

**Discussing stories: Using a dialogic reading intervention to improve  
kindergartner's oral narrative construction**

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Masters of Arts

by

Rosemary Lever

Department of Psychology  
Carleton University

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Abstract

*Dialogic reading* is a shared reading activity meant to engage children in oral interaction during reading, using elaborative questioning techniques. The impact of an 8-week biweekly dialogic reading intervention on oral narrative skills was analyzed. Forty English-speaking senior kindergarten children, recruited from schools in low income neighborhoods, were assigned to either the intervention or control group. Intervention children attended 15 minute shared reading sessions in small groups. Control children received a non-reading based alternative treatment. ANCOVA results found that intervention children's posttest narratives scored significantly better on structure and context measures than the control group's, but results differed depending on whether narratives were produced or retold. No significant group differences were found on measures of language complexity or cohesion. Intervention children also showed expressive vocabulary gains. Overall, the study adds to the growing literature that interactive shared reading interventions can improve oral language skills of children from low income areas.

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## Introduction

Before commencing formal education, preschool children acquire an array of knowledge and skills that correlate with later literacy development and academic success, including phoneme awareness, functional knowledge about print and its relationship to sounds, and most interestingly, understandings about oral language (Purcell-Gates, 1988; Raz & Bryant, 1990; Storch & Whitehurst, 2002; Tunmer, Herriman, & Nesdale, 1988). Oral language is comprised of multiple components such as phonological knowledge, vocabulary knowledge, syntax, and narrative knowledge (Dickinson & McCabe, 2001). Through various means, children learn to convey novel information to audiences who are physically removed from the objects or events that are being described, and thus develop narrative knowledge. These children gain a narrative construction ability or the ability to produce and organize multi-phrase utterances into coherent, logical structures that are detailed and specific enough to be understood as a logical whole (Peterson, 1994). Limited evidence shows correlation coefficients that range between .39 and .57 for reading comprehension and the production of a fictional narrative (Griffin, Hemphill, Camp, & Wolf, 2004; O'Neill, Pearce, & Pick, 2004). Pre-school narrative knowledge is significantly correlated with later literacy, to the point that the narrative retelling skills of low income five- and six-year-olds predicted academic remediation (retention in grade level, enrollment in summer remedial programs or a diagnosis of a learning disability) in second grade, with narrative scores accounting for 16 percent of the variability (Fazio, Naremore, & Connell, 1996).

The development of the skills required to produce what one might consider a *good narrative* is more complex than the simple memorization of a word meaning, or the

learning of syntactic rules. Narrative ability is the complex synthesis of multiple levels of knowledge. Children need to acquire everyday knowledge of typical events often described within a narrative, linguistic knowledge of how to grammatically frame these events in varied and detailed ways, contextualization knowledge about a naive listener's lack of shared reference, and finally, temporal sequencing knowledge in order to plan the telling of events in chronological order within a narrative. Once knowledge in these areas has been attained, children can construct a *good narrative* by arranging complex and multi-phrase utterances about well-labeled characters and objects into a cohesive and chronological story.

As children encounter stories and narratives throughout their daily lives, they begin to organize the multiple levels of story knowledge required for story construction into a cognitive framework known as a narrative schema (Mandler & Johnson, 1977; Peterson & McCabe, 1983). Narrative schema consists of internalized representations of the story components deemed necessary to guide encoding for comprehension and retrieval for composition of narratives. These components reflect the development of children's structural, linguistic, contextual and temporal knowledge of how narratives are organized, descriptively detailed, framed in an understandable context, and chronologically presented. Young children's narrative schema consists only of the bare minimum awareness of each of the story knowledge areas. For example, a young child may be aware that stories are often structured to have an interesting outcome and also include exciting descriptors that make the story more linguistically complex. As children encounter more stories, the complexity of these schemas increases and all areas become encompassed. Narrative components such as the concept of main characters will be

categorized as highly important to the communication and understanding of the story and thus will be incorporated within the schema at a young age, whereas the inclusion of a temporal connective meant to indicate order of events into the schema only when other, more important components are understood, and thus will not be initially included within the story schema.

Support for the theoretical narrative schema resides in studies conducted by Stein and Glenn (1979) and Mandler and Johnson (1977). Stein and Glenn found that adults and children who are exposed to a narrative that does not include many of the components thought essential to a story will retell the same narrative to include these missing components. Further, Mandler and Johnson (1977) found that, despite being able to answer questions about the story components they missed within their produced narratives, first-grade children will systematically provide narratives that only include the bare minimum of story components that allow for a still comprehensible story. Although preschoolers' narratives reflect rudimentary narrative schemas that only incorporate the basic concepts of event knowledge (Stein & Levine, 1989), by the age of nine children's narratives demonstrate almost all structural, linguistic, context and temporal knowledge deemed necessary for narrative understanding (Berman & Slobin, 1994; Karmiloff-Smith, 1983).

The acquisition of the dimensions of story knowledge within the story schema begins before the introduction of formal education. Thus, story knowledge is not the direct result of explicit instruction. In fact, one of the best explanations of narrative schema development is through social interaction. As children interact with their social environment through dialogic encounters, they gain access to concepts of the discourse

and the oral expression of present wants and needs. Children learn that they can discuss events past, present, future or imagined with others, and how best they might communicate these topics during conversations.

However, narrative knowledge may also be developed through early storybook reading sessions, in addition to everyday discourse. In the context of a storybook, children are being exposed to pictures illustrating narrative structure and components such as setting, characters, events and depicted emotions, overall conclusions and so on. Incapable of independent reading, children are acquiring narrative knowledge through the social environment of shared reading. Interestingly, there is not much work linking children's narrative knowledge and book exposure. Moreover, it is reasonable to assume that the manner in which the book is read also affects children's acquisition of narrative knowledge, particularly as a significant interaction has been found between the quality of everyday dialogic conversations and children's narrative ability (Peterson & McCabe, 2004).

The goal of the proposed research was to investigate the hypothesis that the narrative skills of young children would improve when adults read to them in a dialogic fashion. Dialogic reading refers to a specific type of shared reading activity wherein the adult attempts to engage the child or children in oral interactions during reading, using elaborative questioning techniques (Whitehurst et. al, 1988). Because dialogic reading is social in nature and provides an environment for the development of language skills similar to everyday oral discourse, and because it is conducted in the context of a narrative based storybook, preschool children should gain narrative skills through their

involvement in a dialogic reading intervention, which would be reflected in typical narrative tasks.

With this reasoning, an eight-week dialogic reading intervention was conducted with forty low-income kindergarten children at their school. Children engaged in dialogic reading sessions in groups of two to four for fifteen-minute sessions twice a week for eight weeks. Improvements in narrative ability were measured using a narrative retelling task, whereby children were asked to retell a fictional story orally presented with a picture-book, and a narrative production task, whereby children produced a novel fictional story based on a wordless picture-book. Children's performances on both tasks were compared before and after the intervention to scores obtained by a comparison group who received training in early literacy.

In order to present properly the previous research and theories that lead to hypotheses about the effect of dialogic reading on narrative construction skills, the introduction was organized as follows. First, the definition of a narrative and narrative skills, as well as the components thought to reflect well-developed narratives are described. Second, the developmental stages of narrative construction are examined. Third, the social interactive context thought necessary for the development of these narrative skills is detailed. Fourth, the discussion on how children learn about narratives through dialogic social interaction is extended to the context of shared storybook reading. Fifth, the dialogic reading intervention literature is discussed in order to demonstrate how the quality of dialogue during shared reading can directly impact children's oral language skills. Finally, the tasks used to assess narrative ability and the procedure of the current study are outlined, thus demonstrating how and why it was expected that a school-based

group administered eight week dialogic reading intervention would significantly improve the narrative skills of five-year-old children.

### *Defining a Narrative*

A child's inclusion of typical narrative components in their storytelling reflects the developmental level of a child's narrative schema. By the age of nine, children are able to tell a *good narrative* or a narrative that includes all components deemed by Western culture to be essential to the understanding of the story.<sup>1</sup> To understand what these narrative components are, and what comprises a *good narrative*, it is essential to define a narrative. Labov (1972) defined the minimal requirement for a narrative to be two temporally ordered clauses that are intended to describe a past event. More generally, the simplest form of a narrative is at least two linked, multi-phrase, grammatical and sequential utterances that detail a protagonist, the actions of the protagonist, and the outcome of these actions (Stein & Glenn, 1979). The protagonist can be the storyteller or not, and the actions are autobiographical or not.

Even in its very basic form, the comprehension or production of the simplest narrative requires four types of narrative knowledge. Outlined by Hudson and Shapiro (1991), these four types are a) *content knowledge*, b) *structural knowledge*, c) *linguistic knowledge*, and d) *context knowledge*. More simply, children need to have *content knowledge* or generalized representations of typical events that may occur in a narrative. This content knowledge would develop from the specific episodic memories formed after

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<sup>1</sup> Concepts about what are a "good narratives" are not universal. Studies have that some other cultures have differing criterias about what constitutes a well-told story, and thus five-year-old children from other countries such as Japan have narratives that are qualitatively different than the children from Western cultures (Minami & McCabe, 1995). However, it is only the Western concepts of narrative quality that this study is interested in assessing, so therefore the connection between culture and narrative skills will not be discussed further.

perceiving an event, then later generalize to scripts for events, and eventually become schematic representations. Children also would have to have some knowledge about the *structure* of an event, or the organization of the content of the events, that would be involved within a narrative, such as an event starting with an initiating event, leading to a response to the event, than an action of the protagonist, a reaction to the action, and the outcome. Then, the children would have to have *linguistic knowledge* of how to use different words in a complex and varied way. Children would also have to have some *knowledge of context*, meaning that they would have knowledge about how to adapt complex and varied narrative to the context of the story telling, whether it is a personal-event narrative constructed within a discourse with a partner fully aware of the details of the event, or a fictionalized narrative created for a naïve listener.

Once children have fully developed these four areas of knowledge, it is generally believed that a child should be able to tell a *good story*. A *good story* should show evidence of all four levels of narrative knowledge, including *structure knowledge*, *content knowledge*, *linguistic knowledge* and *context knowledge*. That is, a *good narrative* would feature a plot structured in a chronological fashion that includes setting details, character descriptions, thematic information, chronology of events, reactive events and conclusions (Stein & Glenn, 1979). These components of a well-structured story are often defined as *story grammar units*. It would also demonstrate a complexity of language appropriate for the age level of the child, showing that the child has a grasp of grammatical rules and the ability to use varied language to phrase events (Purcell-Gates, 1988). A *good narrative* would also show some attempt to integrate the macrolevel elements of structure and content and the linguistic level of varied language into a

cohesive whole, using connectives such as *but, and, or* (Cain, 2003). *Contextual knowledge* would be demonstrated by decontextualized references that allow a naive listener to fully comprehend a narrative without shared knowledge about the plot that the child is attempting to describe (Hickmann & Hendriks, 1999; Wigglesworth, 1990). For example, as opposed to always referring to the main character with the pronoun *she*, a properly decontextualized first introduction of the character's name such as *Darla* or general noun phrase such as *a dog* would provide information about who the protagonists of the story are and provide understanding of subsequent contextualized references of *she*.

Some researchers contend, however, that there is another level of narrative structure knowledge that goes beyond the integrated description of temporally sequenced events in a contextualized setting. In order to create a good narrative, a child would have to interpret these events as they are experienced by the characters. Bruner (1986) argues that by providing the thoughts, feelings, and goals of the characters in the narrative, the children are offering a frame for linking actions and consequences and allow for an interpretation of intentions. Therefore, if a child has incorporated mental state references within his or her narratives, he or she has a better understanding of the importance of characters' mental states within the story to motivation and plot advancement, and therefore a better understanding of the narrative's structure or plot.

Obviously, the development of the ability to include all components within a narrative is a gradual process. As children are developing levels of narrative knowledge, they are also learning to combine words into phrases, and how to use language not only to communicate with others about present events, but past, future, and fictionalized

situations. Therefore, children's narrative schema for story understanding may be slightly more advanced than their actual ability to construct narratives. For example, while very young children may be able to use their knowledge of story grammars to comprehend stories (Mandler, 1984), they may not be able to use these story grammars to produce well-structured stories. It is not until the age of five and six that children are typically able to manipulate their narrative knowledge to produce narratives that contain all of the components of a *good story*.

### *The Development of Story Telling*

Prior to the emergence of good narrative skills at age five or six, children begin uttering primitive pre-narratives at around age two. At this age, children can connect more than two-word phrases, and can do so temporally. Specific evidence for this is seen in Nelson's (1989) investigation of a twenty-one month old child's bedtime speech, both during pre-bedtime conversation with her parents, and while the child monologically babbled while she was alone. Within these night time speeches, Nelson observed a genre of utterances that could be considered proto-narrative. Some examples would be when the child said a line such as *Carl come after my nap*. This sentence features two events, and a temporal marker that links them sequentially. Further, beyond bedtime talk, children as young as two can often recount information about novel or one-time past experiences, as part of their regular interactions with caregivers (Eisenberg, 1985; Miller & Sperry, 1988).

By age three, children are able to produce narratives containing the structural components necessary for the basic form of a narrative; that is, containing a complete episode with beginning, middle, and end or an initiating event, attempt, and outcome

(Stein & Levine, 1989). However, three-year-old children have not yet developed the skills necessary to produce good oral narratives. When Peterson and McCabe (1983) analyzed over 1100 personal event narratives of children between the ages of three and half and five, they found that three-year-olds were unlikely to achieve more than minimally structured narratives. Other studies have found three-year-old children's narratives to be rudimentary in structure, including only one or two referential statements, little orienting information, few evaluations (Miller & Sperry, 1988; Haden, Haine, & Fivush, 1997), and rarely any connectives beyond *and* (Cain, 2003) or any decontextualized references (Hickmann & Hendriks, 1999).

At age four, children are able to include more components of a *good narrative*, but do not yet provide detailed or comprehensive stories. Peterson and McCabe (1983) found that children produced lists of actions that attempted temporal structuring but that were generally disorganized. They also were incomplete in the amount of orientation and evaluative information provided. Haden, Haine, and Fivush (1997) found in a longitudinal study that children's narratives at four had become longer and contained more actions, descriptions, orientations, and evaluations than they had at three years of age. These stories are closer to a description of an event than a sequential story (Applebee, 1978), however, and still lack in cohesive ties (Cain, 2003) and decontextualization.

It is at age five that the children are able to produce narratives that are more properly structured and have a temporal sequence of events. While these narratives still end abruptly with an event and fail to have a proper conclusion (Peterson & McCabe, 1983), they are longer, and recount more actions and details of the event, as well as

include more and different types of orienting and evaluative information (Fivush, Haden, & Adam, 1995; Hudson & Shapiro, 1991; Kernan, 1977; Menig-Peterson & McCabe, 1978; Peterson & McCabe, 1983; Umiker-Seboek, 1979). By five, children should definitely be able to include narrative elements such as the story grammar units of setting, initiating events, attempts, and possibly outcomes (Stein, 1988), although the remaining story grammar units of internal responses, internal plans, and reactions, are references to internal mental states, are not regularly spontaneously produced until eight years of age (Stein & Glenn, 1982; Zevenbergen, Whitehurst, Zevenbergen, 2003). As well, while younger children have been found to use the connective *and* almost exclusively, older children include temporal connectives such as *then* and *but* in their more complex narratives (Cain 2003; McKeough, Davis, Forgeron, Marini, & Fung, 2005; Shapiro & Hudson 1991). Therefore, a child's narrative at age five approaches what would be defined as a *good narrative*.

The developmental addition of more and more aspects of narrative knowledge with age has been related to increases in processing capacity, according to Case's (1991) theory of cognitive development. Case suggests that children's limited working memory through development constrains when and what they are able to process. When encountering numerous stimuli in the environment, young children's limited processing capacity forces them to select the most salient stimuli to comprehend and ignore all others. With time and experience with these stimuli, schemas about the stimuli develop; as well, with time, children's working memory expands, allowing them to attend to more in the environment. A key point in Case's theory is that the development of schemas is probably biologically specified and constrained. Specifically in regards to narrative

schema development, Case suggests that a four-year-old's limited processing capacity or working memory allows them only to take away from a story knowledge about the barest structure of events. With age and more experience with social interactions involving stories, the expansion of processing capacity allows for a more complex understanding of narrative components.

A study conducted by McKeough (1991) to test Case's theory found that in a sample of children between the ages of four and ten, a positive correlation of  $r = 0.39$  exists between children's scores on tests of working memory and the structural complexity of their narratives. Thus, the more working memory capacity a child has, the better structured his or her narrative. This provides some evidence that children with greater working memory spans are able to incorporate more and different components of knowledge into their oral narratives. McKeough found a developmental trend in children's narratives that hints at an increase in narrative structuring skills as working memory increases. Using story grammars to discuss McKeough's findings, children at age four were able to generate the initiating events that begin the conflict of the story, but are unable to adequately depict the outcome events. At age six, children's working memory has undergone enough development to allow for the inclusion of outcome events within produced stories. At eight, children have the ability to include the attempts of characters to resolve the initial event, as well as the motivation behind these attempts. By age ten, McKeough suggests that children have a large enough working memory capacity to produce story components that are even more integrated and more elaborate, such that the story appears well-planned (includes a distinct beginning and end) and well-realized, with appropriate motivations and responses of the characters. Although it is difficult to

determine how much working memory is necessary in order for a child to add levels of narrative knowledge, Case's theory provides a biological explanation for the developmental trend in narrative composition.

The developmental trend of narrative ability, however, is not an entirely innate process; environmental factors can delay children's acquisition of narrative skills. Importantly, research on the link between narrative construction and social class finds that low-income children provide less developmentally advanced narratives when compared to middle-income children (Peterson, 1994; Hicks, 1991). Peterson (1994) found that economically disadvantaged children are less likely to use temporal or causal terms in their narratives than middle income children, and provided narratives with less new information. Further, while the lower socio-economic children (SES) were likely to have just as long narratives as the economically advantaged middle class, these long narratives were unlikely to be chronologically patterned, logical and sequenced (Peterson, 1994). Therefore, an intervention study aimed at improving narrative ability might be particularly beneficial to low-SES children because they may not have reached the level of typical five-year-old children. In the current study, children were recruited from schools in economically disadvantaged areas.

#### *Social Development of Narrative Ability*

The development of narrative skills in children is not a fixed process, and can be subject to environmental influence. This may be due to the theorized environmental acquisition of narrative ability. Most research has ascribed to the idea that the development of narrative ability occurs through social interaction (Vygotsky, 1978). Vygotskian theory suggests that parents *scaffold* their children into developing better

language skills, or in this case, creating better narratives. More simply, during dialogues with learned others, children encounter speech at levels above their own, and internalize the skills the others are using. Thus, children may learn their narrative ability from interacting with individuals whose ability is greater than their own.

Research focusing on mother–child interactions in middle-income settings has found that mothers tend to use one of two child-centered styles for eliciting narratives: *high elaborative style* or *low elaborative style* (Fivush & Fromhoff, 1988; Haden, Reese, & Fivush, 1997; Reese, Haden, & Fivush, 1993). Mothers who frequently ask their children to complete informal narrative tasks, such as summarizing their school day, retelling the story of a book their children, asking numerous *wh-questions*, and helping evoke rich detail, provide their children with *good narrative* groundwork (Fivush & Fromhoff, 1988) and are considered to be *elaborative*, or *topic extending* narrative elicitors (McCabe & Peterson, 1991). Children of these mothers are thought to learn how to organize and think about their own narratives in more elaborative ways. On the other hand, mothers are labeled *repetitive* or *topic switching* if they ask few and repetitive questions that are generally *yes/no* in nature while a child narrates (McCabe & Peterson, 1991). Children of these mothers tend to show impoverished narratives that are lacking detail and overall structure, with little or no plot resolution. Therefore, the parent’s style of narrative eliciting is directly related to the quality of the child’s narratives.

The possibility of a causal relationship suggesting mothers’ narrative eliciting style improves children’s narrative ability was investigated by Peterson, Jesso, and McCabe (1991). Peterson et al. conducted a narrative intervention for three- to five-year-olds by training mothers to ask more elaborative, open-ended questions while engaging in

personal-event narrative dialogues with children. Parents were told to engage in more *wh-questions*, ask fewer *yes/no* questions, and to use the repetition and rephrasing of children's utterances to encourage longer statements. Compared to a no-treatment control group, children's narratives about personal events were found to significantly increase in length and specific detail, particularly in contextual information. However, causation cannot be concluded from this study because parents in the intervention group were found to engage children in more narrative-eliciting conversations than parents in the control group. It is possible that improvements in narrative ability were therefore due to the intervention children engaging in more frequent narrative practice than the children in the control group.

