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Discussing stories: On how a dialogic reading intervention improves kindergartners' oral narrative construction

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ABSTRACT

Oral narrative skills are assumed to develop through parent–child interactive routines. One such routine is shared reading. A causal link between shared reading and narrative knowledge, however, has not been clearly established. The current research tested whether an 8-week shared reading intervention enhanced the fictional narrative skills of children entering formal education. Dialogic reading, a shared reading activity that involves elaborative questioning techniques, was used to engage children in oral interaction during reading and to emphasize elements of story knowledge. Participants were 40 English-speaking 5- and 6-year-olds who were assigned to either the dialogic reading group or an alternative treatment group. Analysis of covariance results found that the dialogic reading children's posttest narratives were significantly better on structure and context measures than those for the alternative treatment children, but results differed for produced or retold narratives. The dialogic reading children also showed expressive vocabulary gains. Overall, this study concretely determined that aspects of fictional narrative construction knowledge can be learned from interactive book reading.

Introduction

A young child's language development includes the ability to construct oral stories. In fact, gaining the ability to discuss abstract ideas socially in narrative conversations may be a fundamental motivation to learn language altogether (Donald, 1991). Constructing oral stories allows young children to

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verbalize real or imagined events in ways that not only communicate social messages to others but also help themselves to derive meaning from experiences (Nelson, 2007). It is essential for children to gain narrative knowledge so as to discuss and organize their lives into meaningful episodes. To be understood by naive conversational partners, however, it is suggested that children's stories need to be structured chronologically, include causal links to the goals and motivations of characters, and provide sufficient background information (Peterson, 1994). This story construction knowledge is usually assumed to develop through parent–child routines. One routine is shared book reading.

Interestingly, correlational studies suggest that early narrative skills are related to children's later literacy development, with moderate to strong relations existing between the production of fictional narratives and concurrent, as well as future, reading comprehension (Griffin, Hemphill, Camp, & Wolf, 2004; O'Neill, Pearce, & Pick, 2004; Snow, Porche, Tabors, & Harris, 2007). However, although correlational research has found links between story construction skills and literacy, there is a lack of concrete evidence supporting a causal relationship between shared book reading and storytelling skills. In the current study, we examined whether shared book reading was causally linked to fictional narrative construction abilities.

Narrative construction skills undergo extensive development between 2 and 5 years of age, beginning with toddlers uttering single-phrase two-word utterances and ending with complex multiepisodic stories. At 5 years of age, typically developing children from middle-income homes are able to produce narratives that are chronologically structured and sequential, although these stories often end abruptly without proper conclusions (Peterson & McCabe, 1983). In addition, 5-year-olds are able to include some words, such as *and* and *then*, that connect sentences together cohesively (Peterson & McCabe, 1991) and are able to include enough details about characters to allow a naive listener to understand who are the protagonists and what are some of their thoughts and motivations (Stein & Glenn, 1979).

Narrative skills do not develop at the same rate in all children; children from low-income households, for example, have been found to have deficits in storytelling skills when compared with their peers from middle-income households (Peterson, 1994). Given the discrepancy in narrative skills across economic populations, the development of narrative skills cannot be governed entirely by maturation. Instead, it is theorized that children acquire storytelling skills through social interaction. Vygotskian theory suggests that parents "scaffold" their children into developing better narrative skills (Vygotsky, 1978). More simply, during dialogues with learned others, children encounter narratives that are more sophisticated than their own and internalize the skills that allow them to improve their own constructions.

Support for this notion is found in intervention studies that focused on the development of autobiographical stories. These intervention studies showed that training mothers to ask more elaborative, open-ended "wh-" questions while engaging in autobiographical narrative dialogues with children improved the quality of narratives produced by 3- to 5-year-olds (Peterson, Jesso, & McCabe, 1999). In addition, parents can tailor questions asked to improve specific aspects of narrative skills (Peterson & McCabe, 2004). For example, parents can scaffold children to better contextualize their narratives by asking for more context detail in their questioning (e.g., who, what, when, where). Thus, through feedback from their conversation partners, children encode the relevant information on autobiographical storytelling that is emphasized in joint discussion (Nelson, 2007).

In addition to the study of autobiographical narrative knowledge as described above, researchers have investigated children's acquisition of fictional narrative knowledge (e.g., Mandler, 1984; Stein & Glenn, 1979). Telling fictional stories seems to be an important skill linked to later literacy development given that 12 of the 15 investigations on the relation between narratives and literacy that were found required children to tell fictional stories unassisted by a conversational partner (for critical analyses of six of these articles, see O'Neill et al., 2004; Roth, Speece, Cooper, & De la Paz, 1996). Moreover, fictional storytelling, prompted by wordless picture books or other stimuli, is often used by speech language pathologists to assess oral language delays (Melzi & Caspe, 2008). Given the relationship between fictional narratives and later literacy, it is important to understand how and in what contexts children might acquire information on fictional narrative construction.

One context that might promote fictional narrative knowledge is book reading. The illustrations themselves in picture books may help to foster the acquisition of fictional narrative knowledge. Paris

and Paris (2003) suggested that young children learn to "read" the pictures in a picture book to ascertain the meanings of narrative components and add these understandings to their narrative schemas. However, young children's main exposure to books typically occurs during adult–child shared book reading. In these activities, adults may give information about the plot, supporting the narrative elements found in the illustrations and, thus, emphasizing narrative knowledge (Graham, 1990). For example, a picture of a boy crying may help children to understand the character's emotional response to an event, and a parent may explain the picture to the child in terms of the events causing the child's tears, thereby highlighting elements of narrative plot.

However, during shared book reading, parents may be supplying narrative knowledge in other ways than simply reading the text and explaining pictures. Shared reading provides a context where dialogues about the fictional stories in storybooks can be created, and these dialogues could emphasize narrative elements that are present both in pictures and in the text. Parents may ask and answer questions during shared reading, thereby creating a dialogic environment that contains many opportunities for adults to scaffold narrative elements in a manner similar to adult–child dialogues about past events. In the current study, the focus was on the possibility of children learning fictional narrative skills from shared adult–child reading.

Past research has not found a definitive answer as to whether or not shared reading influences children's narrative knowledge. Sénéchal, Pagan, Lever, and Ouellette (2008) did not find an association between the frequency of shared reading at home and children's ability to produce narratives, either fictional or autobiographical. That study, however, did not assess the quality of the parent–child interactions during shared reading. Investigation of the natural reading behaviors of parents with their preschoolers found that parents do not typically engage in interactive reading with their children (Whitehurst et al., 1988). In fact, parents' reading styles typically include few dialogues, and these dialogues involve mainly yes/no questions or directives. Most often, parents read the text directly without engaging their children in the story or the discourse (Huebner & Meltzoff, 2005). Is it the case that shared reading enhances children's narrative skills only when adults adopt a dialogic interaction style during shared reading?

Recognizing that a more active role in storybook reading may be beneficial to children's literacy development, Whitehurst et al. (1988) designed an intervention called *dialogic reading* that is meant to encourage adults to create dialogues during story time (see Mol, Bus, de Jong, & Smeets, 2008, for an up-to-date meta-analysis of the dialogic reading literature). During reading sessions, the adult reader is required to encourage children's oral contributions using elaborative "wh-" and open-ended questions, repetition of good responses, and expansion of incomplete responses to illustrate the difference between what was said and what could have been said. This reading technique has been found to positively impact literacy skills in young children; in particular, most of the research conducted on this type of intervention has focused on the impact of dialogic reading on expressive vocabulary. In fact, positive gains in expressive vocabulary were found in children between 3 and 5 years of age (Crain-Thoreson & Dale, 1999; Lonigan & Whitehurst, 1998; Wasik & Bond, 2001; Whitehurst, Arnold, et al., 1994; Whitehurst, Epstein, et al., 1994) when conducted in groups of up to eight children (Hargrave & Sénéchal, 2000; Lonigan & Whitehurst, 1998; Whitehurst, Arnold, et al., 1994) and when compared with an alternative treatment comparison group (Arnold, Lonigan, Whitehurst, & Epstein, 1994; Lonigan & Whitehurst, 1998; Valdez-Menchaca & Whitehurst, 1992; Whitehurst, Arnold, et al., 1994). Young children are clearly internalizing language knowledge highlighted by interactive shared reading.

Although the dialogic reading literature focuses on improving vocabulary skills, the types of "wh-" questions used to create dialogues about storybooks are not unlike the elaborative questions that have been found to improve children's narrative skills. Therefore, it is hypothesized that using this dialogic reading procedure, in the context of books that highlight story elements, would impact narrative skills. A search of the published literature yielded a single study testing the impact of dialogic reading on narrative knowledge. Zevenbergen, Whitehurst, and Zevenebergen (2003) determined that using a dialogic reading intervention could enhance children's inclusion of some important aspects of narratives within their retellings of heard stories such as children's inclusion of more details about the characters' mental states, motivation, and dialogues. However, that study was limited to investigating only a few aspects of narrative knowledge in a retelling paradigm. The current study was conducted to

determine whether a dialogic reading intervention could enhance a wider range of narrative components in both a retelling and production paradigm. These components are meant to represent the different areas of narrative knowledge that children would need to grasp so as to create chronological, complex, cohesive, and contextual narratives.

