vocabulary Measure Target Word Meanings

Word	Meaning for the Purposes of This Study
swelled	got bigger; expanded gradually
wick	twisted cord or thread on a candle/oil lamp that burns when lit
soar	fly high through the air, gliding, without flapping wings
isolated	alone or separate from others
beacon	a signal for guidance
preserve	to keep safe from harm or destruction
generate	produce, create, make
thrive	grow or continue successfully
streamlined	straight, smoothly-shaped, making it easy for something to move through the air or water

Measures

Pretest. The pretest consisted of receptive and expressive vocabulary measures (see Appendix A). I administered it to each participant individually, reading each item to each participant. Receptive vocabulary consists of words students recognize while expressive vocabulary consists of words student can recall and reproduce (Sénéchal, 1997). For receptive vocabulary, students selected one picture from a set of four that they thought demonstrated the word in question. This is a typical measure of receptive vocabulary (Wagner, Muse, & Tannenbaum, 2007) and has been used in similar research (e.g., Elley, 1989). For expressive vocabulary, students were asked to provide an oral

definition of given words, which is also common for an expressive vocabulary measure (Wagner et al., 2007).

Posttest. The posttest was administered the day after the last read aloud session for each class. It was the same as the pretest but with the questions ordered differently (see Appendix B). Participants completed the posttest individually and I read each item to each participant. Scoring for the posttest was the same as on the pretest.

Scoring. *Receptive vocabulary measure.* For the receptive vocabulary measure on both the pre- and posttest, I scored each correct answer as one. Incorrect answers were scored as zero.

Expressive vocabulary measure. According to Beck et al. (2002), knowledge of word meanings falls along a continuum. Knowledge on this continuum ranges from no knowledge of a word's meaning, to a general sense of the meaning, to some knowledge in context but limited knowledge of application, to rich, decontextualized knowledge including knowledge of relationships to other words and concepts. Using Beck et al.'s idea of vocabulary knowledge on a continuum as a starting point, I developed a rating scale for scoring responses on the expressive vocabulary measure. The scale ranges from 0-3. See Table 7 for a detailed description of the scoring scale.

Table 7

Expressive Vocabulary Measure Scoring Scale

Score	Explanation
0	<p>No knowledge of target word meaning</p> <p>Example Responses: *I don't know *I'm not sure *unrelated definition provided</p>
1	<p>Limited knowledge of target word meaning as evidenced by a limited definition and/or limited attempt to use the word in context; OR use of word in a context that differs from the intervention context</p> <p>Examples Responses: *wick – something on a candle *isolated – you get left out *soar – it means you're flying</p>
2	<p>Partial knowledge of target word meaning as evidenced by a partial definition, use of word in an appropriate context and/or example provided</p> <p>Example Responses: *wick – wick of a candle *isolated – it means that somebody let's say went to the group and they don't want to play and they kick you out *soar – the bird is soaring in the sky</p>
3	<p>Clear knowledge of target word meaning as evidenced by explicit definition that aligns with intervention</p> <p>Example Responses: *wick – the part of the candle where you light it, the rope where the flame is *isolated – when something is by itself</p>

*soar – it means to fly through the air without flapping your wings for a long time like a bird can

Analysis

Receptive vocabulary measure. The goal of the receptive vocabulary measure was to have participants connect a target vocabulary word with a visual representation of the word. This connection would demonstrate vocabulary knowledge in a different way from the expressive measure, much as it did in other research with similar measures (see Brabham & Lynch-Brown, 2002; Elley, 1988). In selecting which target vocabulary words to include in this measure, I chose words that could be represented with a picture. However, in choosing words that could be visually represented, I also created a situation in which the planned ANOVA analysis could not occur.

I selected five target vocabulary words for the receptive measure since they could be presented visually. Three of these words came from the *Beacons* book and one word each from the *Wolves* and *Flight* books. Unlike the expressive vocabulary measure, this selection of words is not even across books. With this uneven distribution, I cannot make a comparison across conditions by book because the condition is nested in the book by participant. In addition, comparing the effects of condition by book is appropriate to do with three words per book but not with one word per book. After examining the receptive vocabulary measure and the uneven distribution of target vocabulary words, I determined that the words were confounded with condition and thus I could not use the data for analysis to examine for my research questions. To be able to use this data, I would need an even number of target vocabulary words per book for the receptive vocabulary measure.

Expressive vocabulary measure. For the expressive vocabulary measure, I conducted an ANOVA on the gain scores for each book, which was the difference between pre- and posttest means, with book treatment as the between-subjects factor to analyze the data and determine if differences existed based on treatment conditions. A statistically significant effect of book treatment would indicate that there was a change in vocabulary performance from pretest to posttest. I chose to use gain scores because the gain scores showed the vocabulary growth that I set out to look for in this study. Some researchers argue that gain scores are not the best data to use due to measurement error and bias in the pretest and posttest scores used to calculate gain scores, resulting in an inflated estimate of learning that occurred; others argue that gain scores are good estimates of true learning because they are made up of the actual observed scores (Salkind, 2010). A repeated measures ANOVA provided the same results as the analysis of gain scores. I also conducted post hoc tests to determine where exactly the differences were between conditions based on each book. In addition, I calculated Cohen's d for the statistically significant differences found between treatment conditions. Calculating Cohen's d provides an estimate of the amount of difference between conditions (Cohen, 1988). The magnitude of effect sizes are as follows: small, $d = .2$; medium, $d = .5$; large, $d = .8$ (Cohen, 1988).

Discussion. I audio recorded all read aloud sessions in order to examine the discussion of target vocabulary words. To prepare to analyze the discussions, first I transcribed the recordings. Second, I examined the transcripts to determine what occurred during the discussions. I only examined transcripts for the DD and DA conditions, totaling 24 transcripts, 12 from the DD read aloud sessions and 12 from the

DA read aloud sessions. I did not examine transcripts for the ND read aloud sessions since there was no discussion during these sessions. I followed coding procedures outlined by Strauss and Corbin (1990) that are common in grounded theory analysis. Strauss and Corbin noted that coding information contained in transcripts is an important way to analyze the information collected in a systematic way. They also noted that there are various ways to carry out coding of information. One way is to “take an entire document, observation, or interview and ask: What seems to be going on here? What makes this document the same or different from the previous one that I coded? Having answered these questions, you might return to the data to specifically analyze for those similarities and differences” (p. 73). I followed this process, taking each transcript of the discussion and asking myself the above questions. I made notes about what occurred in each transcript and then moved to the next transcript, making notes and comparing it to previous transcripts. I made notes about what participants said during the discussion e.g. did they ask questions? What did they specifically comment about – the vocabulary definition, examples? What connections did they make?

Third, after making notes on the transcripts, I then went back through all the transcripts multiple times and looked for patterns across the notes that could be grouped together. Fourth, I created categories out of these patterns, again following the guidelines of Strauss and Corbin. I looked at how each note related to a particular category in terms of properties, such as what information a participant connected to the vocabulary word or what information a participant made an inference about, whether it was background knowledge, information from the text, or something else. Strauss and Corbin pointed out that knowing the properties of a category help with understanding how information

within a category can vary. For example, in a category about “making connections,” there could be a range of things that participants make connections to, such as personal experiences, other texts, and background knowledge, to name a few examples. These are properties of the “making connections” category and knowing about these properties helps in understanding what making connections looks like based on the data gathered.

Intervention

One condition was discussion during read aloud (DD). Students in the DD condition for a book engaged in discussion before reading the text to set a purpose for reading and during the read aloud to discuss word meanings of the target vocabulary words when they occurred in the book. Students were told they were free to share comments and ask questions as they came up during the read aloud. I stopped reading to provide instruction on the meanings of target vocabulary words when they were encountered in the text. Students were encouraged to contribute to the discussion of the target vocabulary words. After I finished reading each book, no further discussion occurred. A detailed script for the DD condition can be found in Appendix C.

A second condition was discussion after read aloud (DA). Students in the DA condition for a book experienced discussion after the read aloud session. Similar to the DD condition, the DA condition engaged in discussion before reading the text to set a purpose for reading. I read each book without stopping. After I finished reading each book, I invited students to share comments and ask questions and I provided instruction on the meanings of the target vocabulary words. Students were encouraged to contribute to the discussion of the target vocabulary words. A detailed script for the DA condition can be found in Appendix D.

The no discussion condition (ND) served as a control condition for this study. Students did not experience any discussion before, during, or after reading. Students only listened to the books read aloud. A script for the ND condition can be found in Appendix E.

Procedure

All students for whom consent had been given completed a vocabulary pretest before the study began, participated with their entire class in two read aloud sessions for each of three expository texts, and completed a vocabulary posttest at the end of the study. I administered the pretest beginning two days before the first read aloud sessions. Each participant completed the pretest individually and I read aloud the questions to each participant. I recorded participant responses in a notebook as students provided answers. Participants could not see what I wrote. The pretests were administered in a quiet part of a hallway near the second-grade classrooms.

I read three different expository texts aloud for this study. I read aloud each book twice in the same week to each class. I read the books at a time that was convenient for each teacher. The teachers worked with me and with the other second-grade teachers to determine a schedule for read aloud sessions. Upon entering each classroom, each teacher had her students move to a place where they could sit to hear me read and see the books as I read. I held up each book and stood up often to move closer to students during the read aloud sessions to ensure all students saw the photographs and illustrations in each book.