However, Peterson and McCabe (2004) noted in their review of the research that parent scaffolds differ in other ways that may affect children's narratives. For example, if a parent scaffolded context details (such as who-what-when-where), the narratives the child provided showed a greater emphasis on these details than a child's whose parents did not focus on context. Alternatively, if a parent's questions emphasized plot structure, then a child will provide researchers with more cohesive narratives. In Peterson et al.'s (1999) intervention, it was found that parents who asked more context-based elaborative questions had children who provided more context-based detail in their narratives. Thus, a child's narrative construction can be predicted by the number and type of questions a parent asks.

The influence of parental conversation on narrative skills is most commonly used to explain the delay in story construction development in the lower economic bracket. Relatively uneducated and economically disadvantaged parents tend to engage in fewer

dialogues with their children than do higher SES parents (Gottfried & Gottfried, 2006). As well, a two year observational study of parent-preschooler interactions in the home found that parents in low-income households do not repeat, expand, or extend children's utterances in dialogues as frequently as parents in middle-income homes, nor do they encourage children to take turns during the conversations (Hart & Risley, 1992). Taken together, these findings suggest that it is less likely that economically disadvantaged parents are engaging in the frequency or quality of narrative dialogue that encourages narrative skills in young children.

Overall, current theory suggests that children are learning narrative skills through oral discourse. However, the results of Peterson and McCabe's (1999; 2004) studies are of particular interest because they suggest that the quality of the dialogue between the parent and child has a direct influence on the quality of a narrative that a child produces. The evidence, so far, is correlational and inconclusive, and consequently, the causal link between conversational style and narrative development has yet to be demonstrated. It is, nonetheless reasonable to hypothesize that adult conversational styles that emphasize story elements should enhance children's narrative knowledge.

#### *Shared Reading of Picture-books*

Shared book-reading between mother and child can be a dialogic environment that contains many opportunities for adults to scaffold narrative elements. In addition, the story in the picture-book can also provide exposure to narrative components such as characters' internal response to events. The illustrations in picture-books can foster the acquisition of narrative knowledge. Graham (1990) suggested that as the adult gives information about the pictures and the plot, the illustration in a picture-book can help

child understand narrative elements. For example, a mother describes a story about how a boy lost his frog while the child looks at the picture of a boy crying which can help the child understand the character's emotional response to an initiating event.

Although it is possible that children are gaining knowledge about narratives from the context of storybooks alone, a recent study by Sénéchal, Pagan, Lever and Ouellette (2008) suggests that mere exposure might not be sufficient. In a correlational study, Sénéchal et al. did not find an association between the frequency of shared reading at home and children's ability to produce narratives based on a wordless picture-books or personal events. This study, however, did not assess the quality of the parent-child interactions during shared reading. It may be the case that it is the adult's interaction style during shared reading that may enhance narrative knowledge. At the same time, one cannot assume that the type of joint, conversational activity that would best promote the learning of narrative skills is actually occurring during shared reading. Parents and other readers, it seems, may not naturally encourage these dialogic reading activities.

Whitehurst et al. (1988) investigated the natural reading behaviors of parents with their two-year old-children during shared reading activities. Results indicated that parents did not read dialogically to their children naturally. Whitehurst et al. found that mothers reading to their child asked mainly yes or no questions, and gave children directives requiring no response or a response to a direct command (i.e., *turn the page* or *you say giraffe*). They also engaged mostly in non-interrupted reading with the children. Reading dialogically, therefore, is not the type of reading that typically occurs during joint reading activities. This finding was confirmed by Huebner (2000), who found that in a group of 129 parents and their 2- and 3-year-old children, parents' baseline reading style included

few dialogic reading behaviors, and that parents most frequently engaged in reading the text directly without engaging the child in the story or the discourse.

*Dialogic Reading Interventions to Enhance Vocabulary Knowledge*

Most research on how shared reading can enhance language development has focused on vocabulary knowledge and most of this research has examined the impact of training caregivers to read to their child in a more interactive and dialogic manner. This research is briefly reviewed in this section.

With the knowledge that parents were not naturally interacting with children during shared reading activities in an optimal manner to promote learning, Whitehurst et al. (1988) designed an intervention meant to encourage dialogic interactions during story time. Over the course of four weeks, parents were either asked to read to their children in their normal manner, or were trained to ask evocative questions that encourage the child to speak more often. Techniques used to encourage oral contributions were the use of wh-questions and open-ended questions, to repeating, expanding, and recasting the child's speech in order to illustrate the difference between what was said and what could have been said, and providing praise and feedback contingent on the child's developmental level, so that the parent is not asking questions that are too hard or redundant for the age level. Parents in the experimental group were found to give significantly more praise to the children during reading, expand more on the children's input, and ask more open-ended questions than parents in the control group. This increase in scaffolding dialogue during reading did positively impact the children's language skills. In the intervention group, children's input during storybook reading was found to increase in mean length utterance and to occur more frequently. The number of one-word responses during the

shared-reading activity significantly decreased. Furthermore, significant gains were found for the experimental group from pre- to post-test measures on vocabulary as compared to the control group.

After these initial and promising findings, other dialogic reading interventions were conducted successfully in controlled school or daycare settings with positive language gains, and many of these were conducted with groups of children as opposed to one-on-one dialogic reading sessions. In fact, positive gains in expressive vocabulary were found in dialogic reading interventions with reading groups of up to eight children (Hargrave & Sénéchal, 2000; Lonigan & Whitehurst, 1998; Whitehurst, Arnold, Epstein et al., 1994). Furthermore, while Whitehurst et al. (1988) conducted their intervention with children at the two-year-old age range, other studies have found older children can benefit from this type of intervention. Lonigan and Whitehurst (1998), Wasik and Bond (2001), Whitehurst, Epstein, et al. (1994), Crain-Thoreson and Dale (1999), and Whitehurst, Arnold, et al. (1994) all found that dialogic reading interventions with three to five-year-old children showed positive effects on expressive vocabulary measures.

An interesting fact of the dialogic reading intervention research is that most of the studies included an alternative treatment comparison groups (Valdez-Menacha and Whitehurst, 1992; Whitehurst, Arnold, Epstein et al. 1994; Lonigan & Whitehurst, 1998; Arnold, Lonigan, Whitehurst & Epstein, 1994) rather than a regular reading group. However, the positive effects of the dialogic reading interventions still held when compared the interventions were actually compared to regular shared-reading groups (Wasik & Bond, 2001; Hargrave & Sénéchal, 2000; and Lonigan et al. 1999). Therefore, while most dialogic reading interventions do not use a regular shared-reading comparison

group, the positive effects of these interventions are in fact due to the dialogic nature of them and not to the act of reading with children alone. These studies confirm that the procedure selected by the current study, a dialogic reading intervention conducted over eight weeks should be an adequate time period to allow significant language gains in five-year-old children, and for them learn narrative language skills.

#### *Dialogic Reading Interventions to Enhance Narrative Knowledge*

While expressive and receptive vocabulary knowledge is often used as the dependent measures in dialogic reading studies, research on the effect of a dialogic reading intervention on narrative skills is limited. In fact, only one study has directly used a narrative task as a dependent measure in a dialogic reading intervention. Zevenbergen, Whitehurst, and Zevenbergen (2003) conducted a thirty-week dialogic reading intervention with 123 four-year-olds. This intervention was conducted as part of a larger Headstart preschool program, and contained two conditions: a regular dialogic reading group (Whitehurst et al., 1994), and a control group of children who were read to in a regular fashion as part of their daily activities. During the post-test, children were read a story based on twelve pictures, and were asked to immediately retell the story to the experimenter. Zevenbergen et al. (2003) found that four-year-olds in the experimental group included significantly more references to character's mental states as well and significantly more dialogue after receiving the intervention than did children in the control group.

Dialogic reading did, therefore, positively impact the narrative skills of preschoolers. However, Zevenbergen et al.'s (2003) study is limited in a few ways. For one, the researchers were primarily interested in investigating one area of narrative

knowledge; that is, how many mental state references were included in the children's narratives. Zevenbergen et al.'s investigation failed to determine if other significant effects were found on the quality of narrative structure as a whole, or on any measures of language complexity, context or cohesion.

As well, Zevenbergen et al.'s use of dialogue frequency as an assessment measure for narrative quality is questionable. Children at this age provide dialogue haphazardly throughout narratives, often repeating the same lines spoken outside of the dialogue again within the confines of the narrative. For example, a child might say *he let go of the balloon* and then immediately say, *he said, "I let go of the balloon."* This use of quotations does not seem to add anything to the story or move the plot anymore than without the quotations. Alternatively, children at this age may in fact detract from the progression of the story by reciting scripts of dialogue they have heard in everyday life at key moments of the story. For example, a child might be describing the moment within the long park story where the rabbit approaches the balloon vender to ask for another balloon for his friend, and proceed with the following dialogue between the two characters:

*he said, "how are you today." "fine how are you?" "good." "how to you find the weather today?" "it is very nice today."*

In this example, it is unclear the importance this exchange has on the story, or even which characters should be attributed the dialogue at which moment.

Finally, Zevenbergen et al. chose to use a retelling task rather than a production task to assess narrative skill. While retelling tasks are often used in narrative research, the heterogeneity of the research in the field leaves no clear conclusion about which narrative

task is the most appropriate to include in an experiment. The proposed study will extend the Zevenbergen et al.'s findings by assessing a greater variety of narrative components that affect narrative quality as and will measure these on the constructed narratives for both a retelling and a production tasks.

### *Narrative Tasks*

Within the field of narrative research, there has been no consensus on the type of narrative task that best exemplify a child's narrative ability. In terms of oral narrative skills, two main types of tasks dominate the field, namely, narrative retelling tasks and narrative production tasks.

Narrative retelling tasks are thus named because in this type of task participants are first told an oral story and then asked to retell this story at some point thereafter. While this main premise remains constant, the prompt, procedure, listener, time period, and media can all vary according. In any given retelling task, a participant could be asked to retell a story in the presence of a familiar listener (Merritt & Liles, 1989; Hesketh, 2004; Coelho, 2002; Swanson, Fey, Mills, & Hood, 2005), presence of naïve listener (Gazella & Stockman, 2004; Botting, 2002) based on a series of pictures or a picture-book (Hesketh, 2004; Botting, 2002; Swanson, Fey, Mills, & Hood, 2005), on a video (Merritt & Liles, 1989), a film strip (Coelho, 2002), on a purely oral narrative with no props (Ukrainetz, Justice, Kadervaek, Eisenberg, Gilam, & Harm, 2005), and so on. Sometimes, during a supposed retelling task no oral narrative or text is presented, and participants are asked to *retell* a story that is only illustrated through pictures; in cases such as these, the task is mislabeled, as no actual text is presented for the purpose of retelling and an original story is *produced* based on pictures alone. For the sake of an

unambiguous operational definition then the only tasks considered in the present review to be retelling tasks are those where a narrative with a concrete script is presented to the participants first.

Narrative production tasks, on the other hand, are tasks wherein a participant is asked to produce a novel fictional narrative based on an initial prompt. Similar to the retelling task, production tasks have a variety of contexts and methods that are not standardized. For example, participants who may be asked to produce a fictional story based on story stems (the first sentence of a story; Merritt & Liles, 1989; Trautman, Healey, Brown, Brown, & Jermano, 1999), one picture (Fiestas, & Peña, 2004; Hesketh, 2004; Coelho, 2002; Berman & Slobin, 1994; Swanson, Fey, Mills, & Hood, 2005; Ukrainetz, Justice, Kadervaek, Eisenberg, Gilam, & Harm, 2005), several pictures (Hickmann & Hendriks, 1999; Ukrainetz et al., 2005), a wordless storybook (Fiestas & Pena, 2004; Botting, 2002; Reilly, Losh, Bellugi, Wulfeck, 2004; Trautman, Healey, Brown, Brown, & Jermano, 1999; Ely, MacGibbon, McCabe, 2000; Davies, Shanks, & Davies, 2004), a video (Eaton, Collis, & Lewis, 1999) and so on. Personal event narratives can, and are, also considered narrative production tasks as participants are asked to produce a narrative not previously told by the experimenter. However, the quality of description and structure of a personal event narrative can vary solely depending on the quality of the memory associated with the event, and therefore is a more convoluted measure of narrative ability (Hudson & Shapiro, 1983).

As can be seen by the literature cited above, consensus on the type of task, even within the retelling or production genre, cannot be achieved. However, it seems ill advised to treat retelling and production tasks as interchangeable, or as tasks that elicit

the equivalent narrative skills. In fact, it seems that while scores on story retelling and story production tasks are often related (Merritt & Liles, 1989), performance on certain narrative measures may differ across tasks.

Merritt and Liles (1989) compared the performance of twenty language impaired 9-11 year olds and twenty normally developing 9-11 year olds on one type of narrative retelling task and one type of narrative production task. In this study, the narrative retelling task consisted of a four episode, twenty-eight clause text that was read aloud in conjunction with a black and white video that depicted the story. Children were asked to listen and watch the story, wait five seconds after the end of the video, and then to begin retelling the story as heard. For the story production task, children were read aloud three story stems that were the actual beginnings to multi-episode stories, and were asked to produce fictional narratives that would continue these stories.

The results indicated that both language delayed children and normally developing children found the retelling task *easier*, in that they performed better on all measures analyzed by the researchers during the retelling task than during the production task. The retold narratives for both groups contained significantly more clauses than produced narratives, and included significantly more structural components. Particularly, children included more events and more internal responses and the emotional reactions of the characters. Furthermore, the produced stories often included a greater amount of irrelevant details, more errors of reference and failures of word retrieval, indicating that the children were having more difficulty completing the task.

A similar finding was found when Botting (2002) compared the retold narratives to the produced narratives of ten-seven-year olds with language disorders. Botting's used

The Bus Story narrative retelling task (Renfrew, 1991), which consists of an examiner reading aloud a story that corresponded to wordless picture-book shown during reading, and requesting the children to retell the story immediately after the examiner finished. Botting's story production task consisted of asking children to produce an original story based on the twenty-four page wordless picture-book, *Frog, where are you?* (Mayer, 1969). Children were asked to first look through the pictures in *Frog, where are you?* and then asked to begin telling the story from beginning to end, whenever he/she was ready.

Botting's findings again indicated that, while children's narrative structure of the retelling task correlated with that of the production task, they still performed differentially on both the story retelling and the story production tasks. The children made significantly fewer tense errors on the retelling task than on the production task. Further, the production stories were shorter in overall number of words than the retelling task, although this difference was not significant.

One explanation for the observed difference on retelling versus production tasks is that there may be particular cognitive constraints that can make the resulting narratives produced qualitatively different. It is possible that children find retelling tasks easier because there they require less working memory (Hesketh, 2004). Production tasks are often too difficult for younger children as they are overwhelmed by the limitless actions/events to that could possibly be described, as well as the many options for describing them. This is evidenced in the fact that children often provide longer and more complex narratives when provided with a sequence of pictures as a prompt instead of a single picture (Spinillo & Pinto, 1994). It is possible that the working memory of these children becomes overloaded by the number of different options. As a result, a retelling

task could possibly be a less cognitively demanding task as the structure, plot, wording, and length of the narrative have already been provided, allowing the child to devote some of its processing capacity to including other components of narratives. Although preschoolers would not have the mental capacity to be able to memorize the narrative in order to recite the text back word for word, if some of the working memory load was relieved of the pressure to create an original plot to a story, then there may have been more available processing left to concentrate on descriptive language and mental state references.

Some results that agree with this assessment have been found. Retelling tasks can yield more utterances (Merritt & Liles, 1989), more internal response story grammar units as well as more reactions (Merritt & Liles, 1999), and more cohesive ties (Coelho, 2002; Trautman et al., 1999).

It is also possible that the cognitive skills required to construct the retold narrative may be much more related to comprehension of narratives than the skills required to produce the varied language, cohesion, and structure of a completely novel story. If this is true, children may include narrative elements in their retold narratives that they would not necessarily include in their produced narratives, simply because these aspects of the narrative are flagged as the most interesting/salient to comprehend. This theory finds its support in the greater amount of internal reaction/plan story grammar units found in retold stories than in produced stories (Eaton, et al., 1999). Typically, children do not include many emotional or mental state references in their novel fictional narratives (Schneider et al., 2002). However, emotional words and phrases are salient to most people, and also give explanations for a character's actions or the reason for the narrative

(Labov & Waletzky, 1967). It therefore makes sense that children would pick up on these phrases as important to comprehend and then retell in their understanding of narratives and their elements. Alternatively, children most likely learn earlier that the telling of narratives include the basic elements of a plot, the initiating-event-attempt-outcome structure. This may explain why there are typically more initiating events and outcomes in produced stories as opposed to retold stories (Merritt & Liles, 1989; Trautman et al., 1999).

Interestingly, one other difference between narrative retelling and production tasks is that children generally prefer production tasks over retelling tasks (Swanson et al., 2005). Given these differences between tasks, children's retelling and production of narratives are assessed.

### *The Current Study*

A dialogic reading intervention was selected for the purpose of improving the narrative construction skills of preschoolers from low-income households. First, the storybook context of shared reading highlights narrative concepts that a child can learn simply by investigating the pictures. Second, the communicative nature of shared reading allows a child to ask questions and receive answers on aspects not understood in the books. In clarifying what confusing concepts, children can better comprehend the narrative presented, and thus learn more about narratives in general. Finally, dialogic reading, as designed by Whitehurst et al. (1988), uses elaborative, open-ended questioning, recasting and prompts to engage children in oral conversation. Parents whose narrative eliciting style was associated with children's personal event narratives in McCabe and Peterson's (1999) study used identical approaches to elaborate and expand

on their children's narratives. If these elaborative techniques used during everyday dialogues can increase the productive quality of the types of narrative that occur in speech, then it stands to reason that the dialogic prompting that is occurring during dialogic reading can increase the quality of the types of narratives retold or produced in the context of a book. The study is also an expansion on Zevenbergen, et al.'s (2003) investigation of the effect of dialogic reading on several areas of narrative knowledge within a retold narrative, as a wider array of narrative measures are examined to determine quality of narratives produced, and two types of narrative tasks are used.

The current study investigates the effect of a dialogic reading intervention on narrative ability. Forty kindergarten children from low income neighborhoods took part in a literacy intervention. Twenty-one of the children were randomly selected to be part of the dialogic reading condition. Children in this condition had two fifteen-minute dialogic reading sessions with a trained experimenter per week in groups of one to four, for a total of eight weeks. A non-reading literacy intervention group acted as a control for this study. Children's narrative ability was tested using both a narrative retelling and production task, based on the wordless picture-books. The different components of narrative ability measured include structure, linguistic complexity, decontextualization and cohesion.

The dialogic reading intervention was selected to be eight weeks long as Huebner and Meltzoff (2005) found significant positive results after 8 weeks of a parent-administered dialogic reading intervention. Particularly, they found that children increased their number of words and mean length of utterance during shared reading. Therefore, not only is this a sufficient intervention period to significantly affect

children's language skills, but the children in Huebner and Meltzoff's study showed significant increases in measures of oral language that are also used to assess narrative ability. Therefore, whether dialogic reading significantly affects the narrative ability of kindergarteners should be apparent on the measures of language complexity such as the mean length of utterance and the number of different words used.

Five-year old children were selected for two reasons. First, dialogic reading interventions have previously shown language gains in this age group (Lonigan & Whitehurst, 1998; Wasik & Bond, 2001; Crain-Thoreson & Dale, 1999; Whitehurst, et al.; 1994); and second it is an age at which children are likely to provide enough components of a *good narrative* to adequately assess any significant changes in narrative ability over the course of eight weeks (Fivush et al., 1995; Hudson & Shapiro, 1991; Kernan, 1977; Menig-Peterson & McCabe, 1978; Peterson & McCabe, 1983; Umiker-Seboek, 1979). While the low-income five-year-olds investigated likely do not provide narratives of the same quality as those of middle income children (Peterson, 1994), their narratives should include enough information to adequately assess narrative ability changes. Further, it is important to provide this intervention for low income children, as they are a group at risk for delayed language development (Hargrave & Sénéchal, 2000).

Although Whitehurst et al.'s (1988) study was originally designed to be administered individually, the dialogic reading sessions were conducted in small groups. Studies since have found positive increases in language measures when the dialogic reading was administered in groups (Valdez-Menchaca and Whitehurst, 1992; Hargrave & Sénéchal, 2000).

The design of the present study included a control group that received an alternative treatment to dialogic reading, as is the typical intervention design in dialogic reading research (Arnold et al., 1994; Whitehurst, et al., 1994; Wasik & Bond, 2001). The alternative treatment was a phonemic awareness intervention.