Components of narrative skills

Knowledge about narrative structure

To measure a child's structural knowledge, the narratives are analyzed for the story elements that make up a story grammar. A story grammar is a sequence of elements that are essential to a structured story plot, and as such they include introductions, setting details, character descriptions and emotional/cognitive responses of the characters, initiating events, plans to solve conflicts, attempts to solve conflicts, reactions to events, and conclusions (Stein & Glenn, 1979). Story grammar units are the basic elements of a story that organize story events in a sequential and meaningful way. In fact, the structure of a narrative is considered to be equivalent to the gist or central meaning of a story (Mandler, 1984). Internal responses and internal plan story grammar units were assessed separately as a subset of narrative structure called mental state references. This was done to confirm findings by Zevenbergen et al. (2003).

Linguistic knowledge

Measures of language complexity that demonstrate a child's ability to produce linguistic components within the narratives were used. These measures include the total number of words, the ratio of number of different words spoken over total number of words, and the mean length of utterances. The ratio of different words to total words reflects the amount of varied language used and expresses the complexity of the child's narrative language. Furthermore, the mean length of utterances was calculated to determine whether the child was more likely to have longer and more complex syntax. This measure was first described as a measure of language complexity by Brown (1973) and subsequently was used as a measure of syntactic knowledge for children up to 5 years of age (Bishop & Adams, 1990; Miller & Chapman, 1981).

Contextual knowledge

A child's use of decontextualized language such as anaphora can serve as an index of contextual knowledge. Anaphora is a linguistic term for an expression referring to a previously mentioned idea. When a character is introduced, it is appropriate to first mention this character by his or her name or the title of the being preceded by an indefinite article. For example, the proper way to introduce a rabbit character is to call him or her *a rabbit* or *Sam*. Once a character has been introduced within the focus of the discourse, it is acceptable to refer the character by a pronoun or another appropriate label such as *he* or *the rabbit* in the case of the bunny character. Young children, however, have difficulty with this grammar rule and often assume shared knowledge with a naive listener and introduce characters in their narratives as *he* or *she* (Hickmann & Hendriks, 1999).

Cohesion knowledge

The integration of structure, content knowledge, and linguistic knowledge can be assessed by counting the number and variety of connectives produced (Peterson & McCabe, 1991). Connectives are said to tie the story together by semantically relating clauses together. It may be the story grammar units that structure the overall narrative, but the connectives act to link the story together at the local clausal level (Cain, 2003). Higher quality narratives might differ not only in the number of connectives but also in the variety of connectives used. Therefore, the appropriate use of cohesive ties was measured in the current study.

Retelling and production paradigms

Within the field of fictional narrative research, no consensus has been determined on the narrative paradigm that best assesses a child's narrative construction ability. Two main types of tasks dominate

the field: narrative retelling tasks and narrative production tasks. Narrative retelling tasks are so named because participants are first told an oral story and then asked to retell this story at some point thereafter; however, the prompt, procedure, listener, time period, and medium vary across the literature. In any given retelling task, a participant may be asked to retell a story in the presence of a familiar listener (Merritt & Liles, 1989) or a naive listener (Botting, 2002) and based on a series of pictures or a picture book (Hesketh, 2004), a video (Merritt & Liles, 1989), a film strip (Coelho, 2002), a purely oral narrative with no props (Ukrainetz et al., 2005), and so on.

Narrative production tasks, alternatively, are tasks in which participants are asked to produce a novel fictional narrative based on an initial prompt. Similar to retelling tasks, production tasks have a variety of contexts and methods that are not standardized. For example, participants may be asked to produce a fictional story based on story stems (the first sentence of a story [Merritt & Liles, 1989]), one picture (Coelho, 2002), several pictures (Hickmann & Hendriks, 1999), a wordless storybook (Botting, 2002), a video (Eaton, Collis, & Lewis, 1999), and so on.

Because no consensus on the type of task, even within the retelling or production genres, can be achieved, it seems ill advised to treat retelling and production tasks as tasks that elicit equivalent narrative skills. In fact, comparison studies have suggested that the retelling task may be easier for children, resulting in children demonstrating a more logically structured, linguistically complex, connected and contextualized story than when they are asked to produce a novel story (Merritt & Liles, 1989). Furthermore, it is possible that the retelling task is more a measure of children's comprehension of story elements than a measure of their ability to construct a narrative (Nelson, 2007). In the current study, both narrative production and retelling tasks were assessed to distinguish any differing effects of shared book reading on these two paradigms.

The current study

This study tested whether a shared reading intervention would improve kindergartners' narrative ability as compared with children receiving an alternative treatment. The intervention was administered in small groups twice a week for 8 weeks. It was hypothesized that dialogic reading should enhance the four key aspects of narrative ability—story structure, language complexity, cohesion, and decontextualized language—through the appropriate use of anaphora. Furthermore, the retelling task should be easier for children to complete; therefore, the effects of the intervention should be more discernible in the children's retelling stories.

Methods

Participants

Participants were 40 English-speaking 5-year-olds who were recruited from kindergarten programs in a large city in central Canada. The kindergarten classrooms were in schools identified by their school board as located in neighborhoods that have high concentrations of low-income households and greater mobility of residents than neighborhoods for other schools in the school board district. However, a letter sent home through teachers to parents asking for consent for their children's involvement in the study also asked for information on socioeconomic status (SES), and it appears that parents who gave permission for their children to participate in this study reflected a more varied income level. Of the entire sample, 73% of parents provided information about their highest level of education achieved and 85% of parents provided annual income information. Of the parents who indicated their highest level of education, 6% had not completed high school, 29% were high school educated, 24% were college educated, 21% had university degrees, and 21% were completing or had completed postgraduate studies. Furthermore, in terms of parents' income, 31% reported an annual income of less than $20,000,[1] 14% reported an annual income between $20,000 and $39,999, 10.3% reported an annual income between $40,000 and $59,999, 24% reported an annual income between $60,000 and $79,999, and 21% reported an annual income of $80,000 or more.

[1] All incomes reported are in Canadian dollars.

None of the participating children had hearing difficulties or were receiving speech therapy. In addition, their pretest scores did not reveal difficulty in understanding instructions due to English as a second language, and their receptive vocabulary scores were within 2.5 standard deviations of the sample mean.

Selected children were randomly assigned on the school level to either the dialogic reading group or the alternative treatment group regardless of classroom. Due to group assignment error, uneven groups were created, with 21 children (9 boys and 12 girls) being assigned to the dialogic reading intervention condition and 19 children (9 boys and 10 girls) being assigned to the alternative treatment group. The dialogic reading children had a mean age of 5 years 4 months (*SD* = 3.6 months) at the date of pretest, and the alternative treatment children had a mean age of 5 years 3 months (*SD* = 4.9 months). Finally, 75% of the participants came from homes where English was the language spoken most often. Of the remaining 25%, four children in the dialogic reading group and six children in the alternative treatment group spoke another language most often at home. Other languages spoken most often in the homes of children in the sample were Chinese, Somali, Urdu, Turkish, Amharic, Arabic, Persian, and Bengali.

Measures

Narrative measures

Fictional narrative ability was measured using the Edmonton Narrative Norms Instrument (ENNI) (Schneider, Dubé, & Hayward, 2002). The ENNI is a storytelling assessment tool for 4- to 9-year-olds and normalized on a sample of 377 children in Edmonton, Alberta, Canada. The tool includes four wordless black and white picture books that portray a series of stories. The books are divided into two sets of picture books depicting illustrated animal characters in obvious conflict-based plots. One set is illustrated to depict stories about a giraffe and an elephant at a pool (pool series), and the other set is illustrated to depict stories about a mouse and a dog at a park (park series). Each set contains a short picture book and a long picture book. The short picture books are five pages long and depict one complete story grammar episode. The short picture books were used for the pretest portion of the current study. The long picture books are 14 pages long and contain three complete story grammar episodes about the same two main characters, with an additional two characters being added in the second and third episodes, respectively. These long picture books were used for the posttest version of the study.

Although the ENNI is a production narrative task only, for the purpose of the study, a retelling task was designed with novel narratives based on the same wordless picture books that were used for producing narratives; that is, texts (presented in Appendix A) that correspond to the pictures for the pool books (short and long) and the park books (short and long) were created. The texts describe the plots of the books and include the appropriate number of story grammar units that are meant to be depicted in each story. In addition, they were designed to be comparable in length, description, dialogue, and emotive language to the other short or long story. As such, the short pool story was 177 words long and the short park story was 172 words long. Similarly, the long pool story was 410 words long and the long park story was 416 words long.