The number of books read aloud is based on previous literature on the topic, as seen in Chapter II. Many studies incorporated only two texts; I decided to use three to

extend previous research and determine if procedures work for more than two texts. In addition, I chose to read each book aloud two times based on information in Chapter II and information gathered from the pilot study. Information gathered during participant interviews after the pilot study indicated that reading aloud one text three times was not enjoyable. Participants suggested reading aloud a book two times, which is consistent with information in Chapter II.

All students in the class participated in the read aloud sessions but only students for whom consent had been given completed pre- and posttests. Each read aloud session incorporating a DD or DA condition lasted approximately 20-25 minutes. Each read aloud session with the ND condition lasted approximately 15 minutes.

I audio recorded all read aloud sessions. These recordings were made to determine whether discussion occurred at the appropriate times for each session with the DD and DA conditions. I reviewed all transcripts to examine discussion and look for patterns in the discussions that may have contributed to the study results. The audio recordings of the ND condition sessions consist of me reading aloud each book with no discussion or input from students.

I administered the posttest individually to participants beginning the day after the last read aloud session for each class. It took two days to administer the post-test to all participants. I administered the posttest in the same location as the pretest, a quiet hallway near the second-grade classrooms. In total, the study lasted three and a half weeks.

Summary

This study aimed to address the following research questions: 1) Does discussion contribute to vocabulary learning from expository text read alouds? 2) Does the placement of discussion during expository text read alouds make a difference in vocabulary learning? The findings of this study will address gaps in the literature about how discussion contributes to vocabulary learning from expository text read alouds.

Chapter IV: Results

In this study, I investigated the effects of two types of discussion on vocabulary growth from expository text read alouds. The research questions for this study were: 1) Does discussion contribute to vocabulary learning from expository text read alouds? 2) Does the placement of discussion during expository text read alouds make a difference in vocabulary learning? I will present the results related to these research questions here.

Receptive Vocabulary Measure

As mentioned in Chapter III, the goal of the receptive vocabulary measure was to have participants connect a target vocabulary word with a visual representation of the word. This connection would demonstrate some vocabulary knowledge, in a different way from the expressive measure and similar to measures in other research (see Brabham & Lynch-Brown, 2002; Elley, 1988). However, in selecting vocabulary words that could be represented by pictures, I created a situation in which the words were confounded with condition. There are three words from the *Beacons* book but only one word from both the *Wolves* and *Flight* books. Thus, with this uneven distribution I was not able to analyze the data for this measure as planned.

Expressive Vocabulary Measure

As stated earlier, for the expressive vocabulary measure participants provided an oral definition of the nine target vocabulary words. The participants' responses were scored on a Likert-type scale with scores ranging from 0-3. I scored the expressive vocabulary measures and then had a second person score them as well. The second person is an experienced teacher and a certified reading specialist. Inter-rater reliability

for the pretest was 91% and for the posttest it was 84%. We came to agreement on score differences through discussion of each item that we scored differently.

The mean pretest and posttest scores, standard deviations, and gain scores for the treatment and control conditions for *When the Wolves Returned* are listed in Table 8.

Table 8

Wolves Expressive Vocabulary Measure

Book Score	Treatment	n	Pretest Mean (SD)	Posttest Mean (SD)	Gain
<i>When the Wolves Returned</i>	DD	21	.73 (.63)	2.14 (2.08)	1.41
	DA	17	.50 (.63)	1.88 (1.50)	1.38
	ND	17	1.00 (.87)	1.00 (1.22)	0.00

Notes. DD=Discussion of target vocabulary words during read aloud; DA=Discussion of target vocabulary words after read aloud; ND=no discussion of target vocabulary words; The mean represents a score across 3 words, each with a possible score of 0-3; thus, the overall possible score range is 0-9.

I conducted an ANOVA on the gain scores with *Wolves* Treatment as the between-subjects factor to determine differences between treatment conditions. The results of this analysis are summarized in Table 9.

Table 9

ANOVA on Gain Score for *Wolves* Expressive Vocabulary Measure for *Wolves**Between-Subjects Effects*

Source	Sum of Squares	df	Mean Square	F	P
Intercept	46.48	1	46.48	20.64	.000
<i>Wolves</i> Treatment	22.86	2	11.43	5.08	.010
Error	117.06	52	2.25		

The ANOVA showed that there was a statistically significant main effect for *Wolves* Treatment [$F(1, 52) = 5.08, p = .010$]. Post-hoc tests showed that there was a statistically significant difference between the DD and ND conditions ($p = .01$) as well as between the DA and ND conditions ($p = .005$). Calculating Cohen's d for the statistically significant comparisons resulted in $d = .94$ for the comparison of DD and ND and $d = .91$ for the comparison of DA and ND. Thus, there was a large effect of discussing target vocabulary words both during and after read alouds compared to no discussion for the *Wolves* book. There was no significant difference between the DD and DA conditions.

The mean pretest and posttest scores, standard deviations, and gain scores for the treatment and control conditions for *Beacons of Light* are listed in Table 10.

Table 10

Beacons Expressive Vocabulary Measure

Book Score	Treatment	n	Pretest Mean (SD)	Posttest Mean (SD)	Gain
<i>Beacons of Light:</i>	DD	17	1.59 (1.46)	4.06 (1.56)	2.47
<i>Lighthouses</i>	DA	21	.59 (.91)	4.36 (2.06)	3.77
	ND	17	1.50 (1.26)	2.13 (1.75)	.63

Notes. DD=Discussion of target vocabulary words during read aloud; DA=Discussion of target vocabulary words after read aloud; ND=no discussion of target vocabulary words; The mean represents a score across 3 words, each with a possible score of 0-3; thus, the overall possible score range is 0-9.

I conducted an ANOVA on the gain score with *Beacons* Treatment as the between-subjects factor to determine differences between treatment conditions. The results of this analysis are summarized in Table 11.

Table 11

ANOVA on Gain Score for Expressive Vocabulary Measure for *Beacons* Treatment*Between-Subjects Effects*

Source	Sum of Squares	df	Mean Square	F	P
Intercept	282.85	1	282.85	82.70	.000
<i>Beacons</i> Treatment	91.79	2	45.89	13.42	.000
Error	177.85	52	3.42		
Corrected Total	269.64	54			

The ANOVA showed that there was a statistically significant main effect for *Beacons* Treatment [$F(1, 52) = 13.42, p < .000$]. Post-hoc tests show that there was a statistically significant difference between the DD and ND conditions ($p = .006$); between the DA and ND conditions ($p < .001$); and between the DD and DA conditions ($p = .034$). Calculating Cohen's d for each of the three comparisons resulted in $d = .99$ for the comparison of DD and ND; $d = 1.70$ for the comparison of DA and ND; and $d = .70$ for the comparison of DD and DA. Thus, there was a large effect of discussing target vocabulary words during the read aloud compared to no discussion for the *Beacons* book. There was a large effect of discussing target vocabulary words after a read aloud compared to no discussion for the *Beacons* book. Also, there was a large effect of discussing target vocabulary words after a read aloud compared to during a read aloud for the *Beacons* book. This significant difference between the DA and DD conditions is addressed in Chapter V.

The mean pretest and posttest scores, standard deviations, and gain scores for the treatment and control conditions for *Animals in Flight* are listed in Table 12.

Table 12

Flight Expressive Vocabulary Measure

Book Score	Treatment	n	Pretest Mean (SD)	Posttest Mean (SD)	Gain
<i>Animals in Flight</i>	DD	17	.50 (.82)	2.88 (2.33)	2.38
	DA	17	.71 (.99)	4.00 (2.62)	3.29
	ND	21	.41 (.67)	.73 (.88)	.32

Notes. DD=Discussion of target vocabulary words during read aloud; DA=Discussion of target vocabulary words after read aloud; ND=no discussion of target vocabulary words; The mean represents a score across 3 words, each with a possible score of 0-3; thus, the overall possible score range is 0-9.

I conducted an ANOVA on the gain score with Flight Treatment as the between-subjects factor to determine differences between treatment conditions. The results of this analysis are summarized below in Table 13.

Table 13

ANOVA on Gain Score for Expressive Vocabulary Measure for Flight Treatment

Source	Sum of Squares	df	Mean Square	F	P
Intercept	214.94	1	214.94	71.62	.000
Flight_Treatment	91.48	2	45.74	15.24	.000
Error	156.05	52	3.00		

The ANOVA showed that there was a statistically significant main effect for Flight Treatment [$F(1, 52) = 15.24, p < .000$]. Post-hoc tests show that there was a statistically significant difference between the DD and ND conditions ($p < .001$) and

between the DA and ND conditions ($p < .001$). Calculating Cohen's d for the statistically significant comparisons resulted in $d = 1.19$ for the comparison of DD and ND and $d = 1.72$ for the comparison of DA and ND. Thus, there was a large effect of discussing target vocabulary words both during and after the read aloud compared to no discussion for the *Flight* book. There was no significant difference between the DD and DA conditions.

As listed in the notes for the descriptive statistics tables above, scores on the expressive vocabulary measure ranged from 0-9. Each item had a score range of 0-3 and there were three items per book, resulting in a score range from 0-9. It is important to note, however, that an increase in overall score by one point, for example, did not necessarily mean students learned one additional word. An increase of one point in the overall score for items from one book meant that students had an average increase in word knowledge across the three words. A score of zero would indicate that a student knew nothing about any of the three words for one book; a score of nine would indicate that a student clearly knew the meanings of all three words. A score between 0 and 9 would indicate varied knowledge, on average, of the three words.