To test whether the dialogic reading was delivered adequately, children's expressive vocabulary gains were measured to replicate the well-studied association between dialogic reading and vocabulary. Expressive vocabulary was tested through how well children learned sixteen unfamiliar target words that were inserted into the books read during the dialogic reading intervention. This method of testing expressive vocabulary has been used previously, and follows closely the method used by Sénéchal (1997) and Wasik and Bond (2001). As there were sixteen target words and eight books included in the study, two novel words were presented in each book, and each book was read twice. Sénéchal and Cornell (1993) found that children could comprehend novel words but could not produce novel words after a single exposure to a storybook, suggesting that the repetition of these books should increase the chances of children showing gains in expressive vocabulary. Experimenters involved in conducting dialogic reading sessions were also assessed for compliance through the observations of stranger using a checklist of dialogic reading behaviors.

The two narrative tasks included in this study were chosen from the large number of retelling and production tasks used in prior research. Particularly, the use of wordless picture-books as measures of fictional narrative production and retelling was appropriate for a dialogic reading intervention, as any gains in narrative knowledge during storybook reading should transfer to the very similar context of the wordless picture-book.

Furthermore, working memory constraints that children may have when confronted with the limitless possibilities during a production task should be controlled for when the children are presented with a concrete plot depicted in the picture-book. Working memory constraints should also be decreased during the retelling task, as the inclusion of pictures displaying the story read aloud will act as recall cues for the child, so that the entire plot of the story is not forgotten. As well, the wordless picture-books selected were standardized in length, and in the number of story grammar units included, which allows for better comparison of the two tasks.

The retold and produced narratives that resulted from the wordless picture-books at pre- and post-test were analyzed to assess all four levels of narrative knowledge. That is, structure and content knowledge were assessed using story grammar units, the linguistic quality of the narratives were assessed using measures of complexity of language, the integration of structure, content, and language was assessed using connectives, and the context knowledge was assessed through a narrative analysis termed anaphora. Due to the ambiguous effect dialogue has on the narrative quality, it was not included in the current study for analysis. The assessment of each of these components is described in the next sections.

*Narrative Structure and Content.* Previous research has illustrated ways that a child's narrative productions can be analyzed for quality. First, to measure a child's structural knowledge, one would analyze the narrative for the inclusion of an introduction, of setting details, character descriptions, thematic information, a chronology of events, reactive events and conclusions. Stein and Glenn (1979) called these aspects of structure *story grammar units*. Story grammar units are the basic elements of a story that

organize story events in a sequential and meaningful way (Stein & Glenn, 1979; Stein, 1988; Stein & Albro, 1997). The elements, or units, include core elements, or story grammar units that are considered essential to the production of even what one would consider a *poor narrative*. These core units are the *initiating event*, or the goal-directed event that initiates the story, *attempt* to obtain this goal, and *outcome*, or the outcome of the attempt to achieve the goal. Other elements that were deemed beneficial to the contribution of a well-structured story but not essential in their inclusion were multiple characters, references to *setting*, *internal response* to events, *internal plan* to achieve the goals, and *reactions* of the character(s) to the outcome. Therefore, once a child has learned the importance of setting, the children should be able to incorporate one or more of these elements into his/her narrative. The inclusion of these elements was assessed.

Internal response, reactions, and internal plan story grammar units were assessed separately from the total story grammar unit scores. Although part of the narrative structure analysis due to their classification as story grammar units, words or phrases that provide the emotional or mental state information about the characters in the narrative allow for an interpretation of character's motivations and intentions (Bruner, 1986). Therefore, if a child has incorporated emotional or mental state information within his or her narratives, he or she has a better understanding of why the events occurred, and therefore a better understanding of narratives themselves. Notability, dialogic reading was found to produce gains in mental state reference inclusion by Zevenbergen et al. (2003).

*Linguistic Knowledge.* Measures of language complexity that demonstrate a child's knowledge of the linguistic component of a narrative were assessed using the ratio

of number of different words spoken over total number of words, and the mean length of utterance. 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. Further, the mean length of utterance was calculated to determine whether the children were more likely to have longer and more complex sentences.

*Contextual Knowledge.* Context knowledge in narratives can be analyzed specifically by how decontextualized the language a child uses is. As most narrative production tasks require a child to tell a naïve listener a story, a concept described by some as discourse focus (Graesser et al., 2003) and to others as anaphora (Hickman & Hendriks, 1999). Anaphora is a linguistic term for an expression referring to another. This is in reference to the use of pronouns and definite articles throughout a story instead of character names and indefinite articles. When a character is introduced, it is appropriate to first mention this character by his/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/her *a rabbit* or *Sam*. Once a character has been introduced within the focus of the discourse, it is acceptable to call the bunny character *he* or *the rabbit*. Young children's, however, have difficulty with this grammar rule, and often assume shared knowledge with a naïve listener and introduce characters in their narratives as *he* or *she* (Hickmann & Hendriks, 1999; Wigglesworth, 1990).

*Cohesion Knowledge.* The integration of structure, content knowledge, and linguistic knowledge can be assessed by of counting the number and variety of connectives produced (Peterson, 1994; Cain, 2003; Peterson & Roberts, 2003). 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 may not only differ in the number of connectives, but also in the variety of connectives used. Therefore, appropriate use of cohesive ties was measured in the present study.

### *Hypotheses*

The main hypothesis of this study is that reading dialogically in small groups over a period of 8 weeks should enhance oral narrative and language construction skills of low-income five-year-olds. As the storybook context of the dialogic reading should provide an environment where children can learn narrative knowledge, and as the dialogic prompts outlined by Whitehurst et al. (1988) are largely similar to those used by elaborative parents in Peterson and McCabe's (2004) study, scores on all narrative dependent measures should be larger for the intervention group than the control in both the retold and produced posttest stories, when pretest scores are covaried out. Specifically, intervention children's narratives at posttest should include more story grammar units than were assessed in the control group's narratives than the control group, especially, more mental state references should be found, at least in the retelling task (Zevernbergen et al., 2006). Intervention children's narratives at posttest should also include more words, more utterances, longer mean length of utterances (Valdez-Menchaca & Whitehurst, 1992), higher type type/token ratios, and more and more varied connectives than the control group's. Finally, children's narratives at posttest should show improved anaphora scores as compared to the control group. Due to the possibility that the retelling narrative task is easier than the production narrative task (Hesketh,

1994), the retelling task may be more sensitive to the effects of the intervention, and scores may be better for all narrative measures on the retelling task than the production task. Both retold and produced narratives will be analyzed for differing effects of intervention on task. Further, a supplemental analysis will be performed to test the hypothesis that all children perform better on the retelling task than on the production task.

Finally, as this study is a dialogic reading intervention such as the one designed by Whitehurst et al. (1988) and implemented using conditions previously found acceptable by past research, it is expected that the positive increases in language skills found by past studies will also be found here. That is, the intervention children's expressive vocabulary scores, as measured by the insertion of words in the print of books read dialogically will be significantly greater than the control group's scores (Arnold et al., 1994; Whitehurst, Arnold, Epstein et al., 1994; Wasik & Bond, 2001).

## Method

### *Participants*

Forty English-speaking five-year-olds were recruited from senior kindergarten programs in Ottawa, Ontario, Canada. The senior kindergarten classrooms were specifically chosen from schools labeled *beacon schools* by the Ottawa-Carleton School Board, a term that refers to schools that are located in neighborhoods that primarily include higher concentrations of low-income households and a greater mobility of residents than neighborhoods for other schools in the school board district. Parent questionnaires were sent home with the children from these schools to ascertain the eligibility of the child to the study. Children were excluded from the available sample

based on the following criteria: hearing difficulties, enrollment in speech therapy, receptive vocabulary scores that were above or below 2.5 standard deviations of the mean, difficulty understanding instructions due to English as a second language, and exceeding the age limit of 86 months.

Selected children were randomly assigned to either the dialogic reading intervention group, or the phoneme awareness intervention control group, with a constraint on no significant differences in receptive vocabulary scores between groups. Preliminary analyses of children's receptive vocabulary were conducted using the Peabody Picture Vocabulary Test III (PPVT III; Dunn & Dunn, 1997). No differences on receptive vocabulary scores were found between groups prior to intervention ( $p = .542$ ). The mean PPVT standard score for the intervention group was 94.86 ( $SD = 14.11$ ) and was 97.47 ( $SD = 12.63$ ) for the control group.

Due to group reassignment error when dealing with attrition after pretest but prior to the intervention, uneven groups were created such that 21 children were assigned to the dialogic reading intervention condition, and 19 children were assigned to the control group. The dialogic reading intervention group consisted of nine boys and twelve girls, with an age range of 5;3 to 6;2 years of age at the date of posttest ( $M = 5;8$ ,  $SD = 3.4$ ). Parental education of this group ranged from not having completed high school to having postgraduate studies, although the median level of education attained by parents in this group was a college degree. Parents of the children in this group reported income levels that ranged from zero to more than 80 000 annually.<sup>2</sup> However, despite the fact that the median household income of children in the intervention group was 40 000 to 60 000

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<sup>2</sup> While all parents were asked to report their income levels, some refused. Therefore, descriptions of the economic status of the sample were based on  $N = 14$  for the intervention group and  $N = 15$  for the control group.

dollars annually, most parents in this group reported either annually earning zero to 20 000 dollars annually or 60 000 to 80 000 dollars annually. As well, nine out of 40 (22.5%) of the children in this sample were from homes where English was not the language spoke most often at home<sup>3</sup> and four of these children came from homes where another language besides English is spoken most often..

The control group consisted of nine boys and ten girls, between the ages of 5;3 years and 6;5 years of age at the date of posttest ( $M = 5;7$ ,  $SD = 3.9$ ). Parental education of this group also ranged from not having completed high school to having postgraduate studies, with the median level of education attained by parents in this group being the completion of a college degree. Parents of the children in this group reported income levels that ranged from zero to more than 80 000 annually, with the median household income of children in the intervention group between 40 000 to 60 000 dollars annually, and most parents reporting an annual income of zero to 10 000 dollars. As well, six of the children in the control group came from homes where another language besides English is spoken most often.

Additionally, it is interesting to note that although the overall sample demonstrated a mean PPVT score of 96, the standard deviation was 13, and the range of scores was 57 to 121. This wide range of vocabulary scores indicates that some children in the sample are at risk for language delays, which is a typical finding when studying children from low income areas.

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<sup>3</sup> Information on language spoke most often at home was missing for 2 children. Therefore, descriptions of children who may be English as a second language the sample were based on an  $N$  of 36.

*Pretest/Posttest Measures*

*Narrative measure.* Narrative ability was measured using the Edmonton Narrative Norms Instrument (ENNI; Schneider, Dubé, & Hayward, 2002). The ENNI is a storytelling assessment tool for children aged 4 to 9, and normed 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 that depict black and white illustrated animal characters in an obvious conflict-based plot. These pictures are presented, with permission from the author, in Appendices A. One set is illustrated to depict stories about a giraffe and elephant at a pool (pool series), and the other is illustrated to depict stories about a mouse and a dog at the park (park series). Each set contains a short picture-book and a long picture-book. The short picture-books are five pages in length and depict one complete story grammar episode. The long picture-books in each set are fourteen pages long and contain three complete story grammar episodes about the same two main characters, with an additional two characters added in the second and third episodes. Children were asked either to produce an oral fictional story based on wordless pictures, with the examiner acting as an audience, or to retell a narrative that has been first read aloud by the examiner, again with the examiner as the audience.

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 original narratives. For the retelling task, texts were created that correspond to the pictures for the pool books (short and long) and the park books (short and long). Both texts are provided in Appendix B. The texts describe

the plot of the books, and include the appropriate number of story grammar units that are meant to be depicted in each story. The texts created for the two short books were designed to be comparable in length, description, dialogue and emotive language. The same was true for the two longer story books.

In the narrative retelling task, the participants were expected to listen carefully to the examiner-created story that is read aloud to them. Immediately afterwards, the participants were asked to retell the same story back to the experimenter, and were told that their versions of the story would be audiotaped. The experimenter held the book facing the child and told the child that he/she cannot see the pictures nor could the people who would listen to the tapes, so they had to tell the story really well to be understood. If the child had trouble beginning the narrative or stopped halfway through, 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 such questions 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 another book and told that they were required to create their own story based on the pictures. 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 he/she cannot see the pictures nor

could the people listening to the tapes, and that he/she could not properly understand the story if it was not told well.

*Receptive vocabulary measure.* The Peabody Picture Vocabulary Test III (PPVT III; Dunn & Dunn, 1997) is a measure of children's receptive vocabulary. Children were asked to select which of four alternative pictures, displayed in a grid, best represent the word spoken by the experimenter.

*Expressive vocabulary measure.* Expressive vocabulary gains for the intervention group were measured by asking the children to label target words found in the text of the books read during the dialogic reading intervention. This method follows closely that used by Sénéchal (1997). Sixteen target words, assumed to be unknown to children at the age of five and that were illustrated in some way in the books that were read, were chosen from a vocabulary list provided by *Read Together, Talk Together*. This vocabulary list is a list of words found in the text of the books that children are meant to learn during shared reading. These target words were unfamiliar words that represent familiar concepts to the children. For example, words such as *satchel* for bag or *fedora* for hat were used. All 16 words are presented in Appendix D.

At pretest, the target words were tested by showing children line drawings of each target word. After the eight-week intervention, children were asked to label the line drawings again. As it is possible that children produced synonyms in place of novel words learned if asked to label unfamiliar drawings of the words (Sénéchal and Cornell, 1993), synonyms of words were noted and children were asked if they knew another name for that concept. The use of pictures line drawings was essential to determining whether vocabulary learned could be generalized to contexts outside of the books.

*Alternative Treatment Assessment Measure.* Children in the control group were assessed for cognitive gains based on the phoneme awareness intervention, or the alternative treatment. The Blending Words subtest of the Comprehensive Test of Phonological Processing (CTTOP; Wagner, Torgesen & Rashotte, 1999) assessed children's awareness of phonemes by asking them to rejoin a word separated into its phonemes. Children listened to the headphones of a CD player, and a female voice said the separated words aloud. There were 20 items in all; and testing ceased once children made three consecutive errors.

### *Intervention*

*Books.* Eight books have been chosen from the selection of 10 books included in *Read Together, Talk Together* kit (RTTT; Pearson Learning group, 2006). *Read Together, Talk Together* is a dialogic reading kit that was designed on the research conducted by Whitehurst. It includes 10 colorfully illustrated children's books, appropriate for the age level of 4-5 years old. The titles of the chosen books are presented in Appendix C. Pamphlets were included for each book that detail lists of fifteen dialogic questions that can be asked during the reading of the books, as well as a list of vocabulary words children are expected to learn from the book readings. The books were chosen from this kit in order to standardize the dialogic prompts used during each reading session. Prompts were chosen from the fifteen given, and pasted on the appropriate pages within the storybooks, to ensure standardization and compliance to the dialogic reading method. These prompts were elaborative questions chosen from this list as they were best related to the learning of narrative knowledge. That is, the questions referred to plot, setting, evaluation of characters, and so on. They were also chosen with reference to

Peterson and McCabe (2003) to ensure they are the types of elaborative questions that best promote narrative knowledge. These questions are meant to be used in addition to the spontaneous repetition, expansion, and recasting of children's oral contributions.

From the 10 books in the kits, books were chosen based on the following criteria: a) colorful illustrations provided for narrating the story without complete reliance on the text; b) storybooks with obvious narrative plots that follow the typical initiating event-attempt-outcome chronology that has been outlined by Stein and Glenn (1979); c) no alphabet books or nonfiction books that do not contain plots; and d) books were not holiday specific (for example, based on Christmas events).

These books were read twice to the children over the intervention period, such that a new book was read during each storybook session until the fourth week when the books were repeated in the same order.

*Dialogic reading intervention group.* Experimenters were trained to administer the standard dialogic reading intervention (Whitehurst et al., 1988; Whitehurst et al., 1994) during a one-hour group session. This session focused on the more advanced interaction techniques appropriate for children of the 4-5 year old age level (Whitehurst et al., 1993). Experimenters were first shown a fifteen-minute teacher video provided by the *Read Together, Talk Together* kit which depicts real-life examples of teachers using the dialogic reading prompts effectively. Then, experimenters reviewed the standard lists of prompts included in this type of intervention, and participated in role-playing scenarios to familiarize them with the techniques. Overall, the training sessions taught examiners how to introduce the children to the idea of participating in shared reading during story time by labeling nouns and actions in pictures, as well as taking turns orally contributing

to the narrative. 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) praise 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 children to produce multiword expressions and to learn story structure and to overall ensure the enjoyment of the children during storybook reading (Whitehurst, Arnold, Epstein, Angell, Smith, & Fischel, 1994).

In combination with the elaborative questions included in each storybook that were carefully selected to emphasize narrative components, experimenters were taught to expand on the children’s responses in specific ways to emphasize all four levels of narrative knowledge. In order to emphasize plot structure, experimenters were taught to sometimes rehash the entire plot of the story when expanding on the children’s responses. For example, if a child’s answer to the question *what is Corduroy looking for?* was *a pocket*, an experimenter would be encouraged to rephrase the answer in a manner such as, *That’s right, Corduroy heard Lisa’s mom tell Lisa that she should empty her pockets and Corduroy realized he didn’t have pockets, so he is looking for some material to make a pocket with.*

Similarly, in order to emphasize the importance of language complexity and description, experimenters were asked to include adjectives in some of their responses. For example, if a child was asked, *What does Walter hear before going to sleep?* and responds with the answer, *Delbert jumping on the bed*, an experimenter might respond

with *That's right, Walter hears Delbert loudly jumping on the bed.* The inclusion of the adjective *loudly* emphasizes the need to include descriptions within the narrative storytelling.

Cohesion-based expansions were provided by the experimenters when they were asked to add connectives to the children's responses. For example, if a child was asked, *where does Sal look for her mother,* and responds to the question with, *behind a rock,* an experimenter might expand on this response with *That's right, Sal first looks for her mother up on the hill,* and then *she looks for her behind a big rock* in order 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, if a child is asked, *what is Corduroy looking for?* and responds with *he is looking for a pocket,* the experimenter might reply by replacing the ambiguous *he* pronoun with the name of the character, such that the response would now look like, *Corduroy is looking for a pocket.*

For the interventions, the three interveners read dialogically with children in groups of one to four for two twenty-minute sessions a week for eight weeks. Each session began with a letter game meant to improve alphabet knowledge, followed by a word exposure task using the training words found in the phoneme awareness intervention tasks, and then children were read with dialogically for the rest of the session. During the readings, questions relating to the words tested by the expressive vocabulary measure were emphasized, such that the definition of the word was given, and children were asked to repeat the correct vocabulary term.

*Control group.* Children assigned to this control group received an 8-week phoneme awareness intervention as an alternative treatment, which consisted of two sessions per week. 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, using the first 10 of the 40 training words (in picture form), in the same order and at the same frequency as in the invented spelling group (i.e., 5 words per session, each repeated twice and used for 2 consecutive sessions). Each child was given a sheet with the appropriate picture along with 3 others. For each word, the children were asked to circle the pictures that started or ended the same. The instructor then offered individually tailored corrective feedback, modelling the correct answer as necessary. Each trial was then repeated.

*Compliance.* Observations of each of the administrators were made during the intervention to confirm that the experimenters appropriately administered dialogic reading techniques during shared reading. For each intervener's tenth and eleventh sessions, an observer visited the schools and unobtrusively documented key features of the interactions between experimenter and the children in her/his assigned group. Observers looked for the involvement of all children in the sessions, the various types of expansion feedback provided by the experimenters to complete the children's responses, and positive encouragement. Finally, all administrators were provided with logbooks listing the titles of the eight books, wherein they recorded the date each book was read, followed by the book title, attendance, and any disruptive behaviors that occurred during a session.

*Design*

As indicated previously, participants recruited were randomly assigned to either the dialogic reading group or the control group, with constraint on vocabulary scores. Between subjects ANCOVAs analyzing group differences on the each dependent variable were conducted on posttest, where pretest scores and any other correlating variable were used as covariate. Further, t-test comparisons of retelling and production scores, collapsed across groups, were conducted on pretest and posttest scores. As well, pretest/posttest ANOVAs were conducted on measures of expressive vocabulary and the alternative treatment.

*Procedure*

The pre-testing of children took place prior to the onset of the intervention. Receptive vocabulary scores and alternative treatment measures were collected in the fall of 2007. Production and retelling tasks were conducted in late January, 2008. Post-testing occurred during the two weeks immediately following the intervention. Experimenters conducting the posttest were the same experimenters who conducted the intervention; these testers were not familiar with the children, and had no knowledge of group assignment.