In the narrative retelling task, the participants were expected to listen carefully to the examiner-created story that was read aloud to them (see Appendix A). Immediately afterward, the participants were asked to retell the same story back to the experimenter and were told that their version of the story would be audiotaped. For each participant, the experimenter held the book facing the child and told the child that he or she could not see the pictures, nor could the people who would listen to the tapes, so the child needed to tell the story really well to be understood. If the child had trouble in beginning the narrative or stopped halfway through it, the experimenter was allowed to prompt the child to continue according to a list of prompts included in the ENNI (Schneider et al., 2002). Permissible prompts included questions such as "How would you start your story?" and "Look at the pictures—what do you think is happening in the story?" The examiner was allowed to ask six prompts before turning the page if the child still did not respond. If the child could not get started after two pages, testing was terminated.

In the production task, the procedure followed closely the original task design of the ENNI. The children were shown pictures in the second wordless picture book that had not been used previously and

were told that they were required to create their own story based on the pictures. For each participant, after the child was shown all of the pictures, the examiner held the book facing the child and asked the child to begin telling the story. Again, the experimenter told the child that he or she could not see the pictures, nor could the people who would listen to the tapes, and that he or she would not properly understand the story if it was not told well.

All narrative tasks were recorded onto audio disks that were later transcribed according to the Conventions for the Human Analysis of Transcripts (CHAT) (MacWhinney, 2000). The Child Language Analysis (CLAN) program, available from the Child Language Data Exchange System (CHILDES) (MacWhinney, 2000), is an analysis program that is popularly used within the language development research field to obtain measures of language complexity and story cohesion (MacWhinney & Snow, 1985). Children's resulting narratives were scored on four dimensions: story grammar units, language complexity, cohesion, and anaphora. Coders were naive to group assignment. Each dimension is described in turn.

Narrative structure

Narratives were coded for story grammar units using the ENNI instructions (Schneider et al., 2002) but including two adaptations. First, a story grammar scoring scheme was created for the park stories based on the ENNI scheme for the pool series. Second, beginning and closing statements were scored because these are traditionally included in story grammar analysis (Stein & Glenn, 1979), although they are not included in the ENNI scoring scheme. Within this analysis, a *formal beginning statement* refers to the use of a cliché story opening such as "Once upon a time" or "One day." An *informal beginning statement* refers to the use of an opening phrase that is not clichéd but rather is set outside of the timeline of the current story such as "Jack the bunny and Devin the dog had always been really good friends." Similarly, a *formal closing statement* refers to a clichéd ending such as "The end" or "And they lived happily ever after," whereas an *informal closing statement* refers to a phrase that is not clichéd but still summarizes the story such as "And they played together for the rest of the day." Each formal beginning/closing statement was awarded 2 points, whereas each informal beginning/closing statement was awarded 1 point.

The 12 story grammar units coded were *formal beginning statement, informal beginning statement, character, setting, initiating event, internal response, internal plan, attempt, outcome, reaction of the character, formal closing statement, and informal closing statement*. The units *initiating event*, *attempt*, and *outcome* were considered to be essential to the creation of a good story that is meant to convey a plot and, thus, were given a score of 2, whereas the remaining units were given a score of 1. Total scores for the story grammar units per narrative were calculated, with the short single-episode storybooks yielding a maximum score of 20 and the longer three-episode stories yielding a maximum score of 46. A second subset score was computed for mental state references that included scores for *internal response* and *internal plan*. Internal response story grammar units refer to an emotional or cognitive reaction of a character to an event, whereas internal plan story grammar units refer to an explicit cognition of a plan of action to deal with an initiating event such as "He thought that he should jump in the pool to get the plane." Children were awarded 1 point for each mention of a mental state reference.

Intercoder reliability was assessed on 15% of narratives. Percentage agreement calculations were done such that the total number of times two researchers agreed on story grammar scores for one story was divided by the total possible story grammars per story. Of the 15% of narratives assessed, agreement rates between two independent researchers were 100% for the story grammar units *setting*, *characters*, *initiating event*, *outcomes*, *formal closing statement*, and *informal closing statement* and were between 80% and 99% for *formal beginning statement*, *informal beginning statement*, *internal responses*, *internal plans*, *attempts*, and *reactions*.

Language complexity

The CLAN software was used to calculate the total number of words, total number of different words, number of utterances, mean length of utterances, and type token ratios (i.e., number of different words/total number of words). The ratio of different words to total words reflects the amount of varied language used and expresses the complexity of the children's narrative language.

Context

To assess a child's ability to appropriately contextualize a narrative, a measure of anaphora or decontextualized language referred to as "first mentions" was scored according to the instructions of the ENNI (Schneider et al., 2002). This analysis evaluates the appropriateness of referent expressions that a child uses to introduce characters and objects when telling a story. Referring expressions are linguistic forms used to refer to animate beings (e.g., *the elephant*, *Ella*, *she*), objects (e.g., *the train*, *it*), places (e.g., *the park*, *there*), and concepts (e.g., *an idea*). These expressions are considered to be adequate if they are appropriate for the listener's knowledge of the characters or objects. For example, a specific indefinite noun phrase such as *an elephant* or a proper name is appropriate for the introduction of a character in a story, whereas the definite article *the* preceding *elephant* or the pronoun *she* would be appropriate only for a second or third mention of the character later in the story. Each mention of the characters was scored with a 1, 2, or 3 according to how appropriate the phrase used was for its position in the narrative. For instance, if a character was introduced with the label *he*, the child was given 1 point; if a character was introduced with a definite article such as *the bunny*, the child was awarded 2 points; if a character was introduced using the appropriate label *a bunny* or *Jack*, the child was awarded 3 points.

Connectives

The frequency and types of connectives used were calculated with the CLAN software. There were three types of connectives that were coded (Peterson & McCabe, 1991): (a) independent connectives, that is, connectives that join together two independent clauses (e.g., *and*, *now*); (b) temporal connectives, that is, connectives that provide knowledge about the sequence or chronology of the clauses (e.g., *then*, *later*, *first*, *next*, *as soon as*, *while*); and (c) dependent clauses, that is, connectives that join secondary clauses that are dependent on the first clause, thereby contributing to a more complex sentence structure (e.g., *but*, *or*, *because*, *if*, *so*).

Receptive vocabulary

The Peabody Picture Vocabulary Test III (PPVT-III) (Dunn & Dunn, 1997) was used as a measure of children's receptive vocabulary. Children were asked to select which of four alternative pictures, displayed in a grid, best represents the word spoken by the experimenter. This measure was used as a control variable to ensure that the intervention and the alternative treatment group did not differ on this aspect of language. It was not administered at posttest given that researchers have repeatedly found that dialogic reading interventions have little to no impact on this standardized test of receptive vocabulary. In a meta-analysis on the effects of dialogic reading, Mol et al. (2008) reviewed 12 studies that used the PPVT-III as a posttest measure, and according to the presented confidence intervals in their article, 11 of these studies could not significantly demonstrate effects of the intervention on receptive vocabulary.

Expressive vocabulary

A measure of expressive vocabulary was created to assess vocabulary learning given the well-documented evidence that dialogic reading can enhance expressive vocabulary (e.g., Hargrave & Sénéchal, 2000; Sénéchal, 1997). A total of 16 target words introduced and illustrated in the storybooks used were selected because they were assumed to be unknown to 5-year-olds: *grocer*, *fawn*, *carton*, *pelican*, *beret*, *partridge*, *telescope*, *easel*, *satchel*, *fedora*, *boulder*, *maestro*, *spatula*, *serpent*, *caboose*, and *hen*. As in Sénéchal (1997), these target words were unfamiliar words that represented familiar concepts to the children. For example, words such as *satchel* for bag and *fedora* for hat were used.

The target words were tested by asking children to label line drawings of each target word. If children produced synonyms for target words, the synonyms were noted and the children were asked whether they knew other names for those concepts. The use of picture line drawings was essential to determining whether vocabulary learned could be generalized to other contexts than the books in which they were introduced.

Dialogic reading intervention

Books

From the 20 books comprising the *Read Together, Talk Together* kit (Pearson Learning Group, 2006), eight books were selected. *Read Together, Talk Together* is a dialogic reading kit that was designed on the research conducted by Whitehurst and colleagues (Whitehurst, Arnold, et al., 1994; Whitehurst, Epstein, et al., 1994; Whitehurst et al., 1988). It includes colorfully illustrated children's books appropriate for the age level of 4 or 5 years. Of the books included in the kit, eight were chosen based on the following criteria. First, they included colorful illustrations that depicted the story to prevent complete reliance on the text. Second, storybooks had obvious narrative plots following the typical initiating event–attempt–outcome chronology (Stein & Glenn, 1979). Third, they were not alphabet books or nonfiction books that do not contain plots. Fourth, they were not holiday specific (e.g., based on Christmas events). The titles of the chosen books are presented in Appendix B.

The kits for the books included pamphlets that detailed lists of dialogic questions that could be asked during the reading of the books. From the lists provided, elaborative questions were selected with reference to Peterson and McCabe (2004) as the questions best related to the learning of narrative knowledge. That is, the questions referred to plot, setting, evaluation of characters, and so on. These questions were used in addition to the spontaneous repetition, expansion, and recasting of children's oral contributions and any means of encouraging dialogue that may arise spontaneously. The questions were pasted on the appropriate pages of the books to ensure standardization and compliance to the dialogic reading method across interveners. Each book introduced two target words to be tested with the expressive vocabulary measure.