Discussion of Vocabulary

In following the analysis procedures described by Strauss and Corbin (1990), I developed several categories from the patterns I found in the transcripts. The categories I developed were making connections, making inferences, using the target vocabulary word in context, and expanding thinking. Below is a description of each category, followed by extended examples. A summary of the results of my coding analysis is listed in Table 14.

Table 14
Summary of Coding Analysis

Category	Number of Transcripts Illustrating This
Making Connections	20
Making Inferences	14
Use of Target Vocabulary Word in Context	12
Expanding Thinking	15

Note. There were a total of 24 transcripts analyzed.

In the making connections category, students used background knowledge and personal experiences to contribute to the discussion of target vocabulary words. Students also connected to other words, other texts, and examples related to target vocabulary words.

For the making inferences category, students tried to build their understanding during the discussion by using information they had to make a statement or conclusion related to target vocabulary words. These inferences were made relating to word meanings and examples.

For the category of the use of the target vocabulary word in context, students used target words, or closely related forms of the word, in a phrase or sentence to discuss word meaning. For example, when discussing the word *generate*, students discussed the *generators* their families use to heat the house in the winter or supply power to boats. They knew that *generators* made something, in their case heat for the house or power to

boats, so many of them started by discussing the word *generate* as it relates to *generators* making power.

The last major category, expanding thinking, stemmed from moves I made as the teacher during the read aloud sessions. I often asked students to expand their thinking when they provided an answer to a question or contributed a comment to the discussion. This kind of move was both for my understanding of what the student said but also to see how the student explained his or her thinking and how that contributed to the discussion.

The following are excerpts from discussion transcripts that illustrate some of the categories I identified. Many transcripts illustrated the categories so I randomly chose these transcripts by drawing numbers since there were many examples to choose from. The first excerpt, Excerpt A, from a DD read aloud session for *Beacons* illustrates the making connections categories. Students discussed examples of beacons after we talked about the definition of *beacon*.

Excerpt A: DD condition taken from a *Beacons* discussion

SZ: Lighthouses also use radio beacons to send warning signals. I want to ask about this word beacon. It says lighthouses also use radio beacons to send warning signals. Do you know what a beacon is? What do you think?

Student: The radio.

SZ: The radio. What do you hear from the radio? What comes out of the radio?

Student: Like....(pause)

SZ: Can you see what's in the radio?

Student: No.

SZ: What do you do with the radio? You what?

Student: Talk

SZ: You might talk but you also do what?

Student: Listen.

Student: Listen to it.

SZ: So if we have radio beacons, to send warning signals....

Student: It's a really big radio that we're talking about and there's a big thing that lets the sound travel through the air.

Student: I think it means that it's a radio.

SZ: A beacon is a signal for guidance. So there's some kind of signal that is going to guide people to something. So here they're talking about a radio beacon. It's going to be a sound because we use the radio to listen. So they're sending some kind of signal over the radio, some kind of sound.

But it doesn't always have to be a sound. There's another part we'll get to that talks about that. So a beacon is a signal that guides you to do something.

What kind of beacon do you guys have when the school day starts? What beacon, what signal tells you it's time to start the school day?

Student: The bell.

Me: The bell! That's a beacon, that's a signal that's telling you that it's time to start the school day. What other beacons or signals might you have in your life?

Student: A fire alarm.

Me: A fire alarm, that's a beacon that tells you it's time to get out of the building.

Student: My alarm clock.

Student: Like, if someone breaks in the building, the sound of the alarm.

SZ: So there is an alarm that is for safety.

Student: Code red.

Student: An alarm clock.

SZ: That's a beacon or a signal that's guiding you and telling you it's time to wake up.

Student: A fire drill.

SZ: A fire drill alarm, that's telling you what to do.

Student: The announcements.

SZ: The announcements so you know when that sound comes on it's time to stop talking and listen.

Student: A siren on an ambulance on an ambulance or a fire truck.

SZ: A siren on an ambulance, what's that siren? When you hear that siren, what does that make you think to do?

Student: To drive over or get out of the way.

SZ: Get out of the way because they're probably going to an emergency.

Student: My dogs they always go to the door and bark when they have to go to the bathroom.

SZ: So that's a beacon or a signal to tell you to let them out.

Student: A horn.

SZ: A horn. And what does the horn sound tell you? What's something it could mean?

Student: Like if there's a policeman coming or somebody else, you have to move out of the way.

SZ: Right, if you're honking the car horn.

Student: My dogs and the bell.

Student: A doorbell.

SZ: A doorbell, that's a beacon or a signal to say somebody's at your front door.

In Excerpt A, the making connections category is very evident. Students connected to beacons in their own life, which helped other students come up with examples as the discussion continued. Characteristics of these connections include examples related to the target vocabulary words and personal experiences. Students drew on personal experiences with signals to discuss beacons once they understood the meaning of the word.

Excerpt B is from a DA read aloud session for *Wolves*. Again, the making connections category is illustrated. Students used background knowledge and made connections to personal experiences when discussing the target vocabulary word *thrive*. In addition, expanding thinking is also illustrated.

Excerpt B: DA condition taken from a *Wolves* discussion

SZ: That's part of it. What else? What else about thrive?

Student: To be able to live and actually be able to walk around.

SZ: Yeah. If something thrives, then that means it's doing well. If I have a plant at home and I water it and make sure it has sunlight, it grows a lot of leaves. Its thriving, it's doing really well. It's growing successfully. You need food and water to grow and thrive.

Student: And shelter.

SZ: And shelter. So thrive means to grow successfully. There's another place that that word was. Now I can't, oh here it is. Scientists believe that returning the wolves would allow other living things like aspens and ground squirrels to thrive once more. To live, grow successfully, be healthy.

Student: Most bears use just their jaws, like when their jaws are just too little they adjust it to make them bigger.

SZ: Oh I don't know.

Student: A crocodile can adjust its jaw to make it bigger.

SZ: Yes, I don't know if these things can though.

Student: I take care of plants at home.

SZ: So when you give them sunlight and water they thrive?

Student: We're growing a garden at our house.

SZ: What do you do to help your garden thrive and grow successfully?

Student: Get the weeds out. Water it.

SZ: Does it have sunlight? Is it planted in the sun?

Student: Yes.

Student: We are already growing daylilies.

SZ: And what do you do to help your daylilies thrive?

Student: Get out the weeds, water it and let the seed grow its roots. We're already studying about plants. It's up there.

SZ: Oh yes because you guys are doing your plants unit.

Student: A couple years ago when I went to go visit and across the street it was inside a barn and there was lots of plants and my brothers and me got a couple plants and were growing them.

SZ: So you have to do stuff to help them thrive, to take care of them.

Student: Yes.

Student: I'm growing fruit in my house but their too small to grow outside so right now they're just staying by the door. And we're growing cantaloupe and those things are huge, they're like that big.

SZ: So what do you have to do to help the little fruit thrive so it can get to be big fruit?

Student: When the fruits are small, my mom waters them and the cucumbers, the cucumbers, the cucumbers are growing and guess how big the cucumbers are right now?

SZ: How big?

Student: That big.

SZ: They're probably going to get bigger too.

Student: My dad is going to make a pond in our backyard for catfish.

SZ: So you'll have to make sure they thrive in your pond.

In Excerpt B, students made connections to the word *thrive* using background knowledge and personal experiences. Students used knowledge of animals to connect to animals in the text. In addition, students used knowledge of plants, as studied at the time during science lessons, to connect to what other students said about helping plants thrive. The contribution of taking care of plants stemmed from students' personal experiences. I also helped students expand their thinking by asking follow-up questions, such as how they help plants thrive.

In the Excerpt C, taken from a DD read aloud session for *Flight*, we discussed the word *generate* and how it relates to power, which illustrates the category of using the target vocabulary word in context. Excerpt C also illustrates the categories of making connections and making inferences. Students used background knowledge and connected to personal experiences.

Excerpt C: DD condition taken from a *Flight* discussion

SZ: It is very difficult for a human to generate enough power to lift its body into the air. Do you know this word generate? What does it mean to generate? What are you doing if you're generating?

Student: You're powering something up.

SZ: You're making power, what else?

Student: You're making it work.

SZ: Here it's saying a human cannot generate enough power to make themselves lift up and fly. So a person can't make enough power or generate enough power. What else might you generate? What else might you make?

Student: A machine in a factory.

Student: It's some kind of exercise machine that if you're exercising they have a cord and you make electricity to make it turn on and the electricity goes in your house to make your lights go on.

SZ: So you might have an exercise machine that you make power for and generate electricity. What else might you make? What else might you make, like power for, or generate? Here, this person is having to pedal something. Have you ever done that? What have you pedaled?

Many students: A bike.

SZ: You're generating power when you're pedaling.

Student: The things that you use to make pots.

SZ: Oh yes, the potter wheel. You've got to push the pedal to make it go.

Student: A green machine, you've probably never heard of it but you just sit in it and make power.

SZ: So generate means to make or create or produce, like power, to bring it about.

In Excerpt C, a student made an inference about what the meaning of *generate* by referencing powering something up, before we discussed the meaning of the word *generate*. Then once I shared the synonym *make* for *generate*, students offered examples of other things that you need to generate, or make, power, for.

In Excerpt D, I determined that there was little discussion. Students did not contribute much and did not respond to information I provided or asked about in relation to the target vocabulary word *thrive*.

Excerpt D: DD condition taken from a *Wolves* discussion

SZ: When the weather was mild, many elk calves survived and the population swelled. Have you heard this word swelled before? I wonder if you've heard about it one way but you might know about a different way. What do you know about this word swelled?