Within narrative pre-testing sessions, children were asked to complete the retelling narrative first and production task second. This was due to evidence suggesting that the retelling of a previously heard narrative is easier than producing an original, novel narrative (Hesketh, 2004). However, preliminary analysis of the pretest narratives did not indicate to be the case; therefore, the order of the retelling and production tasks

were counterbalanced on posttest. Post-testing occurred during the two weeks immediately following the intervention.

During the pretest, the assignment of books to task was counterbalanced across subjects. Half of the children in the dialogic reading intervention group 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 control group. This counterbalancing prevented bias on narrative scores based on one book plot versus another. Order of retelling and production tasks were counterbalanced within sessions as well.

Notably, the short storybooks were used to prompt narrative construction during pretest, and the long storybooks were used to prompt narrative construction on posttest. This was due to the limitations of using the Edmonton Narrative Norms Instrument, which only includes four possible book choices. Although the short and long storybooks are meant to depict different levels of plot difficulty in their pictures, it is argued by the researchers that the additional pages, characters and plot information will not significantly influence children's narrative ability at this age level, particularly as both levels of storybooks are appropriate tasks for children at the age of five. As well, McKeough (1991) found that quality of a story's structure provided by four-year-olds was not affected by the number of characters in the story, contrary to the intuitive belief that generating stories with multiple characters is more demanding. Furthermore, analysis of the narratives produced by the short and long pool picture books by three- to five-year-olds in a previous study suggests that children who produced well structured, descriptive, and cohesive stories for the short picture-books were likely to produce well-structured,

descriptive and cohesive stories for the long picture books (Sénéchal, Pagan, Lever, & Ouellette, 2008). It was therefore decided prior to data collection the analysis would be conducted on the entire pretest narrative (which is one story grammar episode in length and a total of five pages) to the entire posttest narrative (which is three story grammar episodes in length and a total of fifteen pages).

During the eight-week intervention, two sessions of dialogic reading were held twice a week in groups of two to four children for twenty minutes<sup>4</sup>. One book was read per session, and after all eight books were read by the fourth week, they were repeated for a second time in the same order. Children in all groups were exposed to the same books.

#### *Data Preparation*

All narrative ability tasks were recorded onto audio disks for later analysis. The audio files of narrative tasks for each child were transcribed according to the Conventions for the Human Analysis of Transcripts (CHAT) (CHILDES; MacWhinney, 2000). The Child Language Analysis (CLAN) program available from the Child Language Data Exchange System (CHILDES; MacWhinney, 2000) is an analysis program that can be used to obtain measures of language complexity and story cohesion. Measures of narrative structure were analyzed using the story grammar unit scoring system outlined in the ENNI (Schneider et al., 2002).

#### *Narrative Analysis*

Children's resulting narratives were scored on four dimensions, namely, story grammar units, language complexity, cohesion, and anaphora. Coders were naive to the children's group assignment. Each dimension is described in turn.

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<sup>4</sup> On occasion, absenteeism resulted in dialogic reading sessions conducted with only one child. However, for the majority of the eight weeks, all children received the intervention in groups of two or more.

*Story grammar units.* Each produced and retold narrative was coded for story grammar units, as per the instructions of the ENNI (Schneider et al., 2002). However, several experimenter created additions to the ENNI's coding instructions were made for the purpose of the study. For one, while a scoring sheet for story grammar scoring of the pool series was provided by the ENNI, one was not provided by for the park stories. Therefore, a guideline for the park series was created based on the one provided for the pool stories. This guideline is provided in Appendix E. Furthermore, although beginning and closing statements are traditionally included in story grammar analysis (Stein & Glenn, 1979), the ENNI does not include these story grammars in their coding guidelines. The guidelines for coding these two story grammars were provided in Appendix F.

When stories were coded, the story grammar units evaluated were: formal beginning statement (2), informal beginning statement (1), character (1), setting (1), initiating event (2), internal response (1), internal plan (1), attempt (2), outcome (2), reaction of the character (1), formal closing statement (2) and informal closing statement (1). The units "Initiating event," "Attempt," and "Outcome" are considered core SG units and thought to be essential to the creation of a good story; thus, they are scored higher than the other units. Total scores for the story grammar units per narrative were calculated. For the shorter picture-books, the single episode allowed a maximum potential total score of 20. The longer storybooks incorporated three complete episodes and thus more instances for story grammar units, to a maximum potential score of 46.

In addition to the scoring above, another score was computed for mental state references. The number of mental state references such as internal response, and internal plan were compared across groups and across narrative tasks.

One researcher was responsible for the coding of the story grammar units. Inter-coder reliability was ensured by asking another researcher to code 15 percent of narratives coded. Agreement rates of story grammar units were 100% for the story grammar units *setting, characters, initiating event, outcomes* and *closing statements*, between 80 and 100% for *beginning statement, internal responses, internal plans, attempts, and reactions*.

*Language complexity.* The following length measures were calculated for each narrative: total number of words, total number of different words, number of utterances, mean length of utterance (MLU) and type-token ratio (ie., 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 child's narrative language.

*Context.* To assess story microstructure, the ENNI includes a measure of anaphora or decontextualized language Schneider et al. refer to as *First Mentions*. This analysis can be used to evaluate the 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 (the elephant, Ella, she), objects (the train, it), places (the park, there) and concepts (an idea). These expressions are considered adequate if they are appropriate for the listener's knowledge, that is, that they are decontextualized and fully understood by a naïve listener. 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, while the definite article *the* preceding *elephant* or the pronoun *she* would only be appropriate for a second or third mention of the character later in the story. Each mention of the characters will be

scored with a 1, 2, or 3, according to how appropriate the phrase used was for its position in the narrative, and a standardized score will be calculated.

*Connectives.* The frequencies of connectives used by the children in each narrative were analyzed. There were three categories of connectives that were coded (Shapiro and Hudson, 1991; Cain 2003). The first were independent connectives, or connectives that join together two independent clauses. These may be additive connectives, or connectives that simply add two clauses together such as *and*; or continuative connectives, or clauses that suggest the first independent clause is continuing into the second, such as *now*.

The second type of connectives are temporal connectives, or connectives that provide knowledge about the sequence or chronology of the clauses, such as *then*, *later*, *first*, *next*, *as soon as*, and *while*.

The third type of connectives join dependent clauses; in other words, connectives that join secondary clauses that depend on the first, and therefore contribute to a more complex sentence structure. Some kinds of dependent connectives are adversative connectives that connect clauses with contrasting meanings, such as *but*, and *or*, and causal connectives that express a cause and effect relationship between clauses such as *because*, *if*, *so*.

Frequencies were calculated for each individual connective, and these were added together to calculate the total number of connectives for each story. Then, the number of different connectives used throughout a narrative was coded.

*Intervention Control Variables*

Several extraneous variables were measured due to their potential impact on intervention results. These variables were measured as control variables and were covaried out of the analyses if significant variance could be attributed to these variables. It is hoped that removing these variables would create a clear picture of the intervention impact itself by controlling for variance due to intervention methods, environment, or variability in children's engagement within session groups. These control variables included: intervener (researcher responsible for intervention instruction); school (from which children were selected); post tester (researcher responsible for post testing); family income level; age at time of posttest session; book used for narrative tasks (pool or park book for either production or retelling task); order of narrative tasks (receiving production or retelling task first); attendance (number of intervention sessions each child received); clinical notes (ratings of disruptive behaviors that a child may show throughout the duration of the intervention on a scale from zero to seven, with zero equaling a child who is not at all disruptive to six equaling a child who is the most disruptive<sup>5</sup>) and disrupted sessions (the number of sessions where a child showed poor or disruptive behavior that interrupted the progress of the session). Means for all continuous and ordinal control variables can be found in Appendix G.

The number of disrupted sessions was the only control variable that was found to be significantly related to a dependent measure, such that the number of disrupted

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<sup>5</sup>The scale ranked a child's tendency toward disruptive behavior on an increasing scale. Points on the scale are as follows: zero was equal to a child with no issues, one was equal to a child with attentional problems, two was equal to an uncooperative child, three equal to child who needed constant reprimanding for poor behavior, four was equal to poor behavior leading to missed sessions, five to needing more attention than the other children in the group, and six being a child with multiple issues such as attentional problems, a need for constant reprimanding, etc).

sessions significantly correlated with mean length of utterance on posttest in the production narrative ( $r = .32, p = .050$ ). Therefore, in all following tests conducted using the mean length of utterance in the production narrative, the number of disrupted sessions will be used as a covariate. All other relationships were non-significant ( $p$ s ranged from .064 to .942).

Further, all measures of narrative skills used were language-based measures. As such, it was important to ensure that significant differences found were not based solely on the receptive and expressive vocabulary skills of the children. The PPVT raw scores collected at pretest was used as a measure of the children's receptive vocabulary for this study and the created expressive vocabulary task as the expressive vocabulary task, and both were correlated with all dependent measures prior to further analysis. No significant correlations were found between the expressive vocabulary task and the dependent measures. The PPVT raw scores were found to significantly correlate with mean length of utterance on production posttest ( $r = -.56, p = .001$ ), story grammar unit total scores on production posttest ( $r = .39, p = .014$ ), anaphora on production posttest ( $r = .31, p = .049$ ), and the number of different connectives on production posttest ( $r = .41, p = .009$ ). Again, any further analysis conducted with these dependent measures was covaried out the impact of PPVT on the results.

## Results

### *Preliminary Analysis*

While all children were tested on all measures, data loss resulted from technical error during both pretest and posttest. As a result, three children per group were missing narrative data on pretest, and another child in the control group was missing the retelling

narrative data on posttest. Given the repeated measures design of the study, missing data was replaced using the familiar full information maximum likelihood estimation. This method is recommended by McCartney, Burchinal, and Bub (2006) for use when the amount of data missing is large but other raw data from related variables were collected on the participants. Estimated scores for missing data on pretest were based on the child's own scores on PPVT and expressive vocabulary. On posttest, the scores for the one child missing the retelling task were based on the production narrative scores, due to the high correlations between production and retelling narrative scores on posttest ( $r_s = .32$  to  $.88$ ,  $p = .05$ ). 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 intervention child's pretest narratives were significantly lower than all other children on story grammar units, thus 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 participant's 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 through univariate between-subjects ANOVAs to ensure no group differences prior to intervention on either production or retelling narratives. Results revealed no significant differences ( $p_s = .102$  to  $.875$ ) between groups on measures of structure, language complexity, context, or cohesion on pretest, despite superficial differences in the pretest

mean scores that suggests a trend towards higher scores in the control group as compared to 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 ANCOVAs with Group as a between-subject factor were conducted on each narrative posttest task separately to test the hypothesis that dialogic reading would increase children's narrative abilities as compared to the control group. Pretest scores were covaried out of the analyses, to prevent bias on posttest scores due to the control group's non-significant higher scores on pretest. As well, any variables that were significantly correlated with dependent measures prior to the analysis and that

Table 1  
*Means and Standard Deviations on Narrative Pretest Measures as a Function of Narrative Task and Intervention Condition*{ XE "Table 1" }

Variables	Production				Retelling			
	Intervention		Control		Intervention		Control	
	M	SD	M	SD	M	SD	M	SD
<b>Structure</b>								
Story								
Grammar								
Unit Total								
Raw								
Scores <sup>1</sup>	9.39	3.63	9.88	3.52	9.39	3.74	10.25	3.24
Mental								
State								
References <sup>2</sup>	0.41	0.65	0.32	0.44	0.52	0.66	0.55	0.58
<b>Language Complexity</b>								
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								
utterance	6.44	1.84	6.79	1.39	6.56	0.04	6.12	0.04
<b>Cohesion</b>								
Number of								
Different								
Connectives	2.00	1.33	2.38	1.50	2.22	1.21	2.13	1.31
<b>Context</b>								
Anaphora	6.72	2.11	7.25	1.77	6.72	2.49	7.00	1.67

*Note.* Scores were based on the sample without missing data replaced. *N* of intervention group = 18; *N* of control group = 16.

<sup>1</sup>Maximum score = 46.

<sup>2</sup>Maximum score = 6.

Table 2  
*Means and Standard Deviations on Narrative Posttest Measures as a Function of Narrative Task and Intervention Condition*{ XE "Table 2" }

Variables	Production				Retelling			
	Intervention		Control		Intervention		Control	
	M	SD	M	SD	M	SD	M	SD
<b>Structure</b>								
Story								
Grammar								
Unit Total								
Raw								
Scores <sup>1</sup>	26.76	6.80	23.95	3.52	27.67	6.60	25.89	5.63
Mental								
State								
References <sup>2</sup>	1.57	1.02	1.00	1.00	2.43	1.47	1.50	0.86
<b>Language Complexity</b>								
Number of								
words	181.5	92.5	193.8	103.6	200.4	86.6	214.9	117.2
Type-token								
ratio	0.40	0.09	0.40	0.08	0.41	0.11	0.40	0.11
Mean								
length of								
utterance	6.48	1.32	6.13	1.28	5.72	1.37	6.47	1.06
<b>Cohesion</b>								
Number of								
Different								
Connectives	3.52	1.75	3.95	1.58	4.05	1.60	4.06	1.70
<b>Context</b>								
Anaphora	13.42	3.19	12.32	3.59	14.38	3.00	14.38	3.69

*Note.* Scores were based on sample without missing data replaced. *N* of intervention group = 21 for the on production and retelling narratives; *N* of control group = 19 for the production narrative and *N* = 18 for the retelling narrative.

<sup>1</sup>Maximum score = 46.

<sup>2</sup>Maximum score = 6.

remain significantly correlated after the ANCOVA were used as covariates alongside pretest scores.

Throughout this section, the inferential analysis were described first, followed by a more descriptive analysis of two children's narratives from each intervention group, to illustrate the implications of the found effects. To exemplify group differences in narrative task performance, one child was selected from each group as a representative from their treatment conditions. These narratives are presented in Table 3. These children were chosen as representatives from their respective groups because their narratives clearly demonstrated typical group differences found on posttest. They were also chosen because they received the same storybook for both narrative tasks, allowing for a comprehensible comparison (recall that the wordless storybooks that these narratives are based on are provided in Appendix A).

*Intervention effects on narrative structure.* 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 raw scores in addition to pretest story grammar total scores were use as covariates, because there was a significant correlation between children's receptive vocabulary and narrative structure scores on the production task ( $r = .39, p = .014$ ). As predicted, children in the dialogic reading group had significantly higher total story grammar scores on than the control group on the production task ( $F(1, 36) = 5.49, p = .001$ ). This effect accounted for a moderate amount of difference between the means ( $d = .38$ ). For posttest retelling, the intervention group included significantly more story grammar units than the control group ( $F(1, 37) = 3.67, p = .032$ ), after controlling for the

pretest total story grammar unit scores. This effect accounted for a small amount of the difference between the means ( $d = .28$ ).

Table 3

*Examples of a Production and Retelling Narrative from One Child from Each Intervention Group{ XE "Table 3" }*

Example of the production story constructed by a child in the Control Condition

\*CHI: 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 a child in the Control Condition

\*CHI: 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 by a child in Intervention Condition

\*CHI: 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 girls 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 balloon. And he looked on the ground. The man told him five dollars. He looked in this 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 colour. And then he smiled at the little boy. And the lady smiled too. And they are happy that they got two red balloons for their selves.

Example of a retelling narrative by a child in the Intervention Condition

\*CHI: 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

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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 hand and threw it into the water. And Gerry said to me that, "It looks like it 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. He and 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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Further examination of story grammars was conducted by calculating the frequency of inclusion of each type of story grammar across groups. The results are detailed in Table 4. Overall, each story grammar unit was used by at least one child once. Across groups, the story grammar units most often mentioned were *characters*, *setting comments*, *initiating events*, *attempts*, *outcomes*, and *closing statements*, whereas the *beginning statements*, *internal responses*, *internal plans*, and *reactions* story grammar units were used the least frequently. Interestingly, more of the intervention children included *character* mentions, *initiating events*, *reactions*, *internal responses* and *internal plans* in both the production and retelling stories than the children in the control group.

As both *internal responses* and *internal plans* are part of a subset of the story structure analysis called *mental state references*, one-tailed ANCOVAs were conducted to determine if the groups were significantly differentiating in their inclusion of these story grammars in the production and retelling narratives. Results found that children in intervention group provided significantly more internal thoughts and feelings references in their production narrative ( $F(1, 36) = 2.85, p = .050$ , with and  $d = .56$ ) and as well as in their retelling narrative ( $F(1, 37) = 6.25, p = .009$ , with and  $d = .77$ ), than the children in the control group, after controlling for pretest scores.

As the measure of these mental states is a subset of the story grammar units total score, and the significant group difference between mental state inclusion was predicted by previous research (Zevenbergen et al., 2003) the scores were removed from the story grammar unit total raw scores and the ANCOVAs were repeated to ensure significance was still found between groups' story grammar scores. After scores on PPVT and pretest were covaried, children from the intervention condition still provided significantly more

Table 4

*Percentage of Sample by Intervention Group Who Included Each Story Grammar Unit in the Production Story{ XE "Table 4" }*

Story Grammar Units	Production		Retelling	
	Intervention	Control	Intervention	Control
Beginning statement	47.6	36.8	38.9	41.2
Character 1	81.0	68.4	76.2	72.2
Character 2	76.2	78.9	76.2	77.8
Setting	90.5	73.7	66.7	94.4
Initiating event 1	90.5	57.9	81.0	72.2
Internal response 1	47.6	42.1	66.7	66.7
Internal plan 1	4.8	0.0	9.5	5.6
Attempt 1	95.2	89.5	81.0	72.2
Outcome 1	95.2	94.7	81.0	94.4
Reaction of character 1	62.9	68.4	61.9	55.6
Reaction of character 2	71.4	36.8	57.1	61.1
Reaction of both	0.0	5.3	0.0	5.6
Character 3	90.5	78.9	85.7	72.2
Initiating event 2	90.5	63.2	76.2	55.6
Internal response 2	33.3	15.8	26.3	27.8
Internal plan 2	28.6	15.8	47.6	16.7
Attempt 2	81.0	73.7	95.2	94.4
Outcome 2	76.2	84.2	85.7	100.00
Reaction of character 1	42.9	26.3	47.6	44.4
Reaction of character 2	4.8	5.3	28.6	11.1
Reaction of character 3	9.5	0	28.6	38.9
Reaction of both character 1 and	14.3	15.8	14.3	16.7

character 2				
Character 4	19.0	21.1	90.5	83.3
Initiating event 3	90.5	78.9	90.5	77.8
Internal response 3	14.3	5.3	28.6	11.1
Internal plan 3	28.6	21.1	21.1	22.2
Attempt 3	81.0	100.00	90.5	100.00
Outcome 3	81.0	78.9	85.7	77.8
Reaction of character 1	52.4	73.7	47.6	27.8
Reaction of character 2	23.8	15.8	14.3	5.6
Reaction of character 4	19.00	0.00	9.5	0.00
Reaction both character 1 and character 2	14.3	15.8	23.8	22.2
Closing Statement	76.2	78.9	81.0	88.2

*Note.* The posttest stories consist of three complete story grammar episodes. As such, all SGUs repeat themselves three times, except *setting*, which is only counted once, and *character mentions*, as there are four characters overall. Story grammar units that qualify as mental state references are *internal responses* and *internal plans*.

structure to their production narratives than children in the control group, ( $F(1, 36) = 4.75, p = .018$  with an effect size of  $d = .32$ ) but the comparison of story grammars by groups on retelling posttest was no longer significant ( $F(1, 37) = 2.14, p = .153$ ).

In general, children in the intervention condition include more structure components in their production narratives than the control group. Further, children in the intervention condition mention internal thoughts and emotions more than the control condition, on both the retelling and production tasks. The examples provided in Table 3 demonstrate the differences in structure of the narratives provided from children in each group. The child's narratives from the intervention group scored a story grammar unit total raw score of 28 out of 46 on the production posttest narrative task, and a total raw score of 33 out of 46 on the retelling posttest narrative task. The child's narratives from the control group scored a story grammar unit total raw score of 18 out of 46 for the production posttest narrative task, and a total raw score of 23 out of 46 on the retelling posttest narrative task.