Dialogic reading training

Three researchers were trained to administer the dialogic reading intervention during a 1-h group session. These interveners were first shown a 15-min video provided by the *Read Together, Talk Together* kit depicting real-life examples of teachers using the dialogic reading prompts effectively. Next, a standard list of prompts used in this type of intervention were reviewed, and interveners participated in role-playing scenarios to familiarize themselves with the techniques. The techniques learned included questioning and giving feedback such as (a) asking "wh-" questions (i.e., what, where, when, why, who, which, and how questions), (b) following correct answers with expansions, (c) repeating what the child says, (d) helping the child as needed, (e) praising and encouraging more interaction, and (f) shadowing the child's interest. The techniques require the adult to ask open-ended questions and expand on the child's comments, to encourage the child to produce multiword expressions and learn story structure, and to overall ensure the enjoyment of the child during storybook reading (Whitehurst, Arnold, et al., 1994).

In addition to using the elaborative questions included in each storybook, interveners were taught to expand on the children's responses in specific ways to emphasize all four levels of narrative knowledge. To emphasize plot structure, interveners were taught to sometimes highlight the entire plot of the story when expanding on the children's responses. For example, if an intervener asked the question "What does Walter do after his dad leaves the room?" and the child responded with "He jumps on the bed," the intervener was encouraged to rephrase the answer in a manner such as "That's right, even though Walter's dad told him not to jump on the bed, he decided to jump on the bed as soon as his dad left the room." Similarly, to emphasize the importance of language complexity and description, interveners were asked to include adjectives in some of their responses. For example, using the same question, an intervener might rephrase the child's response with "That's right, he excitedly jumps on the bed." The inclusion of the adjective *excitedly* emphasizes the need to include descriptions within the narrative storytelling. Cohesion-based expansions were provided by the interveners by adding connectives to the children's responses. For example, the intervener might have expanded on this response with "That's right, after Walter's dad told him not to jump on the bed, he started jumping on the bed as soon as his dad left the room" to emphasize the importance of connector inclusion within a narrative. Finally, context concepts might be emphasized within response expansions when the experimenter clarifies ambiguous concepts within a response. For example, the intervener

might reply by replacing the ambiguous *he* pronoun with the name of the character such that the response would now look like "That's right, Walter jumps on the bed."

Interveners were also trained to emphasize the 16 target vocabulary words in the books. Interveners emphasized these words by giving the definitions of the words and asking the children to repeat the correct vocabulary terms (Sénéchal, 1997).

Dialogic reading

Each intervener read dialogically with the same children in groups of one to four for two 20-min sessions per week for 8 weeks. During each reading session, a single book was read, and over the course of the intervention, each book was read twice to allow familiarity with the stories. The parameters of the dialogic reading intervention were chosen to coincide with a concurrent intervention program that was being administered; however, Hargrave and Sénéchal (2000) demonstrated that a dialogic reading intervention could effectively improve children's oral language skills, particularly their expressive vocabulary skills, after 4 weeks of two dialogic reading sessions per week. Therefore, 8 weeks was predicted to be a more than sufficient time period to gain positive results from a similar intervention of two sessions per week.

Compliance

Observations of each of the interveners were made during the intervention to confirm that the dialogic reading techniques were properly administered. For each intervener's 10th and 11th sessions, an observer visited the schools and unobtrusively documented key features of the interactions between the experimenter and the children in his or her assigned group. Observers looked for the involvement of all children in the sessions, the various types of expansion feedback provided by the interveners to complete the children's responses, and positive encouragement. Finally, the interveners recorded in a logbook the date that each book was read, attendance, and any disruptive behaviors that occurred during a session.

Alternative treatment group

Children in the alternative treatment group were participating in an early literacy study and received a researcher-developed 8-week phoneme awareness program. This was accomplished through teaching the children how to analyze words into smaller sound segments. Children in this group were first taught to match pictures based on shared initial and final sounds (five words/session) such that each child was given a sheet with a picture of the to-be-matched word along with three other words and the children were asked to circle the pictures that started or ended the same. The children were then taught a phonemic segmenting task based on Elkonin (1973) "Say It and Move It" activity. In this task, children learn to represent each sound within a word by stamping a marker, once for each phoneme in a word, into squares below a picture of that word.

Procedure

At pretest, children were asked to complete the retelling narrative first and the production narrative task second on the short picture books. This was done to ensure optimal performance given the evidence suggesting that the retelling of a previously heard narrative is easier than producing an original novel narrative (Hesketh, 2004). However, the order of the retelling and production tasks was counterbalanced on posttest because preliminary analysis of the pretest narratives did not indicate any narrative task difference on pretest. Posttesting occurred during the 2 weeks immediately following the intervention and used the long versions of the picture books.

During the pretest, the assignment of the two ENNI books to the task was counterbalanced across children. Half of the children in the dialogic reading condition were asked to retell the short pool story and to produce a narrative for the short park book, and half were asked to retell the short park story and to produce a novel narrative using the short pool book. The same was done for the alternative treatment children. This counterbalancing prevented bias on narrative scores based on one book plot

versus another. Order of retelling and production tasks on posttest was counterbalanced within sessions as well.

During the 8-week intervention, two sessions of dialogic reading were held each week in groups of two to four children for 20 min. On occasion, absenteeism resulted in dialogic reading sessions conducted with only one child. However, for the majority of the 8 weeks, all children received the intervention in groups of two or more. One book was read per session, and after all eight books were read by the fourth week, they were repeated a second time in the same order. Children in all groups were exposed to the same books. The alternative treatment children also received, in groups of two to four, their intervention for 20 min twice a week.

Results

Preliminary analysis

Preliminary analyses of children's receptive vocabulary were conducted using the PPVT-III (Dunn & Dunn, 1997). No differences in receptive vocabulary scores were found between groups prior to intervention ($p = .54$). The mean PPVT-III standard scores were 94.86 ($SD = 14.11$) for the dialogic reading children and 97.47 ($SD = 12.63$) for the alternative treatment children. PPVT-III scores were used as a covariate in subsequent analyses if these scores were related to child outcomes.

Although all children were tested on all measures, data loss resulted from technical errors with mini-disk recorders during both pretest and posttest. As a result, three children per group were missing narrative data on pretest, and another alternative treatment child was missing the retelling narrative data on posttest. Given the repeated measures design of the study, all missing data were replaced using the maximum likelihood estimation as recommended when the amount of data missing is large but other raw data from related variables were collected for participants (McCartney, Burchinal, & Bub, 2006). Estimated scores for missing data on pretest were based on the children's own scores on the PPVT-III and expressive vocabulary. On posttest, the scores for the one child missing the retelling task were predicted using the maximum likelihood estimation and were based on the child's posttest production narrative scores due to the high correlations between production and retelling narrative scores on posttest ($rs = .32–.88$, $p = .05$). All means reported within the following sections are calculated with data missing; however, inferential statistics are based on the entire sample with missing scores replaced.

Dependent measures were also analyzed for outliers. One dialogic reading child's pretest narratives were significantly lower than those of all other children on story grammar units, thereby qualifying him as an outlier. However, both of his posttest narratives received scores within 2.58 standard deviations of the mean (Tabachnick & Fidell, 2007) and were actually higher than some other participants' narratives. Therefore, despite variability within groups, no participants were removed based on outlier criteria.

Pretest analyses

Children's pretest scores on all dependent measures were analyzed with univariate between-participants analyses of variance (ANOVAs) to ensure no group differences prior to intervention on either production or retelling narratives. Results revealed no significant differences ($ps = .102–.875$) between groups on measures of structure, language complexity, context, and cohesion on pretest despite superficial differences in the pretest mean scores that suggested possibly higher scores in the alternative treatment group as compared with the dialogic reading group (see Table 1).

Posttest analyses

Descriptive statistics for each group for story structure, language complexity, context knowledge, and cohesion (i.e., use of connectives) as a function of narrative tasks are provided in Table 2. One-tailed analyses of covariance (ANCOVAs) with treatment group as a between-participants factor and

Table 1
Pretest means and standard deviations on narrative measures as a function of narrative task and intervention condition.

	Narrative production				Narrative retelling			
	Dialogic reading		Alternative treatment		Dialogic reading		Alternative treatment	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Structure								
Story grammar unit total raw score[a]	9.39	3.63	9.88	3.52	9.39	3.74	10.25	3.24
Mental state references[b]	0.41	0.65	0.32	0.44	0.52	0.66	0.55	0.58
Language complexity								
Number of words	70.67	43.09	87.06	51.60	65.50	41.23	92.25	57.85
Type token ratio	0.49	0.18	0.48	0.10	0.56	0.11	0.57	0.22
Mean length of utterances	6.44	1.84	6.79	1.39	6.56	0.04	6.12	0.04
Context								
Anaphora	6.72	2.11	7.25	1.77	6.72	2.49	7.00	1.67
Cohesion								
Connectives	2.00	1.33	2.38	1.50	2.22	1.21	2.13	1.31

Note. Scores were based on the sample without missing data replaced. $n = 18$ for the dialogic reading group; $n = 16$ for alternative treatment group.
[a] Maximum score = 46.
[b] Maximum score = 6.