Student: When something is big and puffy.

SZ: Something could be big and puffy.

Student: When there's more and more of them.

SZ: When there's more and more of them, which is what they mean here. When it says the population swelled, there got to be more and more and more elk. It just kept getting bigger. Which is a little bit like what you were saying about swelled, when you get hurt maybe your ankle or your wrist gets puffy. It gets bigger. Well this swelled is when there are many more animals, many more. The wolves are gone so there's no predators so the elk population swelled. It gets big. and that's beyond a normal limit. So the population expanded, it got bigger.

Out of the 24 transcripts, I determined that there was little discussion in four of them, including Excerpt D. Students did not respond to questions or comments I presented related to the targeted vocabulary words. There was no apparent reason or pattern among these transcripts. Two of the transcripts came from the first reading of a text, one from a DA session for *Wolves* and one from a DD session for *Flight*. The other two transcripts came from the second reading of a text, one from a DD session for *Beacons* and one from a DA session for *Wolves*.

Summary of Results

I developed two measures to address my research questions, a receptive vocabulary measure and an expressive vocabulary measure. The receptive vocabulary measure could not be used for analysis since the words were confounded with condition. For the expressive vocabulary measure, several significant results emerged. For all three

books, participants in the DD and DA conditions significantly improved their knowledge of target vocabulary words compared to participants in the ND condition. Discussion during and after read alouds had a large effect on vocabulary learning compared to no discussion of vocabulary words.

Chapter V: Discussion

This study investigated the effects of two types of discussion on vocabulary growth from expository text read alouds. The research questions for this study are: 1) Does discussion contribute to vocabulary learning from expository text read alouds? 2) Does the placement of discussion during expository text read alouds make a difference in vocabulary learning? I will discuss the results as they relate to these questions.

Discussion and Vocabulary Learning

Despite the importance of vocabulary instruction, teachers spend limited time on direct instruction of vocabulary (Adams, 1990; Durkin, 1979). Read alouds may expose students to new vocabulary words. However, one exposure to a word does not mean students will learn its meaning. A single reading does not enhance expressive vocabulary but may contribute to receptive vocabulary (Sénéchal & Cornell, 1993). Multiple exposures to a word are needed before a student starts to understand its meaning (Beck et al., 2002; De Temple & Snow, 2003), especially for expressive vocabulary (Cunningham, 2005). The results of my study support the notion that repeated readings contribute to growth in expressive vocabulary.

In addition, participation during read alouds contributes to growth in expressive vocabulary (Sénéchal, 1997). Creating an environment in which student participation allows for extended thinking and analysis is very important for literacy growth (Dickinson, Flushman, & Freiberg, 2009). Discussion can allow for this kind of student participation, as it did in most read aloud sessions in my study, but children have to be offered particular types of questions and opportunities to participate and be engaged in a way that extends their thinking and contributes to their learning. When initiating the

discussion about target vocabulary words, I asked open-ended questions to get a sense of student thinking and I asked follow-up questions when necessary to help students think more deeply about word meanings, about the contexts for the words in the books I read aloud, and about application of those words and meanings in other contexts. Also, participation was not limited to only a few students, which is typical of teacher-led discussions that dominate many classrooms (Cazden, 2001). I allowed all students to contribute to the discussion if they wanted to do so. Students made connections to personal experiences, background knowledge, and other words and texts. They also made inferences, used the target words in context, and expanded their thinking.

My findings, that students in both of the discussion conditions for expository text read alouds for all three books scored significantly higher on the expressive vocabulary measure for each book than students in the no discussion condition, are supported by the literature (i.e. Blachowicz & Obrachta, 2005; Brabham et al., 2000; Brabham & Lynch-Brown, 2002; Horowitz & Freeman, 1995). Biemiller and Boote (2006) found that teacher explanations of word meanings contributed to vocabulary growth and offering those explanations is more effective than just reading stories without any discussion of word meanings. Coyne et al., (2009) found that instruction including discussion of words after story read alouds led to greater gains in student vocabulary knowledge compared to no discussion of the words after the read alouds.

Discussion allows students to develop their word knowledge, which according to Beck et al. (2002) falls along a continuum from little or no knowledge to deep knowledge involving application of words in varied contexts. Students need to talk about their ideas and hear the ideas of others as they build knowledge together. Discussing words may

help students move along the continuum to better word knowledge. Having the opportunity to share personal connections and background knowledge is also extremely important.

Effective vocabulary instruction should include a meaningful context that is motivating and allows students to build knowledge together (Baker, 2000). Informational texts are well-suited for read alouds that are engaging and motivating for students because of the interesting topics they include (Kletzien & Dreher, 2004; Saul & Dieckman, 2005). Challenging, unfamiliar vocabulary in informational texts makes these kinds of texts well-suited for vocabulary instruction (Duke & Kays, 1998). Informational text also offers authentic exposure to vocabulary (Saul & Dieckman, 2005) which makes these texts good resources for vocabulary instruction. The vocabulary learning that occurred during this study demonstrates these points. Students learned vocabulary through authentic exposure in the selected texts, they built vocabulary knowledge together through discussion, and learning occurred in a meaningful context stemming from expository texts and topics.

The results of my study indicate that discussion of vocabulary both during and after read alouds leads to increased vocabulary knowledge. The fact that there were no significant differences between the two discussion conditions for two of the books indicates that both types of discussion facilitate vocabulary learning. The statistically significant difference between the two conditions for the *Beacons* book indicated that there might be something in particular about the *Beacons* book that contributed to this significant finding that was different from the other two books. Participants could have been more engaged with or interested in this text and topic than the others. Perhaps

participants connected better to the illustrations in the text or the author's writing. It could be that the vocabulary was easier to connect to for the *Beacons* book or that participants in the DA condition were more engaged in discussion of the target vocabulary words. It is hard to know what exactly made this book different for participants. What these results do indicate, though, is the importance of how teachers select informational text for read aloud purposes when discussion is included as part of instruction. These results indicate that perhaps the placement of discussion that best supports vocabulary growth depends on the text.

Defining Discussion

Based on my findings about what occurred during discussion, I revisited the definition of discussion. Earlier, I noted that discussion is defined in different ways in the literature. In some cases, discussion is defined as the teacher asking questions and students responding (Cazden, 2001). In other cases, both students and teachers contribute to the discussion and respond to each other (Oyler, 1996). After reviewing the discussion transcripts, I realized that I can now refine my definition of discussion. I now define discussion in the following way: discussion is talk between the teacher and students in which both the teacher and students ask questions, respond to questions, make connections, make inferences, use context to describe ideas, and expand their thinking. This kind of discussion is beneficial for students and as I found in this study, can lead to improved vocabulary knowledge compared to instruction involving no discussion.

Summary

There are many features of informational texts that teachers must consider when selecting texts for read alouds (Kletzien & Dreher, 2004). In addition, teachers often

have different purposes for the selections they make, based on how the texts may be used instructionally (Donovan & Smolkin, 2005). While the focus of this study was solely on vocabulary, there is a strong connection between vocabulary knowledge and comprehension (Anderson & Freebody, 1981; Beck & McKeown, 1991; Pearson, Hiebert, & Kamil, 2007), which suggests that read aloud purposes involving comprehension may lead to learning benefits similar to those found in this study when discussion is included.

Teachers need to determine their purpose for using information texts. Teachers should also consider how students might benefit from discussions connected to informational text read alouds. After determining a purpose, it is important for teachers to examine informational texts selected for read alouds in order to determine if the texts align with the purpose and how students can benefit from the read alouds. This examination of texts should be ongoing as different groups of students may respond differently to texts and discussions will likely be unique for each group and each text.

My results also point to a need to consider how discussion is defined. There is limited research on discussion in primary grades and defining discussion for these grades is a challenge. My results indicate that students made connections and inferences, expanded their thinking, and used ideas in context. These findings led me to revisit my definition of discussion, refining the definition to include aspects I determined were important for student learning in this study. Teachers should think about how they define discussion, which in turn will determine how they let students participate in these instructional sessions. Given that both types of discussion led to significantly higher

vocabulary scores on the expressive measure, discussion plays an important role in vocabulary learning from expository text read alouds.

Limitations and Future Research

There are several limitations to this study that have implications for future research. First, while intact classrooms were randomly assigned to conditions, individual participants were not. It may be that classes were not homogenous in terms of a multitude of factors, including reading ability, and that may be a result of different instruction providing by individual teachers in each classroom. Every teacher provides instruction differently so there may have been differences between classes based on the instruction provided throughout the year before I conducted my study. These differences between classes, and thus participants, may have impacted the results in that certain classes may have been instructed differently for expressive or receptive vocabulary throughout the year. In addition, the role of read alouds in each class may have differed so response to instruction in that format may have varied based on participants' experiences throughout the year. Assigning individual participants to conditions in future research may contribute to different results in that the participants in each condition may be more homogenous across conditions.

Second, the measures I created do not have very many items per book. For the receptive vocabulary measure, I had three items for one book and one item for each of the other two books. This led to a situation in which I could not conduct the planned analysis to compare vocabulary learning across conditions. There was an uneven number of items across books and there were not enough items for each book. It may be that more having more items per book would lead to different results because having more items may

provide a clearer picture of the effect of discussion on vocabulary learning. Future research needs to address this issue of the number of items per book included in measures to determine what best represents vocabulary learning from read alouds.