The production narrative of the control child was clearly missing the structural detail and description necessary for the logical advancement of the plot. For one, the control child obviously failed to introduce two main characters. She began her narrative with *the doggie*, which was meant to act as our introduction to the female dog character and is in fact understandable in context. However, all subsequent references to any characters involve the gender pronoun *he*. While it is likely the control child was using this pronoun to reference the male rabbit, one cannot interpret the story this way without access to the pictures, as no male character was introduced. Therefore, the ambiguous character introductions fail to prepare the listener to properly understand which character

is responsible for which action, resulting in a confusing narrative. Further, if the listener were to follow the events as presented, the story appeared to be about one male character that lost his balloon and wanted another. All other motivations and following events that are depicted in the pictures are not discernable. Failing to properly identify the dog's ownership of the balloon (initiating event), the rabbit's desire to take the balloon (internal response) and the dog's saddened reaction to the loss of the balloon (reaction to the outcome) in the first episode lead to a disorganized and confusing second and third episode, where the internal plan of the second episode (the rabbit decides to buy the dog a balloon to replace the lost one) and the outcome of the overall story (the doctor rabbit buys not only one balloon for the dog to replace the lost one, but a balloon for the rabbit as well) could not be properly identified. Furthermore, all references to the emotions of the dog, the rabbit and other characters were missing, and no thoughts of the characters were described. Therefore, close examination of story produced by the control child illustrates that while the bare-bones of most of the plot was described (including most initiating events, attempts, and outcomes), some of the essential story grammar units were still missing, and most noticeably, most mental state references were absent.

In contrast, examination of the intervention child's posttest production narrative illustrated a more complete story in terms of the inclusion of structural components. Both main characters were clearly referenced in the opening lines of the story, and proper ownership of the balloon (initiating event) and setting details (the wagon was described) were established. Further, internal responses and reactions of both characters are mentioned throughout (*he was happy to see it* and *she was mad*) resulting in a clearer understanding of the events of the story and the overall plot. Therefore, the child in the

intervention group provided more items that add structure to the production narrative overall than the child in the control group did. This was also true for the retelling narratives, as the intervention child provided more internal responses and internal plans of both characters than control child, resulting again in a slightly better structured narrative.

*Intervention effects on language complexity.* The number of words in the story, the type token ratio (the ratio of number of different words to total number of words) and mean lengths of utterances were analyzed as measures of language complexity. While pretest scores were used as covariates for all ANCOVAs, the number of sessions where child exhibited disruptive behavior was also included as a covariate from the ANCOVA for mean length of utterance. Contrary to expectations, no significant differences were found between groups on any of the language complexity measures analyses (*ps* ranged from .28 to .97).

The lack of significant group differences in language complexity is evident in the example narratives. While the intervention child seemed to have provided a more detailed and vocabulary rich narrative, she actually rarely included adjectives, and also used mainly short utterances containing similar noun and verb phrases such as *he was worried* and *he wanted one*. These short utterances did not actually differ greatly from the control child's typical utterance length. Therefore, while the dialogic reading child's narratives appeared to be more advanced than the stories than the control child's narratives, this difference was not due to a richer variety of language or a longer word count.

*Intervention effects on context knowledge.* Narratives were scored for proper introduction of all first mentions of characters and objects as an index of anaphora. A

one-tailed analysis of covariance on anaphora scores during the production task, with the effects of the pretest scores and PPVT removed, found the intervention children provided references to persons and objects during the production task that were more decontextualized than provided by the control condition ( $F(1, 36) = 3.63, p = .032$ ). The effect accounted for a small amount of the group differences ( $d = .32$ ). 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 control child, it was evident that failure to decontextualize most references to characters in the story was partially responsible for the incomprehensibility of the text. That is, without the context of the storybook, the child's reference to *he* throughout was unexplained. Who is he? Further, while *the doggie* would normally suffice as an anaphoric reference to another character (although *the* should be replaced by *a* on first introduction), the failure to actually reference the character again leads one to question whether there actually was a second main character at all. Although the control child properly referenced the first mention of objects, with *a balloon* and *two balloons*, the child did not properly reference the other two characters, only stating *the person* and *the other bunny* as if these character's had already been mentioned. The child who received the dialogic reading intervention, on the other hand, managed to reference all characters and the main objects of the story properly, leading to a better-contextualized, more coherent story.

*Intervention effects on cohesion.* Children's use of connectives such as *and*, *but* and *or* during storytelling was used to index story cohesion; specifically, the variety of connectives used within the story was examined, 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 ( $F(1, 37) < 1$ ,  $p = .89$ ).

Frequency analyses provided the percentage of children in each group who used each connective at least once in both narrative tasks, as depicted in Table 5. These results indicate that all of the connectives included were used at least once by at least one child, except for the temporal connectives *later* and *as soon as*. Overall, the independent connective *and* and the temporal connective *then* were used much more frequently than the other connectives: 94.4-95.2% of the children in both groups *and* on at least one of the posttest measures, and 76.2-83.3% of the children in both groups used *then* on at least one of the posttest measures. The dependent connective *but* also seemed to have been used to some extent, such that 52.6-79.2% of the children in both groups seem to have used this connective at least once in one of the tasks. These are large percentages, as most other connectives were only used by 0-63.2% of the children.

It is obvious in the example narratives that the children tested in this study did not use many connectives, and even those that did do use them well. To begin with, both children only provided the same two connectives most frequently in both of their stories. Both children used the connectives *and* and *then* most often, and the use of these connectives was limited to sentence starters, in a way that is most likely meant to provide the child with time to think of her next idea. This is not unlike the space filler *uh*. Neither

Table 5  
*Percentage of Children in Each Treatment Who Included Each Connective Once in the Posttest Production and Retelling Narratives{ XE "Table 5" }*

Connectives	Production		Retelling	
	Intervention	Control	Intervention	Control
<i>Independent</i>				
And	95.2	94.7	95.2	94.4
Now	23.8	21.1	23.8	27.8
<i>Temporal</i>				
Then	76.2	78.9	76.2	83.3
First	4.8	10.5	4.8	0.0
As soon as	0.0	0.0	0.0	0.0
Later	0.0	0.0	0.0	0.0
Next	9.5	21.1	4.8	11.1
While	0.0	10.5	4.8	11.1
<i>Dependent</i>				
But	57.1	52.6	79.2	66.7
Because	23.8	5.3	28.6	22.2
If	28.6	26.3	18	22.2
So	33.3	63.2	57.1	61.1
Or	4.8	10.5	9.5	5.6

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). Clearly, the groups did not differ significantly on variety of connectives used, as it appears that children in this sample have not yet learned the proper use of connectives in general.

Overall, dialogic reading significantly improved the quality of narratives constructed by children on both the production and retelling tasks. Specifically, the intervention children showed improved narrative structure scores (particularly mental state references) when compared to the control group on both narrative tasks. They also showed better anaphoric references in the production narrative on posttest than the control group. That is, assuming the dialogic reading intervention was administered as designed, it is possible to say that dialogic reading caused improvements in the structure of a child's produced and retold narratives, and the decontextualization of a child's produced narrative.

As a final note about the analyses of intervention effects on narrative dependent measures, all group differences were found on narratives that were three times the length of the pretest narrative. For an examination of the results when a posttest story is equal in page and story grammar episode length to the pretest, the analyses were repeated for the first episode of the posttest. The results of the ANCOVAs were presented in Appendix H. The results replicated the significant findings for group differences on structure, but failed to find a significant group effect on anaphora or mental state references. This is presumably because there are more characters in the second and third episodes of the entire posttest story, and therefore more opportunities to introduce characters and more

internal states to discuss. The results of the episode one analysis will not be discussed further, as children's performances on pretest and posttest were strongly correlated at  $r = .63, p < .001$  for the production task, and  $r = .58, p < .001$  for the retelling task, justifying the decision to analyze the entirety of the posttest story.

### *Treatment Fidelity*

To ensure that the intervention was administered as designed, several analyses were performed to assess treatment fidelity. These analyses were organized into three sections. The first described observation data collected on each intervener's tenth and eleventh dialogic reading sessions with the children. The second analyzed the effect of the intervention on expressive vocabulary, an effect that has been repeatedly found in previous research and should be present in the current study if the intervention was implemented correctly. Finally, the effect of the alternative treatment on the control group was assessed in the last section, to ensure cognitive gains alone do not improve narrative scores.

*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 are represented in Table 6. Results indicated that each child was providing at least one response to an elaborative question per session, and that each child averaged between 6 and 7 responses to questions per session. All three interveners provided praise to the children's responses between 78 and 94 percent of the time. Further, all three interveners expanded on at least 47 % of the children's

Table 6

*Mean Observed Scores of Interveners on Measures of Dialogic Reading Fidelity* XE

"Table 6" }

Observed Behavior	Intervener					
	1		2		3	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Responses Per Child	6.67	1.89	7.60	2.71	5.75	1.06
Praises Per Response	.94	.09	.78	.14	.91	.02
Expansions Per Response	.47	.04	.56	.04	.48	.03
Structure Expansions	.20	.08	.45	.35	.27	.09
Language Complexity Expansions	.26	.16	.35	.35	.57	.33
Context Expansions	.34	.13	.35	.35	.18	.02
Cohesion Expansions	.73	.02	.75	.21	.47	.19

*Note.* Means for each intervener represent average scores between two dialogic reading sessions.

responses and used each one of the four types of expansions at least once per session. Generally, experimenters used context expansions most often (47-75 percent of the 46 expansions during observed the over all six sessions referenced the characters and objects discussed in specific, unambiguous terms) and cohesion expansions least often (18-35 percent 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 subjects ANOVAs were conducted on dependent measures, using intervener as the independent variable. None of these ANOVAs were significant. Further, while 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 that the similarities in the dialogic reading sessions for the intervention groups, the previously presented group differences can be considered valid effects of the intervention treatment.

*Intervention effects on expressive vocabulary.* Previous research found that dialogic reading sessions significantly impacted children's expressive vocabulary. No group differences on expressive vocabulary prior to intervention were found, as each group provided on average only one correct word out of sixteen ( $M$  of intervention group = 1.00,  $SD$  = .71;  $M$  of control group = .95,  $SD$  = .62). On posttest, the children in the intervention group provided on average three words out of sixteen ( $M$  = 2.42,  $SD$  = 1.94) whereas the control group only provided two words out of sixteen ( $M$  = 1.37,  $SD$  = .83). A group by testing time repeated measures ANOVA revealed an interaction between testing time and group assignment ( $F(1, 39) = 7.16, p = .001$ ), with an effect size of  $d =$

.66. To follow this interaction, a t-test comparing groups at posttest was conducted and revealed that the intervention group produced significantly more expressive vocabulary words when prompted with line drawings after the eight weeks than the control group,  $t(1, 38) = -2.21, p = .034$ .

*Alternative treatment effects.* To ensure group differences on posttest are not a result of halo effects, the control group was assessed for cognitive gains due to the alternative treatment (i.e., the phonological awareness intervention). To measure these gains in phonological awareness, a t-test was conducted that compare the control groups' raw pretest scores for the Blending Words subtest of the Comprehensive Test of Phonological Processing (CTOPP) to their raw posttest scores. Results indicate that the children's raw scores on posttest ( $M = 6.00, SD = 3.27$ ) were significantly higher than on pretest ( $M = 3.26, SD = 3.03; t(1, 18) = -5.98, p = .000$ ), confirming that these children did in fact significantly learn phonological skills from their intervention sessions.

*Narrative Tasks: Production versus Retelling*

Following the analysis of intervention effects, a secondary set of analyses were conducted to investigate differences in children's performance on production and retelling tasks. These analyses were collapsed across treatment groups to provide an understanding of how all typically developing children might perform on these tasks.

Correlations between the two tasks were provided in Table 7. The significant correlations suggest that children's performances on both measures were positively related. When a child provided a well-structured, linguistically complex, contextualized and cohesive narrative during the production task, he was significantly more likely to provide a similarly well structured, complex, contextualized, and cohesive narrative on

Table 7  
*Correlations Between Dependent Measures on Production and Retelling Narrative Tasks,  
 Regardless of Treatment Group* { XE "Table 7" }

Dependent Measure	Correlations
Pretest (n = 40)	
<i>Structure</i>	
1. Story Grammar Units	.71 (p < .001)*
2. Mental State References	.12 (p = .449)
<i>Language Complexity</i>	
3. Length (Number of Words)	.88 (p < .001)*
4. Type-Token Ratio	.57 (p < .001)*
5. Mean length of utterance	.24 (p = .138)
<i>Context</i>	
6. Anaphora	.72 (p < .001)*
<i>Cohesion</i>	
7. Number of Different Connectives	.82 (p < .001)*
Posttest	
<i>Structure</i>	
1. Story Grammar Units	.64 (p < .001)*
2. Mental State References	.32 (p = .045)*
<i>Language Complexity</i>	
3. Length (Number of Words)	.76 (p < .001)*
4. Type-Token Ratio	.62 (p < .001)*
5. Mean length of utterance	.53 (p = .001)*
<i>Context</i>	
6. Anaphora	.58 (p < .001)*
<i>Cohesion</i>	
7. Number of Different Connectives	.58 (p < .001)*

\* = All correlations significant at an alpha level of  $p = .05$ .

the retelling task. However, these significant relationships (ranging from  $r = .355$  to  $r = .881$ ) were not so strongly correlated that it could concretely be stated that children are responding to each type of narrative task identically. Therefore, one-tailed paired sample t-tests were conducted to compare the means of the narrative dependent measures first on pretest and again on posttest, summing intervention groups in order to examine children's differential performances on both tasks regardless of treatment. These means are presented in Tables 8 and 9.

*Pretest.* No significant differences were found on any dependent measure at pretest except for type/token ratio. The participants did provide a higher ratio of number of different words to total words (type token ratio) for the retelling task than on the production task on pretest ( $t(1, 39) = -2.16, p = 0.012$ ). Therefore, children's retold and produced narratives only differed in the variety of words used on pretest.

*Posttest.* Many more significant differences between tasks were found on posttest than on pretest. Children's posttest performance on story grammar units did differ significantly based on narrative task at posttest ( $t(1, 39) = -1.78, p = 0.042$ ). As indicated in Table 9, children were including significantly more story grammar units for the retelling narratives than the production narratives. In fact, they included significantly more mental state references on the retelling task than on the production task ( $t(1, 39) = -3.17, p = .002$ ). As well, children used more words in total on the retelling task than the production task at posttest ( $t(1, 39) = -1.87, p = .035$ ) and more contextualized references during the retelling task on posttest than during the production task on posttest ( $t(1, 39) = -2.64, p = .012$ ). No other significant differences were found.

Table 8

*Mean Scores on Narrative Dependent Measures Across Narrative Tasks on Pretest{ XE*

Variables	Production		Retelling	
	M	SD	M	SD
Structure				
Story Grammar Unit Total Raw Scores <sup>1</sup>	9.61	3.53	9.79	3.62
Mental State References <sup>2</sup>	.35	.59	.53	.65
Language Complexity				
Number of words	208.00	78.38	251.00	78.09
Type-token ratio	.49	.14	.56	.17
Mean length of utterance	6.61	1.63	6.35	1.74
Context				
Anaphora	6.97	2.11	6.85	2.12

"Table 8" }

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Cohesion

Connectives	2.18	1.40	2.18	1.24
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*Note.* Scores were based on the sample without missing data replaced. *N* of production task = 17; *N* of retelling task = 17.

<sup>1</sup>Maximum score = 46.

<sup>2</sup>Maximum score = 6.

Table 9  
*Mean Scores on Narrative Dependent Measures Across Narrative Tasks on Posttest{ XE*

Variables	Production		Retelling	
	M	SD	M	SD
<b>Structure</b>				
Story Grammar Unit Total Raw Scores <sup>1</sup>	25.43	7.34	26.8	6.16
Mental State References <sup>2</sup>	1.30	1.04	2	1.30
<b>Language Complexity</b>				
Number of words	187.35	96.86	207.13	100.73
Type-token ratio	.40	.09	.41	.11
Mean length of utterance	6.32	1.30	6.07	1.28
<b>Context</b>				
Anaphora	12.95	1.66	14.23	1.62
<b>Cohesion</b>				

"Table 9" }

Connectives	3.73	3.40	4.05	3.30
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*Note.* Scores were based on the sample without missing data replaced. *N* of production task = 17; *N* of retelling task = 17.

<sup>1</sup>Maximum score = 46.

<sup>2</sup>Maximum score = 6.

Examination of only the control child's production and retelling narratives revealed these differences. During her production narrative, the control child was unable to structure her story appropriately, failing to include character mentions, initiating events, internal responses and internal plans. During her retelling story, the control child still failed to properly introduce all characters (again only acknowledging the male main character as *he*), but there was a marked improvement in including the emotional reactions and motivations of the characters.

As well, detailed inspection of the narratives reveal slight differences in anaphora across task type. In particular, the third character in the production task was only incompletely referenced by control child in the statement, *the person had a lot of... he had a lot of balloons*. This introduction to the character did not provide insight into which person had a lot of balloons, or why the he might have, despite the character's depiction

as a balloon vender. Alternatively, the control child addressed the third character in the retelling narrative neatly as *the lifeguard*, which not only signifies that this is indeed a reference to a new character, but also provides a context to who the character is and why he might help advance the story. Many other children in the sample demonstrated the ability to better contextualize the retelling narrative, most often using the same character and object titles provided by the scripted story.

Despite non-significance, the variety of connectives for the retelling narratives on posttest (as shown in Table 9) did not superficially appear to be larger than the variety of connectives for the production narratives. Therefore, further investigation into the frequency of each of the type of connectives as a function of was warranted. These frequencies can be seen in Table 5. These frequencies suggested that in both tasks, the connectives with the highest probability of being used at least once were *and* (94.4-95.2%) and *then* (76.2-83.3%). However, it also appeared that the percentage of children providing the dependent connectives *but* and *because* were higher for the retelling posttest narratives (66.7-79.2% and 22.2-28.6%) than the production posttest narratives (52.6-57.1% and 5.3-23.8%). Therefore, while children may not be have providing a larger variety of connectives in their retelling narrative posttest task than in their production narrative posttest task, they were more likely to include dependent connectives during the retelling posttest narrative than during the production posttest narrative. This is evident in example narratives. Although the control child's connective use was limited to *and* and *then* during her production narrative, the child used the dependent connective *but* during her retelling narrative during the statement *and then he reached for it but his hand was too short*. Within this statement, control child

successfully joined the dependent clause *his hand was too short* to the independent clause *and then he reached for it*, demonstrating a better knowledge of the use of the *but* connective than the two that he used as a sentence starter, *and then*.

Overall, children provided longer retelling narratives that contained significantly more story grammar units, more mental state references, and more contextualized character and object references than their production narratives. As well, they are including a larger variety of connectives, though this difference is non-significant. Therefore, children are systematically constructing better quality narratives when retelling a heard script than when producing an original story.

*Task type and vocabulary.* Finally, it is interesting to note that, when investigating variables that may obscure intervention effects on the narrative data, it was observed that the data collected on production tasks significantly correlated with the PPVT ( $r = 0.36, p = 0.014$ ) while data collected on the retelling tasks did not ( $r = .22, p = .175$ ). This also provides evidence that the children may be approaching the two narrative tasks differently, rather than treating them as identical tasks measuring the exact same ability.

### Discussion

Oral narrative skills are considered to be important precursors of oral and written language skills and found to be correlated with early and late literacy success (Griffin, 2004; O'Neill et al., 2004; Fazio, 1996). As such, the goal of the current study was to improve the narrative skills of five-year-old children from low income areas through an interactive reading intervention. This method has previously been found to improve some narrative skills to a moderate degree (Zevernbergen et al., 2003), but has never before been examined for its impact on more global narrative measures. The main hypothesis

was that the biweekly elaborative dialogic reading intervention conducted in small groups over eight weeks would significantly increase low-income preschoolers' scores on measures of narrative structure, language complexity, context and cohesion. Results have indeed found that dialogic reading improved children's oral narratives on several dependent measures, such that their posttest narratives were considered of a better quality than the children in the control group. More specifically, children who received the intervention composed production narratives that were better structured (included significantly more structural story grammars and references to mental and emotional states) and more decontextualized (included significantly more context appropriate references to characters and objects) than children who were in the control group. The intervention children's retelling narratives also included more references to mental states and emotions than the control children's retelling narratives, although these structural differences did not extend to other story grammar units. Interestingly, produced and retelling narratives also differentiated in quality, even when intervention groups were collapsed. Contrary to hypotheses, dialogic reading did not affect the complexity of language within the children's narratives nor their inclusion of cohesive ties. Expressive vocabulary gains were also found.

In the following sections, each of the study's findings are discussed in turn, beginning with the implications of the significant effect of group on structure and anaphora scores, and followed by the implications of the lack of group differences on measures of language complexity and cohesion. After this, the significance of the study overall in the field will be discussed. Particularly, despite some limitations, the current

study validates the use of a dialogic reading intervention to improve the narrative knowledge of kindergartners, and promotes the need for further studies in this area.