Table 2
Posttest means and standard deviations on narrative measures as a function of narrative task and intervention condition.

	Narrative production				Narrative retelling			
	Dialogic reading		Alternative treatment		Dialogic reading		Alternative treatment	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Structure								
Story grammar unit total raw score[a]	26.76[c]	6.80	23.95[c]	3.52	27.67[c]	6.60	25.89[c]	5.63
Mental state references[b]	1.57[c]	1.02	1.00[c]	1.00	2.43[c]	1.47	1.50[c]	0.86
Language complexity								
Number of words	181.51	92.50	193.82	103.60	200.41	86.63	214.92	117.21
Type token ratio	0.40	0.09	0.40	0.08	0.41	0.11	0.40	0.11
Mean length of utterances	6.48	1.32	6.13	1.28	5.72	1.37	6.47	1.06
Context								
Anaphora	13.42[c]	3.19	12.32[c]	3.59	14.38	3.00	14.38	3.69
Cohesion								
Connectives	3.52	1.75	3.95	1.58	4.05	1.60	4.06	1.70

Note. Scores were based on the sample without missing data replaced. $n = 21$ for the dialogic reading group; ns = 19 and 18 for the alternative treatment group production and retelling tasks, respectively.
[a] Maximum score = 46.
[b] Maximum score = 6.
[c] When comparing the two groups' mean scores on these tasks, significant differences were found at $p < .05$.

pretest scores as a covariate were conducted on each narrative posttest task separately to test the hypothesis that dialogic reading would increase children's narrative abilities as compared with the alternative treatment group activity. One-tailed statistical tests were used because there were no theoretical or empirical reasons to predict that the phonological awareness intervention that was used as the alternative treatment would affect narrative knowledge significantly.

To illustrate group differences in narrative performance, a typical narrative for children in each group is presented in Appendix C. The narratives correspond to the average performance on posttest

for their respective groups and are based on the same book. The production narratives for each child from the different treatment groups are discussed because they best demonstrate the effects of the intervention.

Intervention effects on story grammar units

The presence of story grammar units in the children's narratives was used as a measure of story plot structure. For the production task, children's PPVT-III raw scores in addition to pretest story grammar total scores were used as covariates due to a significant correlation between children's receptive vocabulary and narrative structure scores on the production task ($r = .39$, $p = .014$). As predicted, the dialogic reading children had significantly higher total story grammar scores than the alternative treatment group on the production task, $F(1, 36) = 5.49$, $p = .001$, $d = .38$, and the retelling task, $F(1, 37) = 3.67$, $p = .032$, $d = .28$, after controlling for the pretest total story grammar unit scores. In particular, the children who received the intervention seemed to include more *character* mentions, *initiating events*, *reactions*, *internal responses*, and *internal plans* in both the production and retelling stories than the children in the control group.

To allow comparisons with previous research (Zevenbergen et al., 2003), follow-up analyses examined whether story grammar units that referred to mental states, namely *internal responses* and *internal plans*, were improved by the dialogic reading intervention. ANCOVAs for pretest scores revealed that the dialogic reading children provided significantly more internal thought and feeling references in their production narratives, $F(1, 36) = 2.85$, $p = .050$, $d = .56$, as well as in their retelling narratives, $F(1, 37) = 6.25$, $p = .009$, $d = .77$, than alternative treatment children. Given these results, two additional tests were conducted on the remaining story grammar units (the story grammar scores minus the scores for *internal responses* and *internal plans*) to assess whether the benefits of dialogic reading were limited to mental state referents. Using PPVT-III and pretest scores as covariates, the analyses showed that the dialogic reading children still provided significantly more structure to their production narratives than the alternative treatment children, $F(1, 36) = 4.75$, $p = .018$, $d = .32$, but the effect on the retelling posttest was no longer significant, $F(1, 37) = 2.14$, $p = .153$.

In general, the dialogic reading children included more structure components in their production narratives than the alternative treatment children. Furthermore, the dialogic reading children mentioned internal thoughts and emotions more than the alternative treatment children on both the retelling and production tasks. The following excerpt from an alternative treatment child's posttest production narrative (whole text provided in Appendix B) demonstrates how this group in general described events that were not chronologically structured or explained through the character's internal thoughts or goals:

> He had a lot of balloons. Then he said, "Can I have one balloon?" Then he said, "No." Then he said, "No no." Then he said, "Okay." And then the bunny's walking. And then the other bunny was there. And the other bunny's walking. Then he said, "He didn't let me get a balloon." Then he said, "Oh first give the money to him." Then they got two balloons.

In the above excerpt, the child was narrating pictures that depicted a character whose attempt to purchase a balloon from a vendor was interrupted because he had no money, so he needed to ask another adult to pay for the balloon. However, this logical sequence of events was not decipherable from the child's production. First, she did not explicitly state several key events that are important to the comprehension of the story such as the main character's discovery that he has no money and the adult character providing the money to purchase the balloon. In addition, even the implied events did not appear to be chronological. The narrator's failure to properly distinguish the characters or any events outside of the dialogue made it appear that the outcome of the child's attempt to buy a balloon is that the vender first said "no" but then said "yes." However, shortly after, it was apparent that the main character did not yet get a balloon. Thus, the outcome of the vendor saying "yes" to a balloon request appeared to have been provided in the middle of the story as opposed to its logical sequential place at the end. In addition, the child did not explicitly state the character's internal motivation for asking for a balloon, resulting in the actions seeming random and unexplained.

Alternatively, the following excerpt from a dialogic reading child's production narrative included more structural components:

He saw someone holding balloons from the stash. He wanted one. Then he asked to the man if he could have one of the red balloons. And he looked on the ground. The man told him five dollars. He looked in his pocket. He did not see any. He just got one. And the man said, "Only one red balloon. Only if you have five dollars." The lady got five dollars in her little purse and gave it to the man. Then both of the little girl and the little boy has two balloons that were the same color.

Clearly, all of the events were explicitly stated in this story, including the main character's failure to find money in his pockets. Also, all of the events occurred in logical order such that the overall outcome of getting the balloons remains at the end of the story. Finally, the dialogic reading child provided more internal motivation details than the alternative treatment child, stating that the main character asked for a balloon because he wanted one.

These two examples illustrate nicely the structural differences in the two production narratives as a function of treatment groups. As can be expected, the dialogic reading child's entire posttest narrative in Appendix B obtained a higher story grammar unit score of 28 of 46, whereas the alternative treatment child obtained a lower score of 18 of 46.

Intervention effects on language complexity

The number of words in the story, the type token ratio, and mean length of utterances were analyzed as measures of language complexity. Pretest scores were used as covariates for all ANCOVAs. Contrary to expectations, no significant differences were found between groups on any of the language complexity measure analyses, with *p*s ranging from .28 to .97.

The lack of significant group differences in language complexity was evident in the example narratives. The excerpts below demonstrate that the stories were constructed mainly with short utterances containing similar noun and verb phrases but lacking descriptive detail:

Alternative treatment child: Then he was holding on. Then it flew away. Then there was a string piece.

Dialogic reading child: She had a balloon. She saw someone come. They said, "Hi." And the little girl said, "Hi."

These short utterances did not actually differ greatly for the children in the two groups. Therefore, although the dialogic reading child's narratives appeared to be more advanced than the alternative treatment child's narratives, this difference was not due to a richer variety of language or a longer word count.

Intervention effects on contextual knowledge

Narratives were scored for proper introduction of all first mentions of characters and objects as an index of anaphora. During the production task, the dialogic reading children provided references to persons and objects that used decontextualized language more appropriately than those provided by the alternative treatment children after controlling for the pretest scores and PPVT-III, $F(1, 36) = 3.63$, $p = .032$, one-tailed, $d = .32$. No significant difference between groups on anaphora was found on the retelling posttest, $F(1, 37) < 1$, $p = .27$.

Again, when analyzing the production narrative of the alternative treatment child, it was evident that failure to use decontextualized language appropriately was partially responsible for the incomprehensibility of the text. Noticeably, in this excerpt of a dialogue among several characters (entire narrative presented in Appendix B), the alternative treatment child continuously referred to all characters involved in the conversation as *he*:

He had a lot of balloons. Then he said, "Can I have one balloon?" Then he said, "No." Then he said, "No no." Then he said, "Okay."

Without the context of the storybook, the child's reference to *he* throughout this conversation remained unexplained. Who is he? Is the same character responding to himself? Furthermore, although the alternative treatment child refers to the main character as *the doggie* at the beginning of the narrative, which would normally suffice as an anaphoric reference to another character (although *the* should be replaced by *a* on the first introduction), the failure to actually reference this character again

leads one to question whether there actually was a second main character at all. The alternative treatment child seemed to properly reference the first mention of objects, with *a balloon* and *two balloons*, but she did not properly reference the other two characters, stating only *the person* and *the other bunny* as if these characters had already been mentioned.

The dialogic reading child, on the other hand, referenced all characters and the main objects of the story properly, leading to a better contextualized, more coherent story, as demonstrated by the following excerpt:

> There was a little girl that has a wagon. She had a balloon. She saw someone come. They said, "Hi." And the little girl said, "Hi."