Third, administering the posttest immediately after the treatments may have contributed only limited information about vocabulary learning. The posttest results provided information about vocabulary learning that occurred shortly before participants completed the posttest. However, it is not known how long participants retained that vocabulary knowledge after the end of the study. Administering another posttest after a longer period of time has elapsed to see what lasting effects the treatments had on vocabulary learning may provide valuable information that impacts how teachers use read alouds and incorporate discussion to support vocabulary growth.

Fourth, I selected the particular texts based on information gathered from the teachers whose classes I worked with. The teachers provided information about content units they taught and suggested I align books for the study to those units to best support student learning. However, it could be that using books on topics that do not align with content units may lead to different results. Using different books may lead students to respond differently to the text and discussion of vocabulary. In addition, using more and varied informational texts in future studies may provide more information about which types of informational books are better suited for a particular discussion condition to support vocabulary learning. Such things as text features, genre, illustrations and photographs, text structures, and other aspects of text need to be examined for their contribution to vocabulary learning from read alouds and discussion. In addition, future research should address the role of teacher knowledge about expository and other

informational texts in selecting books for read aloud and vocabulary learning purposes. Many teachers are not familiar with using informational texts for read aloud purposes (Donovan & Smolkin, 2001), which may influence the purposes they set for reading these texts aloud and discussing them. Limited teacher knowledge of these types of texts may mean that a particular placement of discussion is best for certain instructional purposes to support both student and teacher interaction with the text. In addition, future research should address how teachers view and use discussion to support literacy learning.

Fifth, the purpose of this study was not to analyze the discussion transcripts in depth. A deeper analysis of these transcripts may offer insight into how students connected to certain books and certain target vocabulary words, connections that may influence vocabulary learning. Future research should incorporate more detailed and in-depth analyses of transcripts to examine how students respond to read alouds, to vocabulary instruction, and to both the teacher and peers. Analyses of these aspects of read aloud sessions may offer more information for understanding how best to use informational text for read aloud and vocabulary learning purposes and how best to incorporate discussion to support literacy growth.

There is still limited knowledge about how vocabulary learning is fostered in elementary classrooms (Dickinson, Flushman, & Freiberg, 2009). Much research has been done on vocabulary learning in preschool classrooms, some of which translates to elementary settings, but more needs to be done to learn about students' vocabulary growth in elementary classrooms. Also, there is evidence that vocabulary learning should occur in content areas but most often, it only occurs during language arts (Frey & Fisher, 2009). More research is needed on vocabulary instruction in content areas and

vocabulary instruction during language arts that is based on content concepts. In addition, more research is needed on the use of informational texts for vocabulary learning, specifically expository, since most research centers around stories and vocabulary learning. Much more research is needed on the kinds of expository texts, and informational texts in general, that are better-suited for particular placements of discussion during read aloud sessions to support vocabulary learning.

There is also limited research on what discussion looks like and how it is used in primary grade classrooms. The results of my study show that discussion is a valuable part of instruction and literacy growth and more research is needed on the role of discussion, important features of it, and how it can be incorporated into instruction across elementary grades.

Conclusion

The results of this study indicated large effects of discussion on vocabulary learning connected to expository text read alouds. Participants who experienced discussion of vocabulary words significantly improved their vocabulary knowledge compared to participants who did not discuss the words. In the case of one book, students in a particular discussion condition, discussion after the read aloud, significantly improved their vocabulary knowledge compared to all other students.

Discussion about specific expository, and other informational, texts used for read alouds may significantly impact vocabulary learning based on when the discussion occurs during the read aloud. Particular texts may lend themselves better to discussion of vocabulary words during a read aloud and others may lend themselves better to discussion after a read aloud. More research is needed to determine what it is about

particular texts that may influence vocabulary learning from read alouds. Specific purposes for using texts as read alouds may contribute to student vocabulary learning as well. The purpose for reading aloud expository text in this study was to examine how vocabulary knowledge improved based on discussion of target words. Other purposes may help or hinder vocabulary learning. In addition, purposes for using discussion and features of discussion are also important to consider in supporting literacy growth.

It is important for teachers to closely examine the informational texts they choose for read aloud purposes before reading occurs. This will give teachers a sense of what may help or hinder student learning as well as allow teachers to set appropriate purposes for reading and learning using those texts. Examining texts will also help teachers determine how discussion may best serve student learning. It is also important for teachers to examine vocabulary in chosen texts to determine what words lend themselves to discussion for learning, and comprehension of the text, since comprehension is closely tied to vocabulary knowledge (Nagy, 1988) and the ultimate goal of reading.

The results of this study indicate the importance of discussion in supporting vocabulary growth from informational, and especially expository, text read alouds. With narrowed curriculum, read alouds may be less often used as an instructional approach for learning. With such rich informational text available, teachers need to seize the opportunity to read informational texts aloud and focus on vocabulary within, incorporating discussion into instructional sessions, which will in turn support comprehension development. The benefits of using informational text for read aloud purposes are important to note and should drive curriculum designers and teachers to include more instructional opportunities like these.

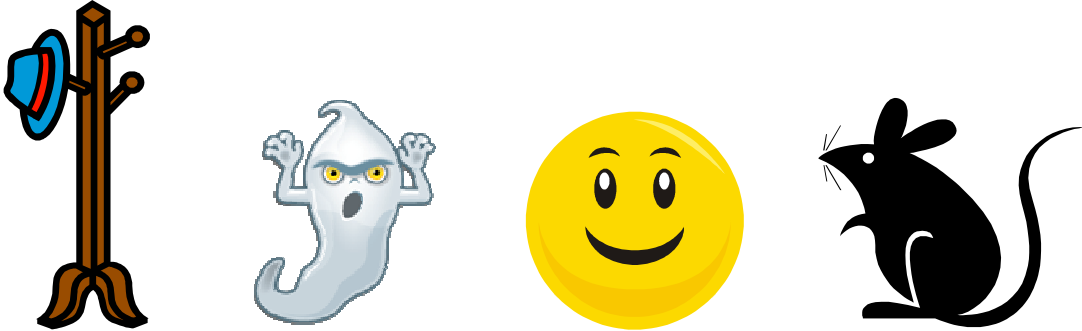
Defining discussion and determining the role it plays in instructional settings is crucial for literacy learning. Participants in this study improved their vocabulary knowledge as a result of discussions during which they could make connections and inferences, use ideas in context, and expand their thinking. Allowing students the opportunity to talk about what they are learning is very important for student literacy growth. Discussion should continue to be examined in the context of primary grades to further support early literacy development.

Appendix A

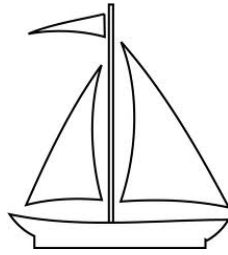
Vocabulary pretest

I. Receptive Vocabulary Questions

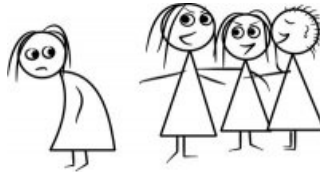
Sample item:

Point to the picture that shows happy.1. Point to the picture that shows swelled.2. Point to the picture that shows wick.

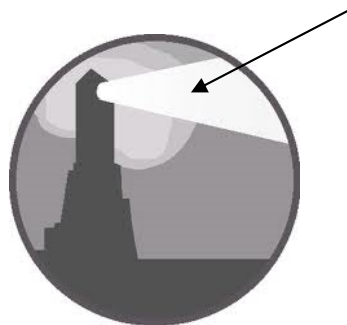
3. Point to the picture that shows soar.



4. Point to the picture that shows isolated.



5. Point to the picture that shows beacon.



II. Expressive Vocabulary Questions

Sample item:

What does soft mean?

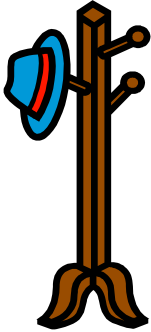
1. What does swelled mean?
2. What does wick mean?
3. What does soar mean?
4. What does isolated mean?
5. What does beacon mean?
6. What does preserve mean?
7. What does generate mean?
8. What does thrive mean?
9. What does streamlined mean?

Appendix B
Vocabulary Posttest

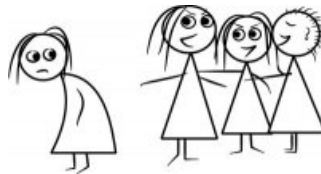
I. Receptive Vocabulary Questions

Sample item:

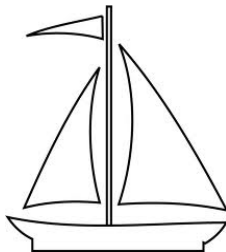
Point to the picture that shows happy.



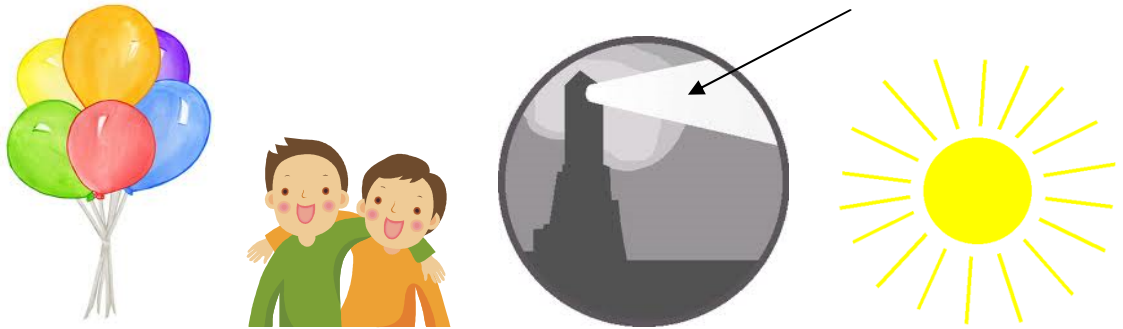
1. Point to the picture that shows isolated.