### *Dialogic Reading Improves Oral Narrative Knowledge*

*Dialogic reading and narrative structure.* The most important finding of the current study is that eight weeks of dialogic reading sessions significantly increased children's inclusion of structural components within their production and retelling narratives. Previous research has found that routinely asking children elaborative questions within a dialogue can significantly impact the structures of constructed narratives (Peterson & McCabe, 2004); the current study proves that asking these kinds of elaborative questions within the context of storybook reading can significantly increase the inclusion of narrative structural devices within a constructed story. This finding not only replicates the significant benefit of a dialogic reading intervention on mental state references found by Zevenbergen et al. (2003) but also expands their research by confirming that structural improvements on produced narratives exist after excluding mental state references.

From this improvement, it is possible to infer that the intervention children are demonstrating an advanced knowledge of story structure that they learned from dialogic reading. It is theorized that, prior to the study outset, these children's narrative schema for story structure was incomplete. Typically developing five-year-olds can include *setting* references, *initiating events*, *attempts*, and sometimes *outcomes* in their constructed narratives but will not spontaneously include mentions of *internal responses*, *internal plans*, and *reactions* before the age of eight (Stein & Glenn, 1982). However, after eight weeks of the reading intervention, children were able to provide more

production narratives that included the story grammar such as sufficient *character* mentions, *initiating events*, *internal responses*, *internal plans*, and *reactions* than who did not receive the intervention. This means that children in the intervention group are demonstrating more advanced structuring of their narratives than the children in the control group at posttest and more so than typically developing children. Therefore, interacting dialogically in storybook sessions promoted children's knowledge of story structure, and caused the incorporation of *internal reactions*, *internal plans*, and *reactions* in the story schema.

Structured shared reading sessions are not only shown by the current study to teach children narrative knowledge, they also highlight the most important aspect of narrative knowledge. Schneider and Winship (2002) provided evidence that story grammar units are the most important elements to be included within a story. They found that adults rated elements of story structure as the most important story features when judging the quality of narratives. This is likely due to the fact that no story could be properly understood without a chronological and organized structure. The bare minimum qualification of a narrative established by Labov (1972) specifies that any two clauses referencing an event must be temporally ordered. A mention of an *outcome*, for example, such as *the balloon floated away* is not properly understood without mentioning the necessary structural predecessor *attempt*. Adding an attempt clarifies the reason for the outcome, which was that *the rabbit tried to hold the balloon and accidentally let it go*. Mandler (1984) claims that the structure of a narrative is equivalent to the *gist* or the central meaning of a story, and cites story recall evidence for this claim. In particular, Mandler, Scribner, Cole, and DeForest (1980) analyzed the information recalled of

stories presented to non-literate adults, non-educated literate adults, secondary school educated adults, college educated adults, non-schooled six-year-olds, non-schooled nine-year-olds, six-year-olds attending first grade, and nine-year-olds attending fourth grade. Overall, while the amount of information recalled differed greatly among participants, all children and adults regardless of education showed the same pattern of recalling setting information, initiating events, attempts, outcomes, and endings. That is, while children in the study recalled less than adults did, all participants recalled the same types of structure related story components. Therefore, although children demonstrate narrative knowledge through other measures such as language complexity, contextual references, and cohesive ties, no story is adequately constructed without the backbone of structured events.

There are several reasons why the nature of dialogic reading might benefit this key element of story knowledge, above all others. To begin, the elaborative conversations and questions about stories, reminiscent of the types of conversations that benefit the composition of personal event stories (Peterson & McCabe, 2004), 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 are listening to a plotted story and answering questions about the story plot while perceiving pictures that demonstrate this plot, while narrative elements such as varied language and connective words are not depicted in these pictures. Therefore, the context of the picture book reinforces a child's awareness of plot elements but does not emphasize other narrative components, resulting in this type of intervention highlighting structural knowledge. While frequency of book reading alone does not significantly impact narrative construction ability (Sénéchal et al., 2008), future research should further

investigate the theoretical role of pictures on the acquisition of narrative knowledge. Particularly, the gains on narrative measures could be compared to a regular reading group and an oral only story group.

A second aspect of dialogic reading that might explain its effect on narrative structure above other dimensions could be the nature of the questions asked to maintain dialogue. All elaborative questions asked are about specific happenings in the stories and therefore might highlight plot, despite the experimenter's attempts to appeal to other areas of narrative knowledge. Questions were specifically selected so that all areas of narrative knowledge were referenced equally throughout the session. For example, the question *who is in this picture?* was asked to evoke an anaphoric response of *Spike is in the picture*, and the question *what colour is Spike after he is splashed by the car?* was meant to ensure children acknowledge the importance of description. However, it is evident that these questions are still first and foremost related to plot components. *Who is in the picture?* asks for a character reference, thus calling attention to the persons who will provide the actions and reactions to events. *What colour is Spike after he is splashed by the car?* reinforces acknowledgement of an initiating event (a car splashes Spike) and the outcome (Spike is now covered in mud). In the same way, all elaborations of children's responses may equally reference structural components. A child's response to the broad question, *what is happening in this picture?* might have been, *he is jumping on the bed*. This response in turn might have elicited the context expansion of *that's right, Corduroy the bear is jumping on the bed*, meant to demonstrate to the child that specific context references are important. However, the event of Corduroy jumping on the bed is still the most obvious concept presented in the elaboration. Therefore, it is not

unreasonable to suggest that the nature of creating a dialogue about a storybook will highlight concepts of plot and structure more often than any other area of narrative knowledge. Future research should potentially use introspective studies to investigate which concepts adults and children glean from these types of questions and expansions, in order to ensure that they are validly addressing other areas of narrative knowledge. Alternatively, dialogic reading interventions could be tailored to only ask questions that would enhance one area of narrative knowledge, and a controlled comparison to a regular dialogic reading group could provide inferences on the possible differing effects these questions have on narrative construction.

Finally, another plausible explanation of why structural elements were the most affected by dialogic reading may be due to the cognitive constraints of young children. A five-year-old's limited working memory may provide a theoretical explanation for why the benefits of dialogic reading are limited to structural narrative concepts.

Kindergartners may not have the processing capacity that would allow them to attend to all of the components of the story that is read aloud. Most likely, when confronted with an oral story, a child will be using the majority of their working memory in an attempt to comprehend the story that they are hearing, resulting in no available space for attending to types of words and connective ties used. For this reason, a child may be prioritizing story structure as the main component to which to attend. Story grammars are considered to be directly related to story comprehension. In fact, Mandler (1984) suggests that the relationship is bidirectional. Obviously, before children can begin to understand narrative structure, exposure to stories and comprehension of stories has to have occurred.

However, once children have begun to include story grammars in their narrative schema,

Mandler claims that story structure knowledge aids in narrative comprehension. That is, children can easily categorize plot elements as events and outcomes, and can more quickly understand the story itself. Studies by Haberlandt and his colleagues support this interpretation (Haberlandt, 1980; Haberlandt, Berian, & Sandson, 1980). They asked adult subjects to read stories with multiple episodes and measured the time it took for the participants to read each sentence. Results found that participants took longer to read the sentences that started and ended each episode. Haberlandt (1980) and Mandler (1984) interpret these results to mean that participants were encoding the story in episodic memory chunks, as it requires more time to acknowledge the beginning of a new chunk and the ending. Thus, story structure knowledge was aiding in the comprehension of stories

If story grammar information aids in the comprehension of a story, it would make sense that a child would innately prioritize structural knowledge as the most important narrative aspect to learn when encountering stories in dialogic reading sessions. As such, it is reasonable to suggest that children during the storybook sessions were devoting their working memory to concepts of story structure. This provides an explanation as to why children who received the intervention provided better quality stories than control children, while no differences on measures of language complexity and cohesion were found. Although one might argue that children were not necessarily comprehending the stories read aloud to them during the sessions, direct comprehension questions were asked during and after the sessions, which required story understanding, and therefore ensured comprehension. Therefore, results of the current study hint at a hierarchical development of narrative schema, and suggest that future theoretical models

of narrative concept development might include narrative structure as the starting point. As well, future studies attempting to improve other aspects of narrative knowledge might want investigate different ways to alleviate working memory constraints.

*Dialogic reading and narrative context.* Although story structure improvement was the strongest finding of the current study (as it was found in both narrative tasks), 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. Again, improvement on this measure strengthens the argument that children's narratives are qualitatively better after their involvement in the shared reading intervention. Labeling characters and objects within a story ultimately allow for listeners to attribute which actions and reactions belong to which characters, and which objects are being acted upon. Young children typically assume shared knowledge with a naive listener, most often referring to characters in their narratives as *he* and *she* (Hickmann & Hendriks, 1999). Therefore, the significant group difference on anaphora scores during the produced story suggests that intervention children are learning contextual knowledge from the shared reading sessions. While this improvement was not found in children's retold narratives, this may possibly be due to the nature of the retelling task, which will be discussed later.

Observations of intervention administration sheds light on why this type of intervention might promote contextual knowledge when it did not promote language complexity and cohesive knowledge. These observations, conducted to ensure treatment fidelity, revealed that when children used an ambiguous reference of *he* and *it*, the

intervener rephrased the response with a more contextualized reference, such as a character name or 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*. As this type of expansion was the most frequent during the sessions, the children in the intervention group would have had their ambiguous references “corrected” often and would have therefore been exposed to the importance of contextual knowledge.

*Dialogic reading and narrative complexity.* Despite predictions to the contrary, the dialogic reading intervention did not influence language complexity. It was predicted that exposing children to stories that used varied language would help them associate complex language with narrative composition. To strengthen these associations, experimenters attempted to highlight descriptive language as an important element of narratives by rephrasing children’s verbal responses to questions with adjectives. In conjunction, past research provides some evidence that children’s oral language complexity is affected by dialogic reading (Huebner & Meltzoff, 2005). Huebner and Meltzoff found that an eight-week parent administered dialogic reading intervention produced gains in number of words and mean length of utterances during reading sessions. If Huebner and Meltzoff found that interactive shared reading benefits children’s narrative skills, the question arises as to why this study did not.

Obvious differences in Huebner and Meltzoff’s study and the current study could explain why these effects were not reproduced. For one, Huebner and Meltzoff were examining children’s oral productions during the actual reading sessions, analyzing a pretest reading session and a posttest reading session. Potentially, children may gain language skills from the reading sessions but only demonstrate these gains within the

learned context. This gain may not be strong enough to generalize to oral language in other contexts. Further, the goal of Huebner and Meltzoff's study was to compare the reading behaviors of parents and children under different dialogic reading instruction conditions; that is, the researchers taught parents to read to their children through the methods of self-instruction alone, self-instruction with a follow-up phone call, and an experimenter-instructed group session. Children's improvements in number of utterances and mean length of utterance were presented as language gains, but were not examined as a function of the type and number of questions being asked of the child during the session. That is, these increases may not show language gains at all but a parent's increased dialogic behavior after instruction. Huebner and Meltzoff were also reliant on parents to conduct dialogic reading sessions with their children, and therefore the exact number of sessions that children received and the types of books parents read were not controlled. It is difficult to establish whether more or longer sessions with different books would reproduce mean length of utterance gains when the details of Huebner and Meltzoff's study are unclear.

The most important difference between Huebner and Meltzoff's (2003) study and the current study was the age of children examined. Huebner and Meltzoff trained parents of two- and three-year-olds to conduct dialogic reading sessions, whereas the age of the children at the outset of the present study is five-years. Failure to find significant differences in language complexity may also be due to the inappropriate use of the chosen language complexity measures on five-year-olds. While mean length of utterance is very often cited in narrative literature as a measure of syntactic complexity, it is possible that the measure is not sensitive to changes in children's language development

after the age of three (Eisenberg, Fersko, & Lundgren, 2001). Scarborough, Rescorla, Tager-Flusberg, Fowler, and Sudhalter (1991), with a sample of children between the ages of 30 and 48 months, correlated mean length of utterance scores to measures of language impairment for the purpose of establishing its validity as a detector of poorer language skills. For the children with normally developed language, they found a high correlation ( $r = .93$ ) between mean length of utterance and language measures for children less than three, but a much lower correlation ( $r = .58$ ) for children older than three. Furthermore, Scarborough, Wyckoff, and Davidson (1986) conducted a longitudinal study of six children between the ages of 24 and 60 months, and were only able to report a linear pattern in change of mean length of utterance below the age cut off of 42 months. Above that age, the rate of change in MLU decreased. Therefore, while mean length of utterance was measured in the current study for the purpose of comparison to other research studies, it is possible that it is not the most sensitive measure of language complexity.

The other language complexity measures, type token ratio and length of story are similarly called into question. O'Neill, Pearce and Pick (2004) suggest that broad quantitative measures such as story length or number of utterances are insensitive measures of narrative skill because they only show small increases after children begin formal education, despite obvious development in other areas of narrative ability. Other measures of language complexity deserve investigation in future research, such as frequency of adjective use and dependent clause analysis.

Beyond the complete practical influences of method and measures, there are more theoretical reasons why dialogic reading did not affect mean length of utterance scores or

other measures of language complexity. It is possible that two exposures to the unfamiliar storybooks were not enough for children to fully internalize the importance of using varied language into their narrative schema. Again, as books read were not controlled by Huebner and Meltzoff (2005), conclusions cannot be drawn about the number of readings necessary for a child to internalize concepts of language complexity. Second, children at the age of five are expanding their vocabularies and speech length at an extraordinary rate, and acquiring and exhibiting these linguistic skills in various everyday tasks. Some of these tasks include communicative conversations with their peers, oral tasks required of them at preschool, personal event narratives with their parents, and regular reading sessions. It is unlikely that the dialogic reading sessions as conducted emphasized the importance of speech length and varied language any more so than any of these everyday scaffolded encounters. Finally, it is possible that the encoding of language complexity into the narrative schema for story construction may require more construction based activities within the reading sessions. That is, story structure may benefit from comprehension alone, but it is possible that to ensure promotion of language complexity, children should be asked to produce short narratives, or completions to the current story. That is, future studies could have interveners ask more questions such as, *Oh no, Spike is lost! Now you tell me the rest of the story.* They could then provide feedback on language used, to ensure children learn this narrative skill. Therefore, while the dialogic reading intervention as given may provide children with enough knowledge to have included language complexity in their narrative schema as important to narratives, it is unlikely to have done so to the extent of improving complexity scores over the control group, who

have been praised in other language based tasks and conversations for speaking longer and using more varied words.

One interesting idea for a future study would be to investigate that amount of time parents spend conversing about personal event narratives with their children and compare its impact on the children's narrative skills to the effect of dialogic reading. As Peterson and McCabe (2004) found that elaborative parent-child conversations improve their personal event narratives, it would be interesting to determine if frequency of personal event dialogue affects fictional oral narratives to a similar extent that dialogic reading does.

*Dialogic reading and narrative cohesion.* No significant differences were found between groups on the measure of narrative cohesion, or the number of different connectives provided in the story, despite predictions to the contrary. Frequency results found that children in the sample provided very few connectives overall, using almost exclusively the independent connectives *and* and *then*, and sometimes including the dependent connective *but*. Often, the connectives that the children did use were in fact not used properly. This is evident in the example of the dialogic reading child's retelling narrative, who used the connective *and* 25 times within this one story, and most often at the beginning of a statement. Peterson and McCabe (1988) suggest preschool children use the connective *and* as a replacement for all types of connectives. The dialogic reading child at one point in her retelling narrative said, *And then he reached to the airplane. And his hand wasn't bigger enough.* Although she used the connective *then* in this segment, she also used *and* twice, in ways that do not join the statements cohesively. Replacing the second *and* with the more semantically specific *but* would change the sentence to read

*And then he reached to the airplane but his hand wasn't bigger enough.* The connective *but* clarifies why the size of his hand was important. Selecting a more appropriate connective would therefore add to the cohesion of the two phrases, joining them together more fluidly. It is clear that children in this sample do not yet have the knowledge of connectives that would allow for more appropriate word selection than *and*. It is not until later in their development that children incorporate the dependent connectives *because*, *so*, and *but* into their narrative schemas (Bloom, Lahey, Hood, Lifter, & Fiess, 1980).

Furthermore, children in the study may have been using both *and* and *then* pragmatically. Peterson and McCabe (1988) found that the use of *and* was associated with longer conversational turns, such that children use it to fill pauses and to indicate that their conversational turn is not over. For instance, a child may require a few seconds to think of what they are going to say next, but want to signal that they are not finished their story. Beginning most sentences with the connectives *and then* in combination allows them a chance to prepare what they are going to say while indicating that they are going to continue. This child uses the phrase *and then* 10 times within her narrative, and every time it is used at the beginning of a sentence. The independent connective *and* is not grammatically correct at the beginning of a sentence, and the frequent combination of *and then* at the beginning of the statement calls into question her knowledge of the connective *then*. Children in this sample often use connectives as replacements for the nonsensical *um*. This pragmatic use of the phrase *and then* would account for the much higher frequency of the temporal connective *then* but no other temporal connective. Overall then, children at the age of five are not developmentally prepared to have proper

knowledge of connective use, and therefore it is reasonable to find no significant differences across groups on cohesion knowledge.

#### *Dialogic Reading Improves Expressive Vocabulary*

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 (Crain-Thoreson & Dale, 1999; Lonigan & Whitehurst, 1998; Wasik & Bond, 2001; Whitehurst, et al., 1994; and Whitehurst, et al., 1994). 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) that the study is comparable to past research, suggesting that the intervention itself was conducted in a similar fashion to the previous studies. Although children did not correctly produce many of the vocabulary words presented in unfamiliar line drawings on pretest and posttest, the fact that there is a significant group difference on posttest indicates that the children did learn expressive vocabulary from the reading sessions. More vocabulary gains may have been found had the drawings used to test vocabulary words been identical to their depictions in the books (Sénéchal, 1997). The task as it was used in the current study demanded that children generalize learned words to new, unfamiliar concepts that invoked many synonyms.

#### *Differences on Narrative Retelling and Production Tasks*

Having replicated dialogic readings effect on vocabulary, and expanded findings of its effect on narrative skills, the current study can also comment on dialogic readings effect on two types of narrative tasks. That is, the current study found differential scores on narrative measures as a function of task.

First, contrary to the prediction that the production task might be too difficult at this age of development to illustrate gains in narrative knowledge, it appears that the production narrative task is actually more sensitive to changes in narrative construction ability due to intervention. The dialogic reading intervention significantly benefited the children's structure scores on both the retelling and production tasks. However, group differences were no longer significant when mental state inclusions were removed from the analysis. Therefore, the production task was more sensitive to changes in children's ability to include story grammars.

Second, task differences were also found when the analysis collapsed across groups. That is, all children in the sample constructed retelling narratives that were significantly longer, better structured, contained more mental state references and were significantly more decontextualized than their production narratives. There are several possible explanations for these findings. It is possible that different results were found on the two tasks due to a performance issue of the children. That is, the intervention children clearly learned narrative structure knowledge from dialogic reading as it was demonstrated in both narrative tasks. It is possible therefore that the task demands themselves might affect performance. That is, the retelling task may simply be easier (Hesketh, 2004; Merrit & Liles, 1989). When presented with a production task, the number of options for story production most likely exceeded the child's working memory and hindered his or her ability to construct a *good* narrative (children may struggle just to complete the task, let alone do it well), whereas during the retelling task, children were able to pick the most important story elements from a presented script. For example, the character names and labels were provided for the child in the retelling story, and simple

recall would allow the child to receive a perfect score on anaphora. This would explain why no group differences on anaphora were found based on the retelling narrative. Providing children with a script from which to select important elements may have allowed for more processing space to be devoted to the organization of story components, and would thus decrease the difficulty of the task, allowing control children to perform just as well as the intervention children on the retelling narrative. Thus, retelling task could have been so much easier than the production task that it reduced the sensitivity of the measure.

Retelling tasks in general do appear to be easier. Children's mean scores on almost all dependent measures were higher on the retelling task than on the production task. These findings agree with previous research. The present study reproduced this finding and significantly determined that the retelling stories were longer. Trautman et al. (1999) also found that children include more internal response and reactions story grammar units in their retelling narratives than in their production narratives, a finding that the current study has replicated. Finally, although Coelho (2002) found that adult participants include more cohesive ties within their retelling stories than in production stories, failure to find this result may be due to adults having more sophisticated connective knowledge than children, and thus better able to incorporate different connectives within their stories. Further, qualitative analysis of the frequency of connectives used within the current study suggests that children are actually using more dependent clausal connectives in the retelling task than the production task. Therefore, children are already showing slight task differences on variables of cohesive knowledge at the young age of five and six.