All participants in this dialogue were clearly identified; thus, the conversation was easily understood.

Intervention effects on cohesion

Children's use of connectives such as *and*, *but*, and *or* during storytelling was used to index story cohesion; in particular, the variety of connectives used within the story was examined as measured by the number of different connectives used. No significant differences in the number of different connectives used were found between groups on posttest either on the production narrative, $F(1, 36) < 1$, $p = .73$, or on the retelling narrative, $F(1, 37) < 1$, $p = .89$. Both example children demonstrated the proper uses of the independent connective *and* (to join two independent but related phrases together) or the temporal connective *then* (to provide a chronological reference of events), as demonstrated when the alternative treatment child provided the utterance *and then the bunny's walking* and when the dialogic reading child provided the utterance *and then the little girl's still mad.* However, both children did not typically use other connectives. Clearly, the groups did not differ significantly on a variety of connectives used. It is possible that children in this sample had not yet learned the proper use of connectives in general. Alternatively, it is possible that although the children did indeed know how to use complex connectives, they did not use them for this particular task.

Treatment fidelity

To ensure that the intervention was administered as intended, several analyses were performed to assess treatment fidelity, including the number of intervention sessions attended, the replication of previously found effects of dialogic reading on expressive vocabulary, and observations of dialogic reading sessions.

Attendance

Attendance was measured to ensure that all children were receiving enough intervention sessions to assume that any learning occurred as a direct result of dialogic reading. The mean numbers of sessions attended were 14.1 ($SD = 1.6$) of 16 for the dialogic reading group and 15.1 ($SD = 0.8$) of 16 for the alternative treatment group. In both groups, the child who received the fewest number of sessions attended 12 sessions. Because every child received at least 75% of the intervention sessions, any improvement in narrative skills found over and above improvements in the alternative treatment group could be assumed to have resulted from the dialogic reading method.

Intervention effects on expressive vocabulary

Previous research found that dialogic reading sessions significantly enhance children's expressive vocabulary (see meta-analysis by Mol et al., 2008). A group by testing time repeated measures ANOVA revealed a Testing Time × Group interaction, $F(1, 39) = 7.16$, $p = .001$, with an effect size of $d = .66$. On posttest, the dialogic reading children correctly named, on average, more than 2 of 16 words ($M = 2.42$, $SD = 1.94$), whereas the alternative treatment children provided fewer than 2 of 16 words ($M = 1.37$, $SD = 0.83$), $t(1, 38) = -2.21$, $p = .034$. No group differences on expressive vocabulary were found on pretest, with means of 1.00 and 0.95 (SDs = 0.71 and 0.62) for the dialogic reading and alternative treatment children, respectively.

Observations of dialogic reading sessions

Three interveners were responsible for conducting intervention sessions with the children. As such, observations of two sessions per intervener were scored to ensure similarity of treatments provided. Mean scores of the two observations per intervener were analyzed, and results indicated that each child was providing at least one response to an elaborative question per session and that each child averaged between six and seven responses to questions per session. All three interveners provided praise to the children's responses between 78% and 94% of the time. Furthermore, all three interveners expanded on at least 47% of the children's responses and used each one of the four types of expansions at least once per session. In general, interveners used context expansions most often (47–75% of the expansions observed during the six sessions referenced the characters and objects discussed in specific unambiguous terms) and cohesion expansions least often (18–35% of the 46 expansions observed included connectives).

Although interveners did differ somewhat in their typical elaborations of children's responses, these differences had no significant effect on the results of the study. To verify this, between-participants ANOVAs were conducted on dependent measures using intervener as the independent variable. None of these ANOVAs was significant. Furthermore, although conversations about the stories may have differed somewhat, it is important to remember that all questions meant to prompt dialogue were standardized by including them directly in the text of the storybook. Given the similarities in the dialogic reading sessions for the intervention groups, the previously presented group differences are considered to be valid effects of the intervention treatment.

Disruptive behaviors

Fully 88% of the children experienced fewer than four sessions during which they or another child in their group engaged in disruptive behaviors. In most cases, the disruptions were inattentiveness that could be resolved by calling the children's attention back to the activity. The number of disruptions was not associated with any of the dependent variables except the mean length of utterances ($r = .32$, $p = .05$). In this case, the frequency of disruptive behaviors was covaried out of the analysis; however, covarying this variable out of the equation did not impact the results.

Narrative tasks: Production versus retelling

Given the extant research on narrative knowledge (e.g., Merritt & Liles, 1989; Nelson, 2007), additional analyses were conducted to investigate further differences in children's performance on production and retelling tasks. These analyses were collapsed across treatment groups and conducted on the longer posttest stories. Children's posttest performance on story grammar units did differ significantly based on narrative task at posttest, $t(1, 39) = -1.78$, $p = .042$. As indicated in Table 3, children included significantly more story grammar units for the retelling narratives than for the production narratives. In fact, they included significantly more mental state references on the retelling task than on the production task, $t(1, 39) = -3.17$, $p = .002$. In addition, children used more words in total on the retelling task than on the production task at posttest, $t(1, 39) = -1.87$, $p = .035$, and used more contextualized references on the retelling task at posttest than on the production task at posttest, $t(1, 39) = -2.64$, $p = .012$. No other significant differences were found.

Discussion

Oral narrative skills are considered to be essential to young children's social communication (Donald, 1991) and their ability to comprehend and organize event knowledge (Nelson, 2007). Moreover, autobiographical oral narrative skills are assumed to develop in the context of parent–child conversations (Peterson et al., 1999). The goal of the current study was to test whether adult–child conversations while reading storybooks would enhance fictional narrative skills. The main hypothesis was that the biweekly elaborative dialogic reading intervention conducted in small groups over 8 weeks would significantly improve the structure, linguistic complexity, and decontextualized and cohesive nature of children's fictional narratives. Our results support the notion that some, but not all, dimensions

Table 3
Posttest mean scores and standard deviations on narrative dependent measures as a function of narrative tasks.

	Production		Retelling	
Variable	*M*	*SD*	*M*	*SD*
Structure				
Story grammar unit total raw score[a]	25.43[c]	7.34	26.8[c]	6.16
Mental state references[b]	1.30[c]	1.04	2.00[c]	1.30
Language complexity				
Number of words	187.35[c]	96.86	207.13[c]	100.73
Type token ratio	0.40	0.09	0.41	0.11
Mean length of utterances	6.32	1.30	6.07	1.28
Context				
Anaphora	12.95[c]	1.66	4.05[c]	1.62
Cohesion				
Connectives	3.73	3.40	14.23	3.30

Note. Scores were based on the sample without missing data replaced. *ns* = 17 for the production and retelling tasks. The Significance level is $p < .05$.
[a] Maximum score = 46.
[b] Maximum score = 6.

of narrative skills are sensitive to dialogic discourse during shared reading. More specifically, dialogic reading children produced narratives that were better structured and more appropriately decontextualized than children who were in the alternative treatment group. The dialogic reading children's retelling narratives also included more references to mental states and emotions than the alternative treatment children's retelling narratives, although these structural differences did not extend to other story grammar units. Contrary to expectations, however, dialogic reading did not affect the complexity of language within the children's narratives or their inclusion of cohesive ties. Replicating well-established findings (Mol et al., 2008), expressive vocabulary gains were found.

The most important finding of the current study is that interactive shared reading sessions significantly increased children's inclusion of structural components in their production and retelling of fictional narratives. Arguably, the inclusion of a logical structure is considered to be the most important component of a narrative because it allows conveyance of the meaning and plot of the story (Mandler, 1984). If one argues that the inclusion of story grammar units is based on schematic information extracted from previous experiences, one could argue that 5-year-olds' narrative schemas are incomplete. Typically developing 5-year-olds can include *setting* references, *initiating events*, *attempts*, and sometimes *outcomes* in their constructed narratives, but they do not spontaneously include mentions of *internal responses*, *internal plans*, and *reactions* before 8 years of age (Stein & Glenn, 1979). However, after 8 weeks of dialogic interactions during shared reading, children were able to produce narratives that included *character* name mentions, *initiating events*, *internal responses*, *internal plans*, and *reactions*, whereas the alternative treatment children did not show this improvement. Therefore, interacting dialogically in storybook sessions promoted more elaborate story schemas that include *internal responses*, *internal plans*, and *reactions*.

There are two reasons why the nature of dialogic reading might benefit this key element of story knowledge above all others. First, the elaborative conversations and questions about stories occur within the context of a storybook. These storybooks in the current study were chosen based on the clarity of the plot and demonstration of the plot in the pictures. As such, children were listening to a plotted story and answering questions about the story plot while perceiving pictures that demonstrate plot. Therefore, the context of the picture book reinforced the children's awareness of plot elements, resulting in this type of intervention highlighting structural knowledge. Second, dialogic reading could impact narrative structure above other dimensions due to the nature of the questions asked to maintain dialogue. Most elaborative questions asked were about specific events in the stories and, therefore, might highlight the plot despite the attempt to specifically paste questions in the storybooks that reference all areas of narrative knowledge equally. For example, questions such as "What color is Spike after he is splashed by the car?" were meant to ensure that children acknowledge the

importance of description. However, it is evident that this question was, first and foremost, related to plot components because it reinforced acknowledgment of an *initiating event* (a car splashes Spike) and an *outcome* (Spike is now covered in mud).