2. Point to the picture that shows soar.



3. Point to the picture that shows beacon.



4. Point to the picture that shows swelled.



5. Point to the picture that shows wick.



II. Expressive Vocabulary Questions (students were also asked to define the words above)

Sample item:

What does soft mean?

1. What does isolated mean?
2. What does soar mean?
3. What does beacon mean?
4. What does swelled mean?
5. What does wick mean?
6. What does preserve mean?
7. What does thrive mean?
8. What does streamlined mean?
9. What does generate mean?

Appendix C

Script for the Discussion During (DD) Condition

Animals in Flight

Day 1

Introduction

- Today I am going to share a book with you about animals that fly. You will hear and learn new words as I read.

Before Reading

- What do you know about animals that fly? What can you tell me about animals that fly? (Elicit student responses and comment as needed)
- I am going to read the book *Animals in Flight* to you now. You may ask questions and make comments as I read.

During Reading (stop when students have something to share in addition to specified points below)

- Begin reading.
- Stop at page 13 to discuss *soar* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does *soar* mean? Let me read the sentence again that has *soar* in it. What do you think that means?
 - There is more than one kind of soar/soar. The one we are talking about is *soar* spelled s-o-a-r. This is not the kind of sore when your throat hurts, that is s-o-r-e. This is s-o-a-r.
 - *Soar* means to fly high in the air, to glide, without flapping wings. What does *soar* have to do with animals that fly?
 - What else might *soar*?
 - So *soar* means to fly high in the air, to glide, without flapping wings.
- Let's keep reading.
- Continue reading. Stop at page 15 to discuss *streamlined* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does it mean if something is *streamlined*? I will read the sentence again that has *streamlined* in it. What do you think that means?
 - *Streamlined* means straight, smoothly-shaped so that something moves easily through the air or water. So if a bird's body is *streamlined*, what does that mean?

- What else might be *streamlined*?
 - So *streamlined* means straight, smoothly-shaped so that something moves easily through the air or water alone or separate from others.
- Let's keep reading.
- Continue reading. Stop at page 28 to discuss *generate* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does *generate* mean? Let me read the sentence with *generate* in it again. What does that mean?
 - *Generate* means produce, make, create. In this book, the author uses *generate* to talk about why people can't fly with manmade wings. What do you think that means?
 - What else could you *generate*?
 - So *generate* means to produce, make, create.
- Ok, let's keep reading.
- Finish reading the book.
- We have finished reading this book and we learned some new words. We will read it again the next time I visit your class. Thank you for listening and sharing your ideas!

Day 2

Introduction

- Today I am going to share *Animals in Flight* with you again.

Before Reading

- Before I do that, what did you learn about from the first time I read this book to you? (Elicit student responses and comment as needed).
- I am going to read *Animals in Flight* again. You may ask questions and make comments as I read.

During Reading (stop when students have something to share in addition to specified points below)

- Begin reading.
- Stop at page 13 to discuss *soar* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:

- We talked about that word *soar* the first time I read this book with you. What does *soar* mean? What did we learn about *soar*?
 - There is more than one kind of *soar/soar*. The one we are talking about is *soar* spelled s-o-a-r. This is not the kind of sore when your throat hurts, that is s-o-r-e. This is s-o-a-r.
 - *Soar* means to fly high in the air, glide, without flapping wings. Why is *soar* part of this book?
 - What else did we discuss that might *soar*?
 - Remember, *soar* means to fly high in the air, glide, without flapping wings.
- Ok, let's keep reading.
- Continue reading. Stop at page 15 to discuss *streamlined* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - We talked about this word *streamlined* also. What did we learn about this word *streamlined*? What does it mean if something is *streamlined*?
 - *Streamlined* means straight, smoothly-shaped so that something moves easily through the air or water. Why is *streamlined* part of this book?
 - What else did we discuss that might be *streamlined*?
 - Remember, *streamlined* means straight, smoothly-shaped so that something moves easily through the air or water alone or separate from others.
- Ok, let's keep reading.
- Continue reading. Stop at page 28 to discuss *generate* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - We talked about this word *generate* also. What did we learn about this word *generate*? What does that mean?
 - *Generate* means produce, make, create. In this book, the author uses *generate* to talk about why people can't fly with manmade wings. What do you think that means?
 - What else did we discuss that you could you *generate*?
 - Remember, *generate* means to produce, make, create.
- Ok, let's keep reading.
- Finish reading the book.
- Thank you for listening and sharing your ideas. We have finished reading this book and we learned some new words.

**Optional additional response, depending on where in the study this occurred:

- The next time I come to your class, I will have a new book to share with you.

OR

- This is the last book that I have to share with you. Thank you for letting me come to your class and share these books. I have really enjoyed reading and discussing books with you.

Beacons of Light: Lighthouses

Day 1

Introduction

- Today I am going to share a book with you about lighthouses. You will hear and learn new words as I read.

Before Reading

- What do you know about lighthouses? What can you tell me about lighthouses? (Elicit student responses and comment as needed)
- What do you know about a coastline, where the water and land meet? (Elicit student responses and comment as needed)
- I am going to read the book *Beacons of Light: Lighthouses* to you now. You may ask questions and make comments as I read.

During Reading (stop when students have something to share in addition to specified points below)

- Begin reading.
- Stop at pages 10-11 to discuss *wick* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What is a *wick*? What does *wick* mean? Let me read the sentence again that has *wick* in it. What do you think that means?
 - A *wick* is the loosely twisted cord or thread on a candle or oil lamp that burns when lit. What does a *wick* have to do with a lighthouse?
 - How are the *wicks* the same in a candle and an oil lamp? How are they different?
 - Where else might you see a *wick*?
 - So a *wick* is the cord that burns when you light it on a candle or oil lamp.

- Let's keep reading.
- Continue reading. Stop at page 18 to discuss *isolated* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does it mean if something is *isolated*? I will read the sentence again that has *isolated* in it. What do you think that means?
 - *Isolated* means alone or separate from others. So if a lighthouse is *isolated*, what does that mean?
 - What else might be *isolated*?
 - So *isolated* means alone or separate from others.
- Let's keep reading.
- Continue reading. Stop at page 27 to discuss *beacon* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What is a *beacon*? Let me read the sentence with *beacon* in it again. What does *beacon* mean?
 - A *beacon* is a signal for guidance. On this page, a radio *beacon* is discussed. What do you think that means?
 - What other *beacons* or signal can you think of? What are some examples of a *beacon* or a signal for guidance?
 - So a *beacon* is a signal for guidance.
- Ok, let's keep reading.
- Finish reading the book.
- We have finished reading this book and we learned some new words. We will read it again the next time I visit your class. Thank you for listening and sharing your ideas!

Day 2

Introduction

- Today I am going to share *Beacons of Light: Lighthouses* with you again.

Before Reading

- Before I do that, what did you learn about from the first time I read this book to you? (Elicit student responses and comment as needed).
- I am going to read *Beacons of Light: Lighthouses* again. You may ask questions and make comments as I read.

During Reading (stop when students have something to share in addition to specified points below)

- Begin reading.
- Stop at page 10-11 to discuss *wick* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions for discussion:
 - We talked about that word *wick* the first time I shared this book with you. What does *wick* mean? What did we learn about a *wick*? What is a *wick*?
 - A *wick* is the cord or rope of the candle or oil lamp that burns when lit.
 - But in lighthouses long ago, they had oil lamps. What do those have to do with a *wick*?
 - The *wick* is the part of the oil lamp that was lit to make the lighthouse work to help guide ships.
 - Remember, the *wick* is the cord or rope on a candle or oil lamp that burns when lit.
- Ok, let's keep reading.
- Continue reading. Stop at page 18 to discuss *isolated* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions for discussion:
 - We talked about this word *isolated* also. What does *isolated* mean?
 - *Isolated* means alone or separate from others.
 - What does *isolated* have to do with what we are reading? Many lighthouses are *isolated* from other things like people or the mainland.
 - What else did we discuss when we talked about *isolated*?
 - Remember, *isolated* means alone or separate from others.
- Ok, let's keep reading.
- Continue reading. Stop at page 27 to discuss *beacon* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions for discussion:
 - We talked about this word *beacon* before. What did we learn about a *beacon*?
 - A *beacon* is a signal for guidance. Why is a *beacon* part of this book?
 - A *beacon* could be a sound or a light, like the author tells us about in this book.
 - What else did we discuss that are *beacons*?

- Remember, *beacon* means a signal for guidance.
- Ok, let's keep reading.
- Finish reading the book.
- Thank you for listening and sharing your ideas. We have finished reading this book and we learned some new words.

**Optional additional response, depending on where in the study this occurred:

- The next time I come to your class, I will have a new book to share with you.

OR

- This is the last book that I have to share with you. Thank you for letting me come to your class and share these books. I have really enjoyed reading and discussing books with you.

When the Wolves Returned: Restoring Nature's Balance in Yellowstone

Day 1

Introduction

- Today I am going to share a book with you wolves. You will hear and learn new words as I read.