Replicating task differences found in the narrative literature comments on the universality these findings. For one, children are reliably performing better on the retelling task than on the production task. As well, these performance differences are repeatedly found despite heterogeneity in the retelling and production methods used. For example, both Trautman et al. (1999) and Merritt and Liles's (1989) retelling tasks included video presentations of pictures on a screen with a audiorecorded narrator telling a story, immediately after which the child was asked to retell back the story. Both studies also used oral story stems to prompt children to produce fictional oral narratives tasks. Coelho (2002) also used a video presentation of the retelling task, but used a single painting to elicit a produced narrative from participants. Botting (2002) asked children to retell the 16 paged Renfrew Bus Story (Renfrew, 1991) that an experimenter had previously told to them using the pictures as prompts, and used the 24 paged *Frog, Where are you?* (Mayer, 1969). Despite the differences in presentation medium (Coelho, 2002; Merritt & Liles, 1989; Trautman et al, 1999), story length (Botting, 2002) and comparability of the events in the retelling and production tasks within the studies (Merritt & Liles, 1989; Trautman et al, 1999; Coelho, 2002; Botting, 2002) between the previous studies and the current study, similar performance differences based on task type were found. This suggests that although narrative tasks in the literature are not consistent, there is clearly a genre difference between retelling and production tasks, and ample evidence that these genres are eliciting the differences in performance.

However, another possible, more theoretical explanation for these genre differences is that children might be showing differences in competence at constructing good quality narratives. That is, the task of producing an original story and the task of

retelling one previously heard may be requiring the use of different cognitive skills. It is possible that retelling a previously told narrative is more of a story comprehension task than a construction task. In fact, Mandler (1984) makes this claim, continuously using retelling narrative tasks to demonstrate comprehension of a story. If the retelling task is related to comprehension, then it is possible that simply being able to comprehend the important elements of a story to improve scores on this task. Most likely, children develop the ability to comprehend what makes a story good before they are aware of how to construct a good quality fictional narrative. Possibly, children at five-years-old do not generalize their narrative comprehension knowledge to their narrative construction knowledge yet. They may even have two separate schemas for these types of knowledge. Therefore, when a child is completing a retelling task, their comprehension of what elements of the story were important would allow them to retell the narrative in a similar manner as the experimenter. However, when a child is completing a production narrative, their schema for constructing an original fictional narrative may not yet include some elements that would allow for a better quality narrative. For example, Trautman et al. (1999) have found that emotional or mental state references are not as common in novel fictional narratives. Alternatively, children do not seem to have a problem including mental state references in their retelling narratives. Therefore, five-year-olds may not yet include emotional state references into their narrative construction schema, but may be able to comprehend that these story grammar units are important to retelling a story. It is possible that the development of the different cognitive skills are required to complete these tasks, and therefore would result in retelling and produced stories that differ in quality.

One other interesting finding to note about the differing performances on narrative tasks is that receptive vocabulary scores are correlated with scores on some measures for the production narratives but not on measures of retelling. Future research should investigate the role of receptive vocabulary in both narrative tasks, as this might provide hints for distinguishing why there are differences between retelling and production scores.

Obviously, it is impossible for this study alone to specify whether the children are performing differently on the retelling and production tasks due to task difficulty or task skills requirements. Future research should investigate these differences further. Currently, most narrative studies use these tasks interchangeably. This is ill advised, as it is impossible to interpret scores on these measures if the cognitive domains that are being assessed are unknown. Particularly, this differentiation is important for the concrete understanding of the current study; what aspects of narrative knowledge is dialogic reading actually affecting? While Zevenbergen et al. (2003) found significant effects of a dialogic reading intervention on a retelling narrative task on measures of dialogue and mental state references, significance may have been found on more measures if the task had been a production task.

### *Limitations*

There are limitations to the current study. To begin with, the sample may not best represent the population it was meant to model. Despite the fact that most of the sample children were recruited from schools in low income areas, some of the children included in the study were from middle-income families. The criterion of entry to the intervention was attendance at a school in a low income area. While the frequency of low income

children allows us to still discuss this group in terms of language risks, a more homogenous low income sample would provide a clearer picture of intervention effects on this population. As well, group assignment resulted in both more children receiving the dialogic reading intervention, and higher pretest scores for the control group on dependent measures (although these pretest group differences were non-significant). If a larger sample of children had been included in the study, variability in groups may have been reduced, and groups would be more reflective of typically developing children.

Another limitation of the current study is effect size. The intervention's significant effect on narrative skills was only small to moderate, with effect sizes ranging from  $d = .28$  to  $.77$ . It is important to know that an intervention's effect is large enough to justify using this method to teach children narrative skills. While these effects clearly account for a portion of the differences between groups, larger effect sizes would be beneficial. Particularly, the effects the intervention has on narrative structure account for the least amount of group differences, where  $d = .38$  for the effect of the intervention on the story grammars for the production task and  $d = .28$  for the intervention's effect on story grammars of the retelling task. As structural skills are so important to the construction of oral narratives, it would be beneficial if future studies could increase these effect sizes. Tighter controls and less variability in groups might raise these low effect sizes.

Typically, one way to increase effect size would be to increase the length or frequency of sessions that might boast effect size. Sessions held twice a week for eight weeks may not be enough for children to fully internalize their new knowledge about narratives. However, closer analysis of Zevenbergen et al. found their effect size of

intervention effects on mental state references to be smaller ( $d = 0.48$ ) than the current study ( $d = 0.77$ ). Zevenbergen et al.'s effects were found after 30 weeks of intervention, with teachers conducting shared reading sessions three times a week and supplemented by parents dialogically reading at home. Given this higher frequency in administration, it stands to reason that increasing the length or frequency of the intervention would not provide more robust findings. Clearly, the shorter length of the current study is still long enough to produce a larger effect size than a 30 week intervention. This comparison indicates both that the effect size found is comparable to previous research, lending credit to the method of the current study, and that imposing more controls on other aspects of the study besides length might be the best avenue for increasing effect sizes.

Another limitation to the study is it possible that claims should not be made on the improvement of narrative knowledge itself, but on of oral narrative construction knowledge. That is, children may have gained knowledge on what components to include when constructing an oral narrative, but may have better knowledge of narratives than this production can demonstrate. Children from low income areas typically have delays in expressive language skills (Rebello, 2001). Because of this, they may have narrative knowledge that they are not able to oral produce during a narrative task. One might argue that using a narrative comprehension task may have been the best method to access underlying narrative skills of children from this at risk population. However, this study does still speak to the improvements in narrative knowledge that they express in daily conversations about events and storytelling. Future research would benefit from including both types of tasks in an intervention study with children from this population, to

determine if low income children do indeed gain narrative knowledge that they cannot express.

Finally, the most obvious limitation of the current study is that story tasks differed in length from pretest to posttest. As an unavoidable cost of using the Edmonton Norms Narrative Instrument, (Schneider et al., 2002), shorter stories (five pages and one complete episode in length) prompted constructed narratives on pretest and longer stories (fifteen pages and three complete episodes in length) prompted constructed narratives on posttest. The difference in story lengths prevents an analysis of narrative gains as a function of time, as comparability between pretest and posttest measures is compromised. As well, group differences found on posttest may only be discernable because the longer length of the story provides more opportunity for variability in scores, and failure to find group differences on pretest may be because the story is too short to properly discern the variability in qualities of narratives. Evidence for this is found in the failure to find task performance differences on pretest while many significant findings were found on posttest. If group differences existed on pretest narratives that remained undetected, then differences on posttest may be inflated. However, means favored the control group on pretest, which would have biased posttest results in the opposite direction. ANCOVAs were conducted to assess the impact of the intervention on all measures, in order to covary out pretest scores and any possible bias. This means that pretest scores were taken into consideration, despite the inability to perform pretest/posttest repeated measures ANOVAs. In fact, Stevens (2002) claims that using an ANCOVA to compare pretest and posttest means is actually a better method than a repeated measures ANOVA, as the  $F$  ratio is identical and the error term for this analysis is often smaller, making the

ANCOVA a more powerful analysis. Further, replications of some of the significant findings within the first episode of the posttest story relieve the concern that significant findings are simply a function of story length.

Despite the limitations of this narrative tool, using the ENNI as a basis for the tasks was necessary for the overall study design. Narrative assessment tools used in the literature are limited and heterogeneous. Many of the typical narrative instruments only use one story, one set of pictures, and one genre of task (retelling or production). In order to provide two types of narrative tasks, multiple stories were necessary for counterbalancing to ensure that the books themselves did not affect narrative construction differently. Furthermore, many intervention studies including Zevenbergen et al's (2003) selected a narrative test of story language that had only one story to prompt narrative construction and therefore used the same story at both pretest and posttest. This is a major experimental flaw, as using the same story to assess gains in narrative learning does not control for familiarization of the task and may bias results to demonstrate more change. Therefore, despite the limitations that arise when using the ENNI to assess narrative language for this intervention, the ability to use multiple, comparable storylines to prompt narratives outweighed these issues.

#### *Future Research*

Future studies should always be concerned with correcting the past mistakes of their colleagues. The next step in the investigation of dialogic reading's effect on narrative ability is clearly to increase sample size, impose tighter controls, a stricter low income criteria, and most importantly, a more suitable narrative task. However the current study has still found significant effects of dialogic reading on young children's

narrative quality, a finding that was only demonstrated in a limited way previously.

Therefore, while the next step in future research is to correct past mistakes, the overall future goal of the field should be to determine what it is about the nature of the dialogic reading interventions that would cause significant gains in narrative ability.

In order to investigate this theoretical question, future studies should manipulate the types of elaborative questions, responses and corrections that comprise the dialogic intervention. The interactive shared reading sessions as they were conducted in the current study were designed to be guided by spontaneous conversation, and often composed of natural dialogues that arose from the stories read aloud. Intervenors were encouraged to include all types of expansions of child's responses, but it was not a requirement. In fact, the emphasis in the training sessions was to create a natural conversation about the book, which in turn produced effects on narrative structure and anaphora. It is theorized that regular dialogic reading sessions emphasize story structure. It is possible, then, that manipulating the frequency of types of questions could potentially increase knowledge in differing narrative areas. For example, a study could create a *context condition* in which intervenors only ask questions and rephrase sentences in ways that emphasize proper decontextualization of references, a *structure condition*, wherein intervenors only ask questions and rephrase responses in ways that highlight proper structure of narratives, and a *regular dialogic reading condition*, wherein the sessions are conducted in the same way that they are illustrated in this study, to act as a comparison.

Differences in gains on narrative measures due to assignment to condition would allow for conclusions to be drawn as to which aspects of dialogic reading impact what

narrative measures. Due to the results of the current study, the hypothesis that eight weeks of regular group dialogic reading significantly impacts narrative construction ability in five-year old low-income children has been confirmed. The next step is to discover why.

### *Implications and Conclusions*

The importance of the current research is fourfold: first, this study confirmed Zevenbergen et al. ((2003) findings that conducting a group dialogic reading intervention with young children can significantly impact the narrative construction skills of young children. Claims can be made that the intervention directly caused gains in narrative construction skills, due to the significant differences between the intervention groups and the alternative treatment control group. Second, the narrative measures investigated within the study tapped into a larger scope of narrative knowledge than Zevenbergen et al. (2003). Although investigation into the impact of dialogic reading on narrative skills was pioneered by Zevenbergen et al., the current study investigated the effect of dialogic reading not only on mental state mentions but on the inclusion of story grammar units, length, variety of words, first mentions references, and variety of connectives, providing the field of research with knowledge of dialogic reading's effects on a more comprehensive list of narrative measures, and it's value as an intervention tool for children at risk of for poor language skills. If providing a dialogic reading intervention increases the structural and anaphoric scores of children, then the quality of the narratives is greatly improved, due to the importance of structure and characters references on the clarity of stories. The third contribution of the current study is that it adds to a growing body of research that suggests the traditional genres of production and narrative tasks so

often used interchangeably to assess a child's narrative construction ability can result in differing scores on narrative measures. If the tasks themselves cause differences in the oral narrative construction of the same child, all studies that equate the two tasks are problematic, and the cognitive skills required to complete these tasks are questioned.

Finally, and above all else, the significant results of the study were found in a sample of children selected from a school in a low-income area. Studies have found that many children from low-income families are behind their peers from higher income families on language skills when they enter kindergarten (Raz & Bryant, 1990; Whitehurst et al., 1999). This is true for narrative language skills. Children from low-income neighborhoods are the most in need of an intervention that will actually improve narrative abilities. Low income children often show deficits in narrative construction (Peterson, 1994), particularly in their ability to structure their narratives. Peterson (1994) found that children from low income homes provide narratives that are disorganized, lack chronological structure, and are hard to interpret. Furthermore, she found that lower income children were generally more unwilling or unable to complete narrative tasks. If these children are entering school with a lower ability to construct stories than the typical expectations of teachers, and are also resistant to these tasks, they are likely going to have difficulty meeting the linguistic demands of the classroom. Kindergarten tasks such as show and tell are reliant on these skills, and lower income children might find it difficult to match their peers. Improving a child's exposure to and frequency of story talk alone may not only improve the composition of their narratives, but may make them less resistant to narrative tasks.

As well as being an effective oral language intervention for high risk children, it is also an inexpensive oral language intervention. Since children from low-income families have been found to have relatively less access to home literacy (Feitelson & Goldstein, 1986; McCormick & Mason, 1986; Smith & Dixon, 1999), the benefit of this type of intervention becomes increasingly clear. Dialogic reading is relatively low in cost and effort. If administered in the method given in this study, teachers and daycare workers can institute group dialogic reading sessions in their programs. With little cost to a teacher and no cost to a busy, low income parent, children can be taught oral language skills and vocabulary in an effective and easy manner.

Overall, this study proves that conducting an elaborative interactive reading intervention can significantly improve the oral narrative skills of five-year-old children who may be at risk for low narrative skills. Children begin developing oral narrative skills prior to formal instruction, and they should be able to construct a chronological, cohesive story that is contextualized and descriptive upon school entry. Those five-year-old children who are at risk for low story telling skills begin kindergarten already behind peers on an essential language skill. Not only are narrative skills correlated with reading comprehension and later school success, but they are important reading skills that allow children to communicate about events removed from space and time with a naive audience. Therefore, the discovery of an effective no cost method to improve low risk children's narrative knowledge that can be administered in any storybook context is invaluable.

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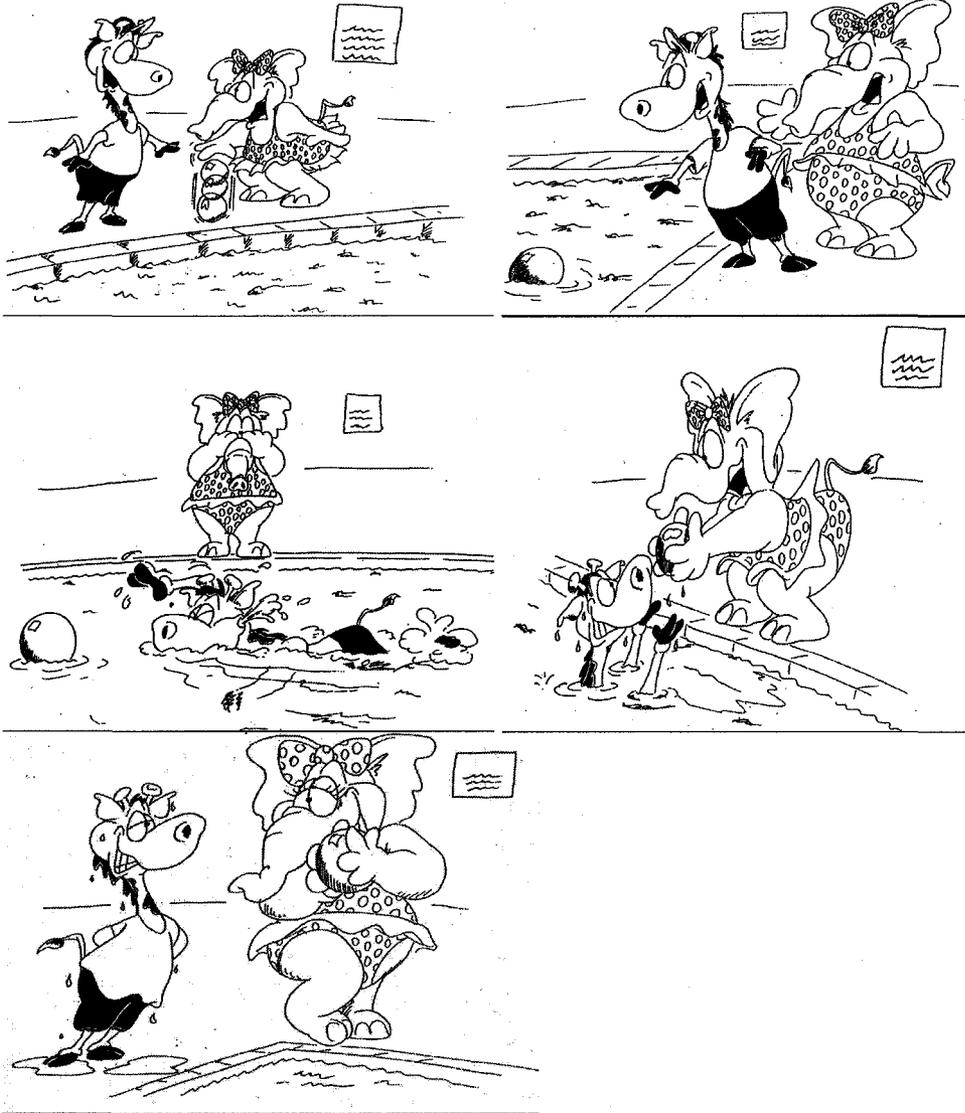
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Appendix A  
Pictures Depicting the Four Stories of the Edmonton Narrative Norms Instrument

1. The Short Pool Story<sup>1</sup>



<sup>1</sup> All pictures are shown to children on separate pages during the narrative tasks. The pictures are presented here on the same page for brevity.