Although story structure improvement was the strongest finding of the current study, another significant benefit of dialogic reading is improved anaphoric references. Children who received the dialogic reading sessions showed a significantly better ability to properly contextualize first mentions of characters and objects in their production and retelling narratives, indicating that dialogic reading children learned contextual knowledge from the shared reading sessions. Observations of intervention administration shed light on why this type of intervention might promote contextual knowledge. These observations, conducted to ensure treatment fidelity, revealed that when children used an ambiguous reference of *he* or *it*, the intervener rephrased the response with a more contextualized reference such as a character name or an object label. For example, if the child said, "He is jumping on the bed," the intervener would rephrase the statement as "Corduroy is jumping on the bed." Because this type of expansion was the most frequent during the sessions, the dialogic reading children would have had their ambiguous references "corrected" often and, therefore, would have been exposed to the importance of contextual knowledge.

Overall, the main finding of this study was that the narrative elements relating to story comprehension were the aspects that were significantly affected by dialogic reading. That is, it is necessary for a story to be chronologically structured and appropriately decontextualized for it to be easily comprehended. A 5-year-old's limited working memory may provide a theoretical explanation for why these elements would be improved first. Kindergartners might not have the processing capacity that would allow them to attend to all of the components of the story that is read aloud and may be using the majority of their working memory in an attempt to comprehend the plot of the story, resulting in their attending less to the variety of words and connective ties used (Case, 1991). For this reason, a child may be attending to story structure and anaphora given that story grammars are considered to be directly related to story comprehension (Mandler, 1984) and decontextualized references aid in action attribution (Cain, 2003). That is, children categorize plot elements into story grammar variables, such as events and outcomes, and can understand the story itself more quickly (Haberlandt, Berian, & Sandson, 1980). These events and outcomes can be understood only if the characters are clearly distinguished (Cain, 2003). Because children are attending to structure and anaphora to comprehend the stories themselves, it is logical that they would gain knowledge of how to use these elements first in the construction of their own stories.

Although not many studies have investigated the effect of dialogic reading on narrative skills, many have confirmed that dialogic reading improves children's expressive vocabulary (Mol et al., 2008). The current study also found significant gains on the expressive measure of book vocabulary. This replication of vocabulary results proves that (a) dialogic reading affects language skills other than narrative ability and (b) the study is comparable to past research, suggesting that the intervention itself was conducted in a similar fashion to previous studies.

Another contribution of the current study was the comparison of children's performance on narrative production and retelling tasks. All children in the sample retold narratives that were significantly longer, were better structured, contained more mental state references, and were significantly better decontextualized than their production narratives. There are several possible explanations for these findings. The two tasks may have had different performance demands, and the retelling task may have been easier than the production task (Merritt & Liles, 1989). When asked to produce a story from a picture book, the number of possible options for story production may have exceeded children's working memory and hindered their ability to construct narratives that included sufficient elements of all components of narrative knowledge. On the other hand, during the retelling task, children were able to parse from the told story what they thought were the most important structural elements from the previously presented script and to reiterate them back to the examiner. Therefore, the retelling tasks may be easier. This explanation agrees with other comparisons of the production and retelling narrative task genres in the literature (Coelho, 2002; Merritt & Liles, 1989; Trautman, Healey, Brown, Brown, & Jermano, 1999).

However, another more theoretical explanation for these task differences is that children might be showing competence differences at constructing narratives. That is, the task of producing a story

without guidance and the task of retelling one heard previously may require the use of different cognitive skills (Nelson, 2007). It is possible that retelling a previously told narrative is more of a story comprehension task than a construction task (Mandler, 1984). If the retelling task is related to comprehension, it is possible that simply being able to comprehend the important elements of a story improves scores on this task. Most likely, children develop the ability to comprehend what makes a story good earlier than they are aware of how to construct a good quality fictional narrative (Nelson, 2007), and 5-year-olds do not generalize this knowledge to production tasks. Therefore, when a child is completing a retelling task, the child's comprehension of what elements of the story are important would allow him or her to retell the narrative with details that include character motivations and evaluative detail. However, when a child is completing a production narrative, the child's schema for constructing a fictional narrative from scratch might not yet include elements such as characters thoughts and may be limited to only plot details. For example, Trautman et al. (1999) found that emotional or mental state references are not as common in novel fictional narratives as they are in retellings of previously heard stories. Because Trautman and colleagues were referring to older children (6–12 years of age), this provides evidence that the 5-year-olds in the current study may be too young to refer frequently to mental states within their fictional stories.

Interestingly, this theoretical explanation is consistent with the findings of a correlational study that found links between oral narrative constructions and later literacy skills (Griffin et al., 2004). The produced narratives of 5-year-olds were correlated with the written narrative productions and reading comprehension scores of the same children at 8 years of age, but the written productions of 8-year-olds were not related to their concurrent reading comprehension scores. Most interesting, certain components of the oral productions were differentially related to written production and reading comprehension. Specifically, the inclusion of character mental state references in oral narratives at 5 years of age was related to reading comprehension at 8 years of age, whereas the inclusion of plot and structural elements at 5 years of age was related to written narrative productions. This pattern of findings may shed light on the findings of the current study. If one agrees that story retelling is more closely a story comprehension task, it is not surprising that it is the inclusion of mental state references that was most affected by dialogic reading for this task. Similarly, if narrative production tasks require the activation of readily available story schemas, it is not surprising that it is the overall inclusion of structural elements that was improved by dialogic reading.

Some limitations of the current study are noteworthy. For one, the effect of dialogic reading on narrative skills was modest, with effect sizes ranging from $d = .28$ to $d = .77$. Clearly, larger effect sizes would be beneficial. The failure to find larger effect sizes likely is due to the amount of variability of children's narrative skills represented in this sample. This variability may be due to the variety in socioeconomic backgrounds of the participating children. Tighter controls and less variability in groups might raise effect sizes. Furthermore, increasing the length or frequency of sessions might also raise effect sizes given that sessions held twice a week for 8 weeks might not be enough for children to fully internalize their new knowledge about narratives.

Another limitation to this study is that it does not allow us to integrate the research on children's knowledge of autobiographical and fictional narratives. The findings obtained suggest that change in narrative knowledge can occur in a relatively short period of time, but intervention research on autobiographical narratives with low-SES children would suggest that changes in narrative knowledge do not occur as quickly (Peterson et al., 1999). Whether autobiographical narrative knowledge and fictional narrative knowledge are acquired at the same rate, whether they are influenced by the same types of interactions, and whether fictional narrative knowledge builds on children's already developed autobiographical narrative knowledge are critical questions that will need to be addressed in future research. The very limited and preliminary research suggests that there may be fundamental differences between the two types of knowledge. Sénéchal et al. (2008) did not find a relation between children's performance on an autobiographical story task and a fictional story task based on a wordless book prompt. Future studies are necessary to investigate whether children's ability to tell autobiographical stories and fictional stories reflects an overarching story schema.

Young children gain narrative construction knowledge from elaborative event conversations with learned adults (Peterson et al., 1999). However, most research on this topic has focused on event conversations that reference personal memories experienced by either adults or children. Although

narrative construction knowledge has previously been linked to reading and storybook experience through correlational research (Griffin et al., 2004; O'Neill et al., 2004), few studies have demonstrated that oral fictional storytelling skills could be improved by shared reading experiences. By expanding the current literature on dialogic reading and narratives (Zevenbergen et al., 2003), the current research contributes to the field by demonstrating that elaborative story conversations in the context of storybooks can improve children's fictional oral story construction.

Appendix A. Created texts for the retelling task using the wordless picture books of the Edmonton Narrative Norms Instrument

A.1. Short pool story designed for pretest

One day, Erica the elephant and Gerry the giraffe went to the pool to have a fun day of swimming and playing. While they were there, Erica and Gerry played with their bouncy ball near the pool.

Suddenly, the ball slipped out of Erica's hands and fell into the pool.

Erica and Gerry saw their ball floating away in the water. "Oh no!" exclaimed Erica. "I'm so clumsy! What will we do?" Erica and Gerry were very upset that they lost their ball.

Gerry decided to jump into the pool and attempt to get the ball. Swimming hard and fast, he swam to the ball.

"Hurray!" shouted Erica. Gerry had gotten the ball! Proudly, he gave the ball to Erica.

"Thank you," said Erica the elephant, gratefully. She hugged the ball happily.

Although very cold and wet, Gerry was glad that he made Erica happy and that he retrieved their toy.

Together, Erica and Gerry went back to playing with their toy. Only this time, they were very careful not to drop the ball! The end.

A.2. Short park story designed for pretest

One day, Robbie the Rabbit and Darla the Dog were playing in the park. Darla was building a sand castle in the sandbox. "Do you want to help me build a huge sand castle?" Darla asked Robbie.