Before Reading

- What do you know about wolves? What can you tell me about wolves? (Elicit student responses and comment as needed)
- What do you know about national parks? What is a national park? (Elicit student responses and comment as needed)
- I am going to read the book *When the Wolves Returned: Restoring Nature's Balance in Yellowstone* to you now. You may ask questions and make comments as I read.

During Reading (stop when students have something to share in addition to specified points below)

- Begin reading.
- Stop at page 7 to discuss *preserve* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does *preserve* mean? Let me read the sentence again that has *preserve* in it. What do you think that means?
 - *Preserve* means to keep safe from harm or destruction. What does *preserve* have to do with a national park?

- What else might you need or want to *preserve*?
 - So *preserve* means to keep safe from harm or destruction.
- Let's keep reading.
- Continue reading. Stop at page 11 to discuss *swelled* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does it mean if something *swelled*? I will read the sentence again that has *swelled* in it. What do you think that means?
 - *Swelled* means got bigger, expanded gradually. So if this author talks about how an animal population *swelled*, what does that mean?
 - What else might *swell* or have *swelled* already?
 - So *swelled* means got bigger, expanded gradually.
- Let's keep reading.
- Continue reading. Stop at page 23 to discuss *thrive* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does *thrive* mean? Let me read the sentence with *thrive* in it again. What do you think that means?
 - *Thrive* means grow or continue successfully. What does *thrive* have to do with animals in Yellowstone?
 - What else might *thrive*? What are examples of other things that might *thrive*?
 - So *thrive* means grow or continue successfully.
- Ok, let's keep reading.
- Finish reading the book.
- We have finished reading this book and we learned some new words. We will read it again the next time I visit your class. Thank you for listening and sharing your ideas!

Day 2

Introduction

- Today I am going to share *When the Wolves Returned: Restoring Nature's Balance in Yellowstone* with you again.

Before Reading

- Before I do that, what did you learn about from the first time I read this book to you? (Elicit student responses and comment as needed).
- I am going to read *When the Wolves Returned: Restoring Nature's Balance in Yellowstone* again. You may ask questions and make comments as I read.

During Reading (stop when students have something to share in addition to specified points below)

- Begin reading.
- Stop at page 7 to discuss *preserve* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - We talked about this word *preserve* the first time I read the book. What does *preserve* mean? What did we learn about this word *preserve*?
 - *Preserve* means to keep safe from harm or destruction. What does *preserve* have to do with a national park?
 - What else did we discuss that you might need or want to *preserve*?
 - Remember, *preserve* means to keep safe from harm or destruction.
- Let's keep reading.
- Continue reading. Stop at page 11 to discuss *swelled* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - We talked about this word *swelled*. What does *swelled* mean? What did we learn about this word *swelled*?
 - *Swelled* means got bigger, expanded gradually. So if this author talks about how an animal population *swelled*, what does that mean?
 - What else did we talk about that might *swell* or have *swelled* already?
 - Remember *swelled* means got bigger, expanded gradually.
- Let's keep reading.
- Continue reading. Stop at page 23 to discuss *thrive* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - We talked about this word *thrive*. What does *thrive* mean? What did we learn about this word *thrive*?
 - *Thrive* means grow or continue successfully. What does *thrive* have to do with animals in Yellowstone?
 - What else did we discuss that might *thrive*? What examples of other things that might *thrive* did we discuss?

- Remember, *thrive* means grow or continue successfully.
- Ok, let's keep reading.
- Finish reading the book.
- Thank you for listening and sharing your ideas. We have finished reading this book and we learned some new words.

**Optional additional response, depending on where in the study this occurred:

- The next time I come to your class, I will have a new book to share with you.

OR

- This is the last book that I have to share with you. Thank you for letting me come to your class and share these books. I have really enjoyed reading and discussing books with you.

Appendix D

Script for the Discussion After (DA) Condition

Animals in Flight

Day 1

Introduction

- Today I am going to share a book with you about animals that fly. You will hear and learn new words as I read.

Before Reading

- What do you know about animals that fly? What can you tell me about animals that fly? (Elicit student responses and comment as needed)
- I am going to read the book *Animals in Flight* to you now. I want you to just listen as I read and we will talk about the book after I finish reading it.

During Reading

- Read the entire book without stopping

After Reading

- What did you learn from this book?
- You heard some new words while I read this book. I want to review some of them with you.
- Refer to page 13 to discuss *soar* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does *soar* mean? Let me read the sentence again that has *soar* in it. What do you think that means?
 - There is more than one kind of soar/soar. The one we are talking about is *soar* spelled s-o-a-r. This is not the kind of sore when your throat hurts, that is s-o-r-e. This is s-o-a-r.
 - *Soar* means to fly high in the air, to glide, without flapping wings. What does *soar* have to do with animals that fly?
 - What else might *soar*?
 - So *soar* means to fly high in the air, to glide, without flapping wings.
- Let's go to the next word I want us to talk about.
- Refer to page 15 to discuss *streamlined* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does it mean if something is *streamlined*? I will read the sentence again that has *streamlined* in it. What do you think that means?

- *Streamlined* means straight, smoothly-shaped so that something moves easily through the air or water. So if a bird's body is *streamlined*, what does that mean?
 - What else might be *streamlined*?
 - So *streamlined* means straight, smoothly-shaped so that something moves easily through the air or water alone or separate from others.
- Let's go to the last word I want to talk about.
- Refer to page 28 to discuss *generate* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does *generate* mean? Let me read the sentence with *generate* in it again. What does that mean?
 - *Generate* means produce, make, create. In this book, the author uses *generate* to talk about why people can't fly with manmade wings. What do you think that means?
 - What else could you *generate*?
 - So *generate* means to produce, make, create.
- That is the last word I want us to talk about today.
- Thank you for listening while I read and sharing your ideas after I read. We learned about some new words. We will read it again the next time I visit your class.

Day 2

Introduction

- Today I am going to share *Animals in Flight* with you again.

Before Reading

- Before I do that, what did you learn about from the first time I read this book to you? (Elicit student responses and comment as needed).
- I am going to read *Animals in Flight* again. I want you to just listen as I read and we will talk about the book after I finish reading it.

During Reading

- Read the entire book without stopping

After Reading

- What did you learn from this book?
- I want to review some of the words in this book that we discussed.
- Refer to page 13 to discuss *soar* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.

- Questions and comments for discussion:
 - What does *soar* mean? Let me read the sentence again that has *soar* in it. What do you think that means?
 - There is more than one kind of soar/soar. The one we are talking about is *soar* spelled s-o-a-r. This is not the kind of sore when your throat hurts, that is s-o-r-e. This is s-o-a-r.
 - *Soar* means to fly high in the air, to glide, without flapping wings. What does *soar* have to do with animals that fly?
 - What else might *soar*?
 - So *soar* means to fly high in the air, to glide, without flapping wings.
- Let's go to the next word I want us to talk about.
- Refer to page 15 to discuss *streamlined* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does it mean if something is *streamlined*? I will read the sentence again that has *streamlined* in it. What do you think that means?
 - *Streamlined* means straight, smoothly-shaped so that something moves easily through the air or water. So if a bird's body is *streamlined*, what does that mean?
 - What else might be *streamlined*?
 - So *streamlined* means straight, smoothly-shaped so that something moves easily through the air or water alone or separate from others.
 - Let's go to the last word I want to talk about.
- Refer to page 28 to discuss *generate* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does *generate* mean? Let me read the sentence with *generate* it again. What does that mean?
 - *Generate* means produce, make, create. In this book, the author uses *generate* to talk about why people can't fly with manmade wings. What do you think that means?
 - What else could you *generate*?
 - So *generate* means to produce, make, create.
 - That is the last word I want us to talk about today.
 - Finish reading the book.
- Thank you for listening and sharing your ideas. We have finished reading this book and we learned some new words.

**Optional additional response, depending on where in the study this occurred:

- The next time I come to your class, I will have a new book to share with you.

OR

- This is the last book that I have to share with you. Thank you for letting me come to your class and share these books. I have really enjoyed reading and discussing books with you.

Beacons of Light: Lighthouses

Day 1

Introduction

- Today I am going to share a book with you about lighthouses. You will hear and learn new words as I read.

Before Reading

- What do you know about lighthouses? What can you tell me about lighthouses? (Elicit student responses and comment as needed)
- What do you know about a coastline, where the water and land meet? (Elicit student responses and comment as needed)
- I am going to read the book *Beacons of Light: Lighthouses* to you now. I want you to just listen as I read and we will talk about the book after I finish reading it.

During Reading

- Read the entire book without stopping.

After Reading

- What did you learn from this book?
- You heard some new words while I read this book. I want to review some of them with you.
- Refer to pages 10-11 to discuss *wick* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What is a *wick*? What does *wick* mean? Let me read the sentence again that has *wick* in it. What do you think that means?
 - A *wick* is the loosely twisted cord or thread on a candle or oil lamp that burns when lit. What does a *wick* have to do with a lighthouse?
 - How are the *wicks* the same in a candle and an oil lamp? How are they different?
 - Where else might you see a *wick*?
 - So a *wick* is the cord that burns when you light it on a candle or oil lamp.
- Let's go to the next word I want us to talk about.