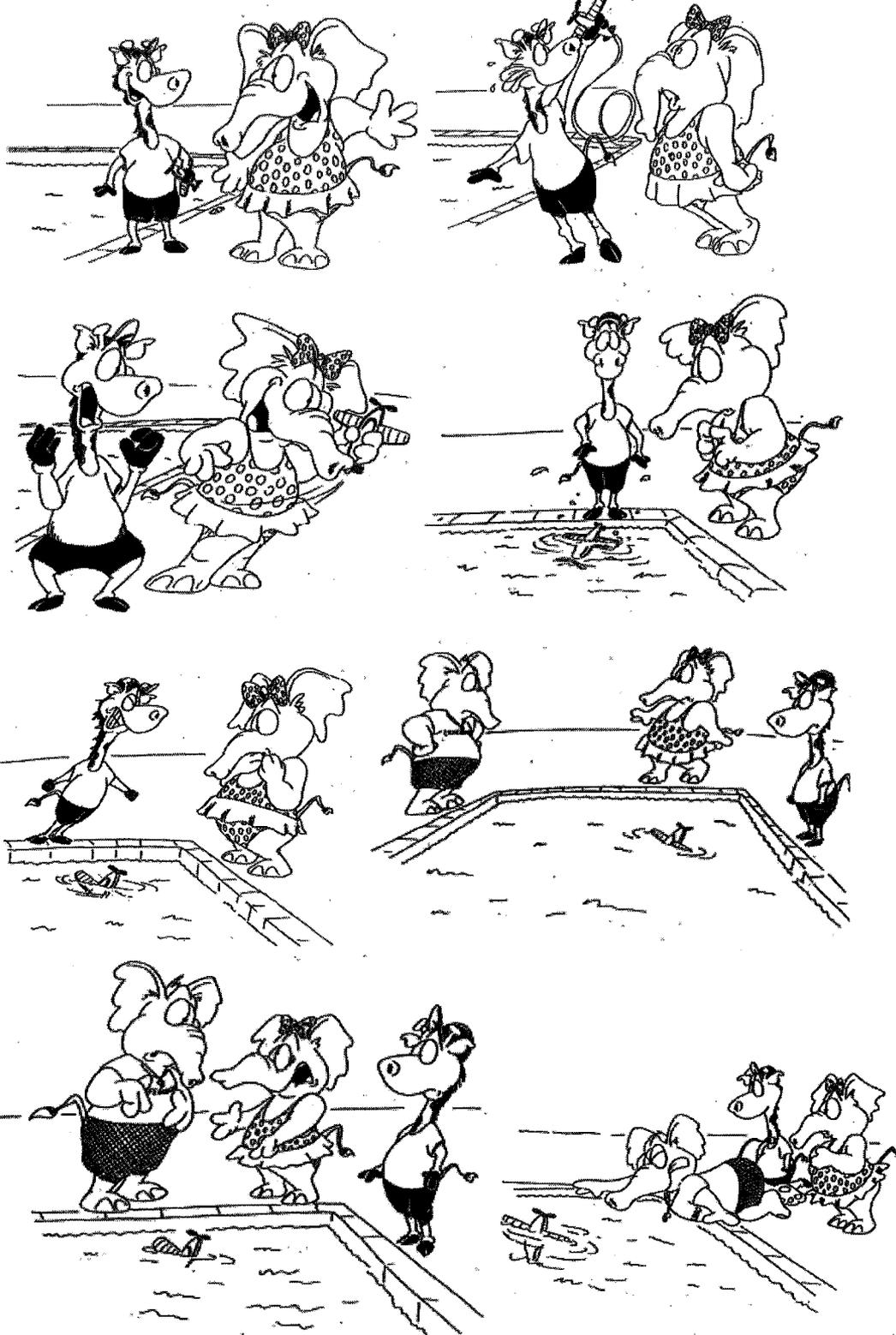
2. The Short Park Story<sup>2</sup>



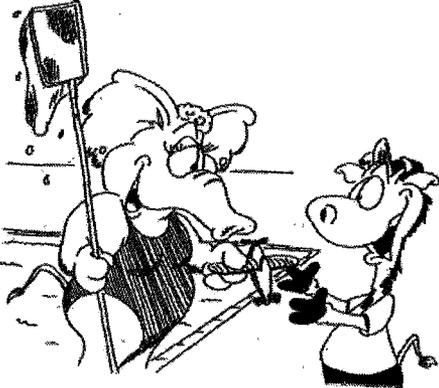
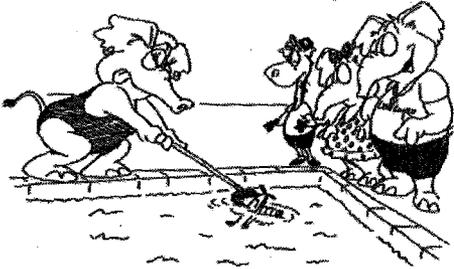
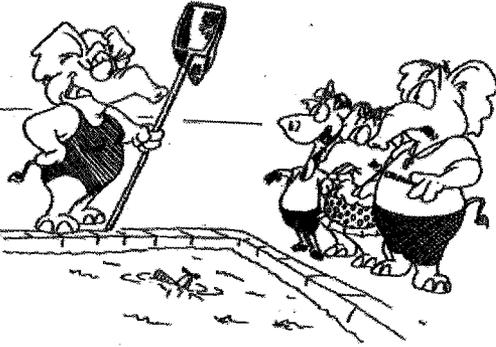
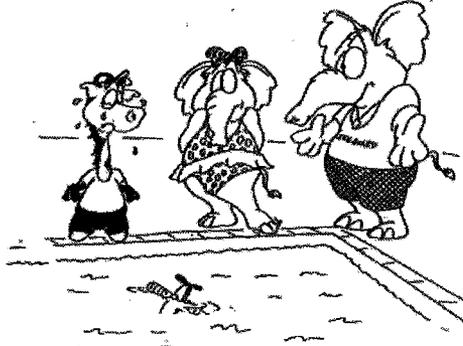
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<sup>2</sup> All pictures are shown to children on separate pages during the narrative tasks. The pictures are presented here on the same page for brevity.

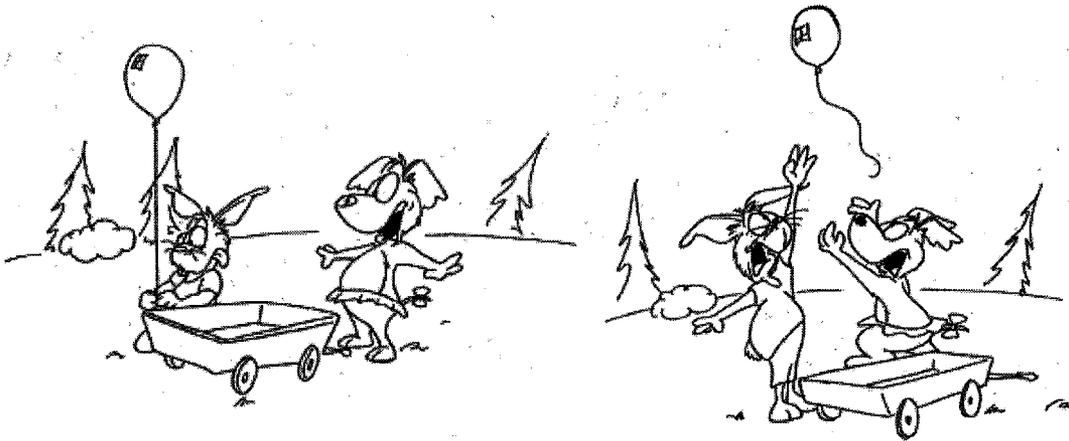
3. The Long Pool Story<sup>3</sup>



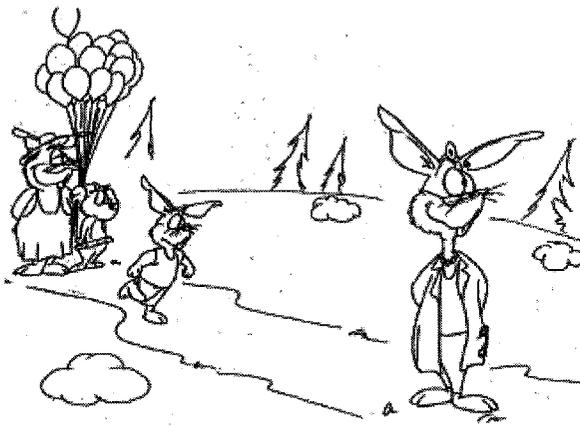
<sup>3</sup> All pictures are shown to children on separate pages during the narrative tasks. The pictures are presented here on three pages for brevity.

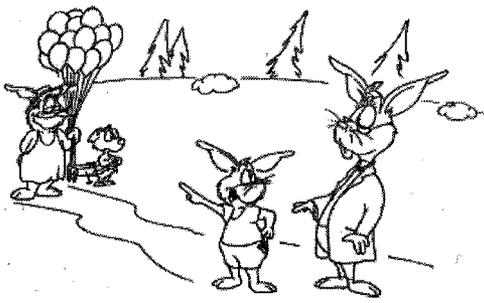


4. The Long Park Story<sup>4</sup>



<sup>4</sup> All pictures are shown to children on separate pages during the narrative tasks. The pictures are presented here on three pages for brevity.





Appendix B  
Retelling Texts Written for Each of the Four Stories

1. Pretest Retelling Text For the Short Pool Story

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. [turn page<sup>5</sup>]

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. [turn page]

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

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

"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! [turn page]

THE END

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<sup>5</sup> Story texts for the retelling task were pasted on the back of each book. Stories correspond directly with the pictures presented. Experimenters were told to turn the pages when indicated, so that they did not have to look at the pictures while reading.

## 2. Pretest Retelling Text for the Short Park Story

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!” [turn page<sup>6</sup>]

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. [turn page]

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. [turn page]

“Oh no!” exclaimed Robbie, “what have I done?”  
Because Robbie was as not careful, he ruined Darla’s sand castle! [turn page]

“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

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<sup>6</sup> Story texts for the retelling task were pasted on the back of each book. Stories correspond directly with the pictures presented. Experimenters were told to turn the pages when indicated, so that they did not have to look at the pictures while reading.

### 3. Posttest Retelling Text for the Long Pool Story

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!” [turn page<sup>7</sup>]

Excitedly, Gerry showed Erica how he can make the play 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. [turn page]

Erica wanted to play with the toy so much that she decided to take it from Gerry. “Hey!” said Gerry, “Be careful!” [turn page]

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

“Now look what you did!” said Gerry. He was angry that Erica dropped his toy into the pool. “Opps,” 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. [turn page]

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. [turn page]

“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. [turn page]

Lenny the lifeguard knelt tried to reach the plane but he couldn’t because his arm was too short and the plane was too far away. [turn page]

“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. [turn page]

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!” [turn page]

Laura the lifeguard used the net to reach into the pool to get the airplane. [turn page]

Laura gave Gerry back his airplane. “Here you go, Gerry.”

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<sup>7</sup> Story texts for the retelling task were pasted on the back of each book. Stories correspond directly with the pictures presented. Experimenters were told to turn the pages when indicated, so that they did not have to look at the pictures while reading.

Gerry thanked Laura for getting back his airplane. [turn page]

As soon as he has 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.

#### 4. Posttest Retelling Text for the Long Park Story

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!” [turn page<sup>8</sup>]

“Wow!” said Robbie. Robbie thought Darla’s bright red balloon was really fun to look at, and would be even MORE fun to hold! [turn page]

Robbie decided to untie the balloon so he can hold it. Excitedly, Robbie started untying the string from Darla’s wagon. Darla said, “Hold on tight! Don’t let it fly away!” [turn page]

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

“Now look what you did!” said Darla. She was angry that Robbie let her balloon fly away. “Opps,” Said Robbie, embarrassed. He didn’t mean to let go of Darla’s balloon. [turn page]

Just then, Robbie saw Bernie the Balloonman. Robbie thought he could apologize to Darla by buying her a brand new balloon. [turn page]

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.” [turn page]

“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.” [turn page]

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

Bernie wasn’t happy either. He wanted to help Robbie buy Darla a new balloon, but he couldn’t break the rules. [turn page]

Suddenly, Robbie got a smart idea. He planned to ask his mother for the money to buy Darla a new balloon! [turn page]

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. [turn page]

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<sup>8</sup> Story texts for the retelling task were pasted on the back of each book. Stories correspond directly with the pictures presented. Experimenters were told to turn the pages when indicated, so that they did not have to look at the pictures while reading.

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!" [turn page]

TURN THE PAGE

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!

THE END

Appendix C  
Books Selected for Intervention

- Arnold, T. (1987). *No Jumping on the Bed!* New York, New York: Puffin Books.
- Bogan, P. (2000). *Spike in the City*. New York, New York: Puffin Books.
- Freeman, D. (1978). *A Pocket For Corduroy*. New York, New York: Puffin Books.
- Kellogg, S. (1971). *Can I Keep Him?* New York, New York: Puffin Books.
- Kimmel, E. A. (1990). *I Took My Frog to the Library*. New York, New York: Puffin Books.
- Keats, E. J. (1964). *Whistle for Willie*. New York, New York: Puffin Books.
- McCloskey, R. (1948). *Blueberries for Sal*. New York, New York: Puffin Books.
- Wells, R. (1997) *Bunny Cakes*. New York, New York: Puffin Books.

Appendix D  
 Example Scoring Sheet of Book Vocabulary Measure

ID #: _____		Date: _____	
Word	Correct	Incorrect	Synonym
GROCER			
FAWN			
CARTON			
PELICAN			
BERET			
PARTRIDGE			
TELESCOPE			
EASEL			
SATCHEL			
FEDORA			
BOULDER			
MAESTRO			
SPATULA			
SERPENT			
CABOOSE			
HEN			

Appendix E  
 Experimenter Created Story Grammar Scoring Sheets for the Park Stories

1. Created Story Grammar Scoring Sheet for the Long Park Story

SG Unit	Acceptable	Score
Beginning Statement	Once upon a time (Score as 2)/One day (Score as 2)/There once was a girl/boy named (Score as 1)/(name/he/she) really liked to go to the park (Score as 1)/(Any generalized beg. statement Score as 1)	0 1 2 3
Character 1	Rabbit/male/boy (or any type of animal)/[not acceptable: pronoun]	0 1
Character 2	Dog/female/girl (or any type of animal)/[not pronoun]	0 1
Setting	Sandbox/Playing in the sandbox/have shovels/want to build castle	0 1
Initiating Event	Begin to build castle	0 2
Internal Response	Dog is happy/having fun/Rabbit is happy/having/excited/fun/determined/mischievous	0 1
Internal Plan	Rabbit decides/plans to wreck the castle/help build the castle	0 1
Attempt	Rabbit pours sand on the castle in order to wreck or help [not: Rabbit pours sand on the castle without a goal]	0 2
Outcome	The castle is destroyed	0 2
Reaction of Rabbit	Rabbit feels guilty/Rabbit is sad /Rabbit is sorry/feels bad/Rabbit says, "I'm sorry"/Rabbit is surprised	0 1
Reaction of Dog	Dog is sad/upset/Dog is crying/Dog is mad at Rabbit	0 1
Reaction of both or unknown	"They" are sad/upset/[code only as a replacement for Reaction of Character 1 or 2; there should not be more than 2 reactions total]	0 1
Closing Statement	The End (Score as 2)/And they lived happily ever after (Score as 2)/And they were careful from now on (Score as 1)/(Any generalized closing statement score as 1)	0 1 2 3
Total Raw Score:		
Standard Score:		

1. Story Grammar Unit Scoring Sheet for the Long Park Story

SG Unit	Acceptable option	Score
Beginning Statement	Once upon a time (Score as 2)/One day (Score as 2)/There once was a girl/boy named... (Score as 1)/(name/he/she) really liked to go to the park.../(Score as 1)/(Any generalized, overarching statement Score as 1)	0 1 2 3
Character 1	Bunny/rabbit/Robbie/boy/any name or animal (NOT pronoun)	0 1
Character 2	Dog/puppy/Darla/girl/ any name or animal (NOT pronoun)	0 1
Setting	At the park/on a walk/are playing/one asks the other to play/has a wagon with a balloon	0 1
Initiating Event	C2 is showing C1 her balloon/C2 is talking about how cool or interesting her balloon is/C1 sees balloon or is interested in it	0 2
Internal Response	C1 wants the balloon/C1 is interested in the balloon in response to C2 showing it off/C1 wants to hold the balloon or play with it	0 1
Internal Plan	C1 decides to untie the balloon or hold it	0 1
Attempt	C1 takes the balloon or unties it/ C1 tries to hold the balloon	0 2
Outcome	The balloon floats away	0 2
Reaction of C1	C1 feels sad/embarrassed/upset/stares at balloon/says opps or oh no	0 1
Reaction of C2	C2 feels angry/upset/yells/stares at the balloon/says oh no or what have you done/expresses loss of the balloon	0 1
Reaction of both	Both are sad/upset	0 1
Character 3	Other rabbit/Bernie/man/balloon (vender/seller/man)/father/brother (NOT pronoun)	0 1
Initiating Event	C3 is spotted/C1 sees him/C3 asks what happened/C3 sees balloon floating away/C3 advertises that he is selling balloons	0 2
Internal Response	C1 hopes C3 can help/C1 wants him to help/has an idea	0 1
Internal Plan	C1 decides to ask C3 for help/C1 decides to buy a balloon for Darla (has to have goal)	0 1

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Attempt	C4 gives money to vender/C4 asks for one or two balloons	0	2	
Outcome	C3 gives them balloons/C1 and C2 both gets balloons	0	2	
Reaction of C1	Happy/excited/amazed/plays with balloon/says thank you/smiling	0	1	
Reaction of C2	Happy/excited/amazed/plays with balloon/says thank you/smiling	0	1	
Reaction of C4	Happy/relieved/smiling	0	1	
Reaction of both	All are happy/smiling (only 3 reactions overall)	0	1	
Closing Statement	The End (Score as 2)/And they lived happily ever after (Score as 2)/And they were careful from now on (Score as 1)/(Any generalized moral or closing statement score as 1)	0	1	2
		3		
		Total Score:		
		Standard Score:		

---

## Appendix F

### Guidelines for Scoring Beginning and Closing Statements

Beginning and closing statements are generalized, often cliché statements that are traditionally used to signify to a listener the start or end of a story (Stein & Glenn, 1979). The inclusion of these statements within a narrative indicate a child's knowledge that stories have specific overarching themes or reasons for being told, whether it be to present a story for entertainment or to teach a moral or a lesson. Therefore, scoring the beginning or closing statements of a story analyze for just one more aspect of story grammar knowledge.

#### *Beginning Statements*

In order for a statement to be classified as a beginning statement, it has to fit the criteria of being either a *formal beginning statement* or an *informal beginning statement*.

*Formal beginning statements.* Formal beginning statements are traditional phrases that are used often in storybooks and other story telling means to signify the beginning of a story. In order to include them in a narrative, the children would have had to encounter these phrases at one point in their lifetime and have associated them with the beginning of a story. Some examples are *Once upon a time*, *A long time ago*, and *One day*.

*Informal beginning statements.* Informal beginning statements are generalized statements that are outside of the time and action of the story, and usually give some general information about the characters or the setting. Some examples of informal opening statements are *There once was a girl named Darla who liked walking in the park*, *Darla and Robbie had been best friends since they were born*, and *Darla went for a walk every day in the park*.

When scoring the children's narratives in the current study, formal beginning statements were scored as 2 and informal beginning statements were scored as 1. Because these statements are not mutually exclusive, a child could score a 3 overall for beginning statements.

#### *Closing Statements*

In order for a statement to be classified as a closing statement, it has to fit the criteria of *formal closing statements* and *informal closing statement*.

*Formal closing statements.* Formal closing statements are traditional phrases that are used often in storybooks and other story telling means to signify the ending of a story. In order to include them in a narrative, the children would have had to encounter these phrases at one point in their lifetime and have associated them with the ending of a story. Some examples are *The end* and *They lived happily ever after*.

*Informal closing statements.* Informal closing statements are generalized statements outside of the time and action of the story that usually indicate some kind of moral or lesson learned by the characters or reference actions that would occur after the

story events. Some examples of informal closing statements are *And whenever they played with the airplane again they were very careful* and *They were still friends and continued to play everyday.*

When scoring the children's narratives in the current study, formal closing statements were scored as 2 and informal closing statements were scored as 1. Because these statements are not mutually exclusive, a child could score a 3 overall for closing statements.

Appendix G  
 Descriptive Statistics for Control Variables as a Function of Group

Control	Intervention		Control	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age at Posttest <sup>1</sup>	69.19	3.43	67.68	3.94
Family Income <sup>2</sup>	40 000 – 60 000	N/A	40 000 – 60 000	N/A
Attendance <sup>3</sup>	14.1	1.62	15.11	.81
Clinical Notes <sup>4</sup>	0	N/A	0	N/A
Disrupted Sessions <sup>5</sup>	1.38	2.46	1.74	2.70

<sup>1</sup>Age reported in months

<sup>2</sup>The value presented of in the median income level of each group. Parents were asked to select an income range, with the lowest possible selected beginning at 0 – 10 000 dollars annually, and highest being more than 80 000 a year. However, the mode of the sample found that most parents of participants were making 0 – 10 000 dollars annually.

<sup>3</sup>Attendance calculated from the number of sessions that a child was present.

<sup>4</sup>The value reported here is the mode. Clinical notes rated children propensity toward behavioural problems that may cause disruptions in sessions, were 0 = no issues, 1 = attentional problems, 2 = uncooperative 3 = needed constant reprimanding, 4 = poor behavior led to missed sessions, 5 = needed more attention than other, 6 = multiple issues (more than one behavioral problem).

<sup>5</sup>Disrupted sessions was calculated as the number of session that a child disrupted due to behavioral issues.

Discussing Stories  
Appendix H  
ANCOVA Results Between Groups for All Dependent Measures on Episode One of Production and Retelling Narratives

Variables	Production		Retelling	
	M of Intervention	M of Control	M of Intervention	M of Control
Structure				
Story Grammar Unit Total Raw Scores <sup>1</sup>	24.33	21.47	F(1, 36) = 9.93*	F(1, 37) = 3.83*
Mental State References <sup>2</sup>	.52	.42	F(1, 37) = .16	F(1, 37) = .077
Language Complexity				
Number of words	77.72	79.81	F(1, 37) = 23	F(1, 37) = .721
Type-token ratio	.51	.51	F(1, 37) < 1	F(1, 37) = .004
Mean length of utterance <sup>3</sup>	6.63	5.69	F(1, 35) = 2.74	F(1, 37) = .050
Cohesion				
Number of Different Connectives <sup>4</sup>	2.27	2.56	F(1, 36) = .043	F(1, 37) = .346
Context				
Anaphora <sup>5</sup>	7.50	6.50	F(1, 36) = .236	F(1, 37) = .088

\* Significance at  $p = .05$

<sup>1</sup>Maximum score = 14

<sup>2</sup>Maximum score = 2

<sup>3</sup>While all of the ANCOVAs included the pretest scores as a covariate, these analyses also included pretest PPVT scores.