"Sure!" replied Robbie. "I love building sand castles!" Robbie was very excited to help Darla build a sand castle. He filled an entire bucket full of sand. He planned to use the bucket full of sand to help Darla make her castle big and tall.

But Robbie was too excited! He forgot to be careful! He poured the entire bucket of sand all over Darla's sand castle by accident.

"Oh no!" exclaimed Robbie. "What have I done?" Because Robbie was not careful, he ruined Darla's sand castle!

"Robbie, how could you!" cried Darla. She was sad that her castle was ruined and began rebuilding right away.

Robbie felt very bad that he ruined his friend's really cool sand castle. Sadly, he watched Darla rebuild her castle, determined not to destroy it again. The end.

A.3. Long pool story designed for posttest

One day, Erica the elephant and Gerry the giraffe were spending the day playing at the pool. Gerry had a new toy airplane. "Hey Erica," he said, "I have a new toy airplane! It's really cool!"

Excitedly, Gerry showed Erica how he can make the plane fly through the air. "Zoom, zoom," he said as he flew his airplane. Erica thought Gerry's new airplane looked really fun and really wanted to play with it.

Erica wanted to play with the toy so much that she decided to take it from Gerry. "Hey!" said Gerry. "Be careful!"

But Erica was not careful. As she zoomed the airplane through the air, it fell from her hands and into the pool!

"Now look what you did!" said Gerry. He was angry that Erica dropped his toy into the pool. "Oops," said Erica, embarrassed. Both Gerry and Erica were unhappy that the toy was now lost in the pool and they couldn't play with it.

Then Lenny the lifeguard walked by. He saw the plane in the water and also saw that Erica and Gerry were very upset. "What happened here?" asked Lenny.

"I was playing with Gerry's airplane, and I dropped it in the pool!" cried Erica. "Can you help us?"

Lenny wanted to help Gerry get his toy back. "I will try to help!" he told them.

Lenny the lifeguard knelt and tried to reach the plane, but he couldn't because his arm was too short and the plane was too far away. "I'm sorry," Lenny told Gerry, shrugging his shoulders. "I can't reach your airplane."

Gerry started to cry. He thought his airplane might sink to the bottom of the pool and he might not get to play with it again. Erica felt very bad that she lost his plane.

Suddenly, Laura the other lifeguard arrived with a net. "Don't worry," she told them. "I will try to get your plane back with this net. It is longer than Lenny's arm!"

Laura the lifeguard used the net to reach into the pool to get the airplane. Laura gave Gerry back his airplane. "Here you go, Gerry." Gerry thanked Laura for getting back his airplane.

As soon as he had his plane back, Gerry hugged it happily. Erica was relieved that Gerry got his plane back and also that Gerry still wanted to play with her.

Together, they spent the rest of the day flying Gerry's brand new airplane. The end.

A.4. Long park story designed for posttest

One day, Darla the dog was taking a walk through the park when she saw her good friend Robbie the Rabbit. "Hey Robbie," she said. "Look at my bright red balloon!"

"Wow!" said Robbie. Robbie thought Darla's bright red balloon was really fun to look at and would be even more fun to hold!

Robbie decided to untie the balloon so he could hold it. Excitedly, Robbie started untying the string from Darla's wagon. Darla said, "Hold on tight! Don't let it fly away!"

But Robbie did not hold on tight enough. As Robbie let go of the balloon, it started to float into the air.

"Now look what you did!" said Darla. She was angry that Robbie let her balloon fly away. "Oops," said Robbie, embarrassed. He didn't mean to let go of Darla's balloon.

Just then, Robbie saw Bernie the balloonman. Robbie thought he could apologize to Darla by buying her a brand new balloon. Robbie asked Bernie if he could have the biggest, brightest red balloon that Bernie had.

"Sure, Robbie," said Bernie. "But you have to pay me a nickel to buy it."

"Oh no!" said Robbie. He looked in his pockets, but there was no money in them. He didn't have a nickel! He could not buy Darla a new balloon.

"I'm sorry, Robbie," Bernie said, "but I can't give you a balloon if you don't have any money. Rules are rules."

Robbie and Darla were both sad. Neither of them had any money, so they could not buy a balloon from Bernie.

Bernie wasn't happy either. He wanted to help Robbie buy Darla a new balloon, but he couldn't break the rules.

Suddenly, Robbie had a smart idea. He planned to ask his mother for the money to buy Darla a new balloon!

Robbie found his mother and explained to her how he accidentally let go of Darla's balloon and how he didn't have enough money to buy her a new one.

Robbie's mother agreed to help Robbie.

Robbie's mother gave Bernie some money. "I don't just want to buy a red balloon," she told Bernie. "I want to buy a blue one too!"

Robbie's mother bought a red balloon for Darla and a blue one for Robbie. They were both very happy because they each had their own balloon.

Robbie and Darla spent the rest of the day playing with their balloons. This time, though, they were very careful that they didn't let them fly away!

Appendix B. Books selected in the dialogic reading intervention

Arnold, T. (1987). *No jumping on the bed!* New York: Puffin Books.
Bogan, P. (2000). *Spike in the city*. New York: Puffin Books.
Freeman, D. (1978). *A pocket for Corduroy*. New York: Puffin Books.
Keats, E. J. (1964). *Whistle for Willie*. New York: Puffin Books.
Kellogg, S. (1971). *Can I keep him*? New York: Puffin Books.
Kimmel, E. A. (1990). *I took my frog to the library*. New York: Puffin Books.
McCloskey, R. (1948). *Blueberries for Sal*. New York: Puffin Books.
Wells, R. (1997). *Bunny cakes*. New York: Puffin Books.

Appendix C. Examples of a production and retelling narrative from one child from each intervention group

Example of the production story constructed by an alternative treatment child

The doggie was carrying a wagon that had a balloon on it. Then he was holding on. Then it flew away. Then there was a string piece. Then the person had a lot of. . .. He had a lot of balloons. Then he said, "Can I have one balloon?" Then he said, "No." Then he said, "No no." Then he said, "Okay." And then the bunny's walking. And then the other bunny was there. And the other bunny's walking. Then he said, "He didn't let me get a balloon. Then he said, "Oh, first give the money to him." Then they got two balloons.

Example of the retelling narrative constructed by an alternative treatment child

The elephant said, "Can I please play with your toy airplane?" And he said, "Yes." Then he showed her how the airplane worked. She really wanted to play with it. Then she grabbed it. Then it slipped from her hands and dropped in the pool. Then he started getting mad. Very mad. Then the lifeguard came with the hat thing. And they said, "We dropped the plane in the pool." And then he reached for it, but his hand was too short. He couldn't even get it. Then he start to cry and get sad. Then the other elephant tried to get it. Then she almost got it. And she got it. Then he started hugging it and stuff.

Example of the production story constructed by a dialogic reading child

There was a little girl that has a wagon. She had a balloon. She saw someone come. They said, "Hi." And the little girl said, "Hi." And her friend she saw the balloon on her wagon. And he was happy to see it. He liked it on her wagon. And he was trying it on the wagon. And the little girl was scared. Then the balloon flew up and up and up. And the little girl and they could not get it. And then they saw that the balloon was gone in the sky. Then the little girl was mad. And he was worried. And then the little girl's still mad. He saw someone holding balloons from the stash. He wanted one. Then he asked to the man if he could have one of the red balloons. And he looked on the ground. The man told him five dollars. He looked in his pocket. He did not see any. He just got one. And the man said, "Only one red balloon. Only if you have five dollars." The lady got five dollars in her little purse and gave it to the man. Then both the little girl and the little boy had two balloons that were the same color. And then he smiled at the little boy. And the lady smiled too. And they were happy that they got two red balloons for their selves.

Example of a retelling narrative constructed by a dialogic reading child

There was a girl named. . .. She was an elephant. She went to the pool. And her friend Jeremy, he had a new airplane. He has a new airplane in his hand. She was excited to see. And then

Gerry flew it all around. That she was afraid it was going to fall into the water. Then she took it out of Gerry's hand and played with it. And Gerry said, "Be careful." And then it fell in the water. And Gerry thought it was going to sink in the pool. And she was afraid that Gerry was going to be mad at her. Then he was mad. And she was scared that it was just a little accident. And he told her it looks like it threw it in the water. And now it looks like it's sinking all the way to the bottom of the pool. And then a man came over. He said, "What's happening?" And both of them did not feel happy at all. And she said she took it out of Gerry's hand and threw it into the water. And Gerry said to me that "It looks like it's sinking to the bottom of the pool." Then she said, "Can you help us?" And he said, "I might try." And then he reached to the airplane. And his hand wasn't bigger enough. So he said he couldn't do it. Then he said, "I can't do it." And then Gerry started crying. He said, "You sinked my airplane the bottom of the pool." So then a lady came over. She saw that the airplane was sinking into the water. She said, "Do not worry, I have a catch." And then she tried. She said, "This net is bigger enough." And she tried to catch it. And he was worried that's he could not do it. Then she did. She gave it back to Gerry. And then Gerry was happy to see he gots his airplane back. And then he was happy. He smiled. And then the both two was happy that they could play with it again. The end.

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