- Refer to page 18 to discuss *isolated* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does it mean if something is *isolated* mean? I will read the sentence again that has *isolated* in it. What do you think that means?
 - *Isolated* means alone or separate from others. So if a lighthouse is *isolated*, what does that mean?
 - What else might be *isolated*?
 - So *isolated* means alone or separate from others.
- There is one more word I want us to talk about.
- Refer to page 27 to discuss *beacon* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What is a *beacon*? Let me read the sentence with *beacon* in it again. What does *beacon* mean?
 - A *beacon* is a signal for guidance. On this page, a radio *beacon* is discussed. What do you think that means?
 - What other *beacons* or signals can you think of? What are some examples of a *beacon* or a signal for guidance?
 - So a *beacon* is a signal for guidance.
- That is the last word I want us to talk about today.
- Thank you for listening while I read and sharing your ideas after I read. We learned about some new words. We will read it again the next time I visit your class.

Day 2

Introduction

- Today I am going to share *Beacons of Light: Lighthouses* with you again.

Before Reading

- Before I do that, what did you learn about from the first time I read this book to you? (Elicit student responses and comment as needed).
- I am going to read *Beacons of Light: Lighthouses* again. I want you to just listen as I read and we will talk about the book after I finish reading it.

During Reading

- Read the entire book without stopping.

After Reading

- What did you learn from this book?

- I want to review some of the words in this book that we discussed.
- Refer to pages 10-11 to discuss *wick* after reading the sentences containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What is a *wick*? What does *wick* mean? Let me read the sentence again that has *wick* in it. What do you think that means?
 - A *wick* is the loosely twisted cord or thread on a candle or oil lamp that burns when lit. What does a *wick* have to do with a lighthouse?
 - How are the *wicks* the same in a candle and an oil lamp? How are they different?
 - Where else might you see a *wick*?
 - So a *wick* is the cord that burns when you light it on a candle or oil lamp.
- Let's go to the next word I want us to talk about.
- Refer to page 18 to discuss *isolated* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does it mean if something is *isolated* mean? I will read the sentence again that has *isolated* in it. What do you think that means?
 - *Isolated* means alone or separate from others. So if a lighthouse is *isolated*, what does that mean?
 - What else might be *isolated*?
 - So *isolated* means alone or separate from others.
- There is one more word I want us to talk about.
- Refer to page 27 to discuss *beacon* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What is a *beacon*? Let me read the sentence with *beacon* in it again. What does *beacon* mean?
 - A *beacon* is a signal for guidance. On this page, a radio *beacon* is discussed. What do you think that means?
 - What other *beacons* or signals can you think of? What are some examples of a *beacon* or a signal for guidance?
 - So a *beacon* is a signal for guidance.
- That is the last word I want us to talk about today.
- Thank you for listening while I read and sharing your ideas after I read. We have finished reading this book and we have learned about some new words.

**Optional additional response, depending on where in the study this occurred:

- The next time I come to your class, I will have a new book to share with you.

OR

- This is the last book that I have to share with you. Thank you for letting me come to your class and share these books. I have really enjoyed reading and discussing books with you.

When the Wolves Returned: Restoring Nature's Balance in Yellowstone

Day 1

Introduction

- Today I am going to share a book with you wolves. You will hear and learn new words as I read.

Before Reading

- What do you know about wolves? What can you tell me about wolves? (Elicit student responses and comment as needed)
- What do you know about national parks? What is a national park? (Elicit student responses and comment as needed)
- I am going to read the book *When the Wolves Returned: Restoring Nature's Balance in Yellowstone* to you now. I want you to just listen as I read and we will talk about the book after I finish reading it.

During Reading

- Read the entire book without stopping.

After Reading

- What did you learn from this book?
- I want to review some of the words in this book that we discussed.
- Refer to page 7 to discuss *preserve* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does *preserve* mean? Let me read the sentence again that has *preserve* in it. What do you think that means?
 - *Preserve* means to keep safe from harm or destruction. What does *preserve* have to do with a national park?
 - What else might you need or want to *preserve*?
 - So *preserve* means to keep safe from harm or destruction.
- Let's go to the next word I want us to talk about.
- Refer to page 11 to discuss *swelled* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:

- What does it mean if something *swelled*? I will read the sentence again that has *swelled* in it. What do you think that means?
 - *Swelled* means got bigger, expanded gradually. So if this author talks about how an animal population *swelled*, what does that mean?
 - What else might *swell* or have *swelled* already?
 - So *swelled* means got bigger, expanded gradually.
- There is one more word I want us to talk about.
- Refer to page 23 to discuss *thrive* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - What does *thrive* mean? Let me read the sentence with *thrive* in it again. What do you think that means?
 - *Thrive* means grow or continue successfully. What does *thrive* have to do with animals in Yellowstone?
 - What else might *thrive*? What are examples of other things that might *thrive*?
 - So *thrive* means grow or continue successfully.
- That is the last word I want us to talk about today.
- Thank you for listening while I read and sharing your ideas after I read. We learned about some new words. We will read it again the next time I visit your class.

Day 2

Introduction

- Today I am going to share *When the Wolves Returned: Restoring Nature's Balance in Yellowstone* with you again.

Before Reading

- Before I do that, what did you learn about from the first time I read this book to you? (Elicit student responses and comment as needed).
- I am going to read *When the Wolves Returned: Restoring Nature's Balance in Yellowstone* again. I want you to just listen as I read and we will talk about the book after I finish reading it.

During Reading

- Read the entire book without stopping.

After Reading

- What did you learn from this book?
- I want to review some of the words in this book that we discussed.

- Refer to page 7 to discuss *preserve* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - We talked about this word *preserve* the first time I read the book. What does *preserve* mean? What did we learn about this word *preserve*?
 - *Preserve* means to keep safe from harm or destruction. What does *preserve* have to do with a national park?
 - What else did we discuss that you might need or want to *preserve*?
 - Remember, *preserve* means to keep safe from harm or destruction.
- Let's go to the next word I want us to talk about.
- Refer to page 11 to discuss *swelled* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - We talked about this word *swelled*. What does *swelled* mean? What did we learn about this word *swelled*?
 - *Swelled* means got bigger, expanded gradually. So if this author talks about how an animal population *swelled*, what does that mean?
 - What else did we talk about that might *swell* or have *swelled* already?
 - Remember *swelled* means got bigger, expanded gradually.
- There is one more word I want us to talk about.
- Refer to page 23 to discuss *thrive* after reading the sentence containing it. Elicit student responses and add comments and additional questions as needed.
 - Questions and comments for discussion:
 - We talked about this word *thrive*. What does *thrive* mean? What did we learn about this word *thrive*?
 - *Thrive* means grow or continue successfully. What does *thrive* have to do with animals in Yellowstone?
 - What else did we discuss that might *thrive*? What examples of other things that might *thrive* did we discuss?
 - Remember, *thrive* means grow or continue successfully.
- That is the last word I want us to discuss.
- Thank you for listening while I read and sharing your ideas after I read. We have finished reading this book and we have learned about some new words.

**Optional additional response, depending on where in the study this occurred:

- The next time I come to your class, I will have a new book to share with you.

OR

- This is the last book that I have to share with you. Thank you for letting me come to your class and share these books. I have really enjoyed reading and discussing books with you.

Appendix E

Script for the No Discussion (ND) Condition

Animals in Flight

Day 1

Introduction

[Teacher] Today I am going to share a book with you about animals that fly. You will hear some new words as I read. I want you to just listen as I read. We aren't going to talk about the book. I just want you to listen.

*Read the entire book aloud without stopping.

After Reading

[Teacher] Thank you for listening as I read. I will read it again to you later this week.

Day 2

Introduction

[Teacher] Today I am going to read *Animals in Flight* again. You did a great job listening as I read last time so I want you do that again.

*Read the entire book aloud without stopping.

After Reading

[Teacher] Thank you for listening as I read.

**Optional additional response, depending on where in the study this occurred:

[Teacher] The next time I come to your class, I will have a new book to share with you.

OR

[Teacher] This is the last book that I have to share with you. Thank you for letting me come to your class and share these books. I have really enjoyed reading and discussing books with you.

Beacons of Light: Lighthouses

Day 1

Introduction

[Teacher] Today I am going to share a book with you about lighthouses. You will hear some new words as I read. I want you to just listen as I read. We aren't going to talk about the book. I just want you to listen.

*Read the entire book aloud without stopping.

After Reading

[Teacher] Thank you for listening as I read. I will read it again to you later this week.

Day 2

Introduction

[Teacher] Today I am going to read *Beacons of Light* again. You did a great job listening as I read last time so I want you do that again.

*Read the entire book aloud without stopping.

After Reading

[Teacher] Thank you for listening as I read.

**Optional additional response, depending on where in the study this occurred:

[Teacher] The next time I come to your class, I will have a new book to share with you.

OR

[Teacher] This is the last book that I have to share with you. Thank you for letting me come to your class and share these books. I have really enjoyed reading and discussing books with you.

When the Wolves Returned: Restoring Nature's Balance in Yellowstone

Day 1

Introduction

[Teacher] Today I am going to share a book with you about wolves. You will hear some new words as I read. I want you to just listen as I read. We aren't going to talk about the book. I just wanted you to listen.

*Read the entire book aloud without stopping.

After Reading

[Teacher] Thank you for listening as I read this book. I will read it again to you later this week.

Day 2**Introduction**

[Teacher] Today I am going to read *When the Wolves Returned* again.

*Read the entire book aloud without stopping.

After Reading

[Teacher] Thank you for listening as I read this book again.

**Optional additional response, depending on where in the study this occurred:

[Teacher] The next time I come to your class, I will have a new book to share with you.

OR

[Teacher] This is the last book that I have to share with you. Thank you for letting me come to your class and share these books. I have really enjoyed reading and discussing books with you.